Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

July 2025

Snowtown BESS

DRAFT Environmental Impact Report

Question today
Imagine tomorrow
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Snowtown BESS
DRAFT Environmental Impact Report

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

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WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Glossary

Annual Exceedance Probability	The likelihood of a flood event occurring in any given year.
Associated Infrastructure Licence	A licence under the *Hydrogen and Renewable Energy Act 2023* that authorises the licensee to construct, install, operate, maintain and decommission infrastructure associated with authorised operations on land.
Construction Environmental Management Plan	A document that describes how activities undertaken during the construction phase of the Project will be managed to avoid or mitigate environmental or nuisance impacts, and how those environmental management requirements will be implemented.
dB (A)	Units of the A-weighted sound level.
Disturbance footprint	The footprint of works during the construction phase of the Project.
Environmental Impact Report	A report that assesses the potential environmental impact of a proposed development in accordance with the *Hydrogen and Renewable Energy Act 2023.*
Fast Frequency Response	Capacity to rapidly increase or decrease energy output.
L_{eq}	Equivalent Noise Level – Energy averaged noise level over the measurement time.
Name plate capacity	The maximum rated energy storage and discharge.
Noise source	Premises or a place at which an activity is undertaken, or a machine or device is operated, resulting in the emission of noise.
Operational Management Plan	A plan to developed to manage the potential environmental impacts from a licenced activity in accordance with the *Hydrogen and Renewable Energy Act 2023.*
The Project	The Snowtown BESS project
Regulated activity	A 'regulated activity' as defined by the *Hydrogen and Renewable Energy Act 2023*.
Statement of Environmental Objectives	A document prepared in accordance with the *Hydrogen and Renewable Energy Act 2023* that outlines the environmental objectives and measurable targets for environmental protection for the regulated activity.
Viewpoint	A position providing a view of the proposed Project from where an assessment is made to consider landscape character and the likely potential of visual impacts which may result as a consequence of the development.
Zone of Theoretical Visual Influence	The defined area within which modification to the contextual landscape as a result of the proposed development could be discernible to the naked eye. A nominated radius (e.g., 5 km, 10 km, 15 km etc) from the centre of the proposed Project Area is adopted as the likely furthest extent of the likely Zone of Theoretical Visual Influence.

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Abbreviations

AGD-AAR	Attorney-General's Department – Aboriginal Affairs and Reconciliation
AH Act	*Aboriginal Heritage Act 1988*
AIL	Associated Infrastructure Licence
BESS	Battery Energy Storage System
BYDA	Before You Dig Australia
CCTV	Closed-circuit television
CEMP	Construction Environmental Management Plan
CFA Guidelines	Country Fire Authority of Victoria *Design Guidelines and Model requirements for Renewable Energy Facilities*
CFS	Country Fire Service
CT	Certificate of Title
dB(A)	'A' weighted decibel
DEM	Department for Energy and Mining
DHUD	Department for Housing and Urban Development
DIT	Department for Infrastructure and Transport
DO	Desired Outcome
DRMP	Decommissioning and Rehabilitation Management Plan
EIR	Environmental Impact Report
EP Act	*Environment Protection Act 1993*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPA	Environment Protection Authority
EPO	Environmental protection order
FFR	Fast Frequency Response
GW	Gigawatts
HCVs	Heavy commercial vehicles
HRE Act	*Hydrogen and Renewable Energy Act 2023*
HRE Regulations	*Hydrogen and Renewable Energy Regulations 2024*
IHS	Integrated Heritage Services
km	Kilometres
kV	Kilovolt

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LCVIA	Landscape Character and Visual Impact Assessment
L_{eq}	Equivalent continuous sound pressure level
LGA	Local Government Area
LSA Act	*Landscape South Australia Act 2019*
m	Metre
mm	Millimetre
mbgl	Metres below ground level
MW	Megawatt
MWh	Megawatt-hour
NNAC	Narungga Nation Aboriginal Corporation
Noise Policy	*Environmental Protection (Commercial and Industrial Noise) Policy 2023*
NPA Act	*National Parks and Wildlife Act 1972*
NV Act	*Native Vegetation Act 1991*
NVC	Native Vegetation Council
OMP	Operational Management Plan
OTR	Office of the Technical Regulator
P&D Code	Planning and Design Code
PBTL	Pygmy Blue-tongue Lizard
PCA	Potentially contaminating activity
PDI Act	*Planning, Development and Infrastructure Act 2016*
PHA	Preliminary Hazard Analysis
PM	Particulate matter
PO	Performance Outcome
Project	The Snowtown BESS project
RDAYMN	Regional Development Australia Yorke and Mid North
SARIG	South Australian Resource Information Gateway
SCA	Social and Community Assessment
SEDMP	Soil Erosion and Drainage Management Plan
SNSF	Snowtown North Solar Farm
SEB	Significant Environmental Benefit
SEO	Statement of Environmental Objectives
SIA Guideline	Social Impact Assessment Guideline

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SPP	State Planning Policy
SR	Sensitive Receptor (visual amenity)
SVOCs	Semi volatile organic compounds
TEC	Threatened Ecological Community
TMP	Traffic management Plan
TIA	Traffic Impact Assessment
Tilt Renewables	Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust
TMP	Traffic Management Plan
TSP	Total Suspended Particulates
VA	Vegetation Association
VOC	Volatile organic compounds
WHS Act	*Work Health and Safety Act 2012*
WSP	WSP Australia Pty Limited
WTG	Wind turbine generator
ZTVI	Zone of Theoretical Visual Influence

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Executive summary

The Snowtown BESS

Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust is proposing to develop the Snowtown BESS project (the Project) in Wokurna, approximately 10 kilometres (km) northwest of Snowtown in South Australia. The proposed Project comprises a Battery Energy Storage System (BESS) with a generating capacity of 100 megawatts (MW) with up to 4-hour duration (MWh).

Applicant

The Applicant for the Snowtown BESS is Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables).

Project benefits

The Project is expected to have an operational life of 20 years, during which time it will operate to support the South Australian energy system by providing up to 100 MW/400 MWh of energy storage and discharge capacity as well as Fast Frequency Response (FFR) at a rate of at least 150 milliseconds. Battery storage of this nature plays an important role in South Australia's renewable energy dominant system; with the FFR provided by these systems being able to act as an alternative to inertia, which cannot be provided by a wind farm alone. The provision of FFR through development of the Project will help to support the stability and security of the State's energy system and will support the South Australian Government's target to achieve 100% renewable energy by 2027.

Tilt Renewables has also committed to a Benefit Sharing Plan of $60,000 (+CPI) per annum for the operational life of the BESS. The plan will focus on education and training, social impact, energy and environmental projects in the Project region. Tilt Renewables will seek to co-design the plan with the Wakefield Regional Council, Narungga Nation Aboriginal Corporation and local community groups such as the Snowtown Progress Association.

Approval requirements

An energy storage system with a name plate capacity of greater than 5 MW that is to be connected to a transmission or distribution network within South Australian land or coastal waters is a prescribed as an associated infrastructure activity under Regulation 3(2)(b) of the *Hydrogen and Renewable Energy Regulation 2024* (HRE Regulations) and is a *regulated activity* under the *Hydrogen and Renewable Energy Act 2023* (HRE Act). Under the HRE Act, a person must not undertake a regulated activity unless the activity is authorised, or exempted from authorisation, under the HRE Act. As such, the Project is seeking an Associated Infrastructure Licence (AIL) under Section 23 of the HRE Act.

Under Section 61 of the HRE Act, an Environmental Impact Report (EIR) must be developed in respect of a proposed authorised activity. Regulation 31(2) of the HRE Regulations prescribes information required in the EIR.

Section 62 of the HRE Act, also prescribes that a Statement of Environmental Objectives (SEO) must be prepared prior to the granting of AIL for a regulated activity. The Project SEO has been provided to the Department for Energy and Mining (DEM) as a separate report.

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Project Area

The Project will be located on an approximate 13-hectare site (the Project Area) located directly west of the existing Snowtown Substation; at the junction of Wokurna Road and Hewitt Road, Wokurna.

The Project Area has two road frontages; Wokurna Road along the northeastern boundary and Hewitt Road along the southern boundary. The primary access point to the Project Area will be created off Wokurna Road and will be used to support the construction phase as well as the operational phase of the Project. Hewitt Road will be used as emergency and secondary access to the facility.

Land within the Project Area has been historically cleared for agricultural land uses, currently hosting a cereal crop and contains no native vegetation, although some degraded native grasses existing in the road reserves directly adjacent to the Project Area.

The Project Area is situated within the traditional lands of the Narungga Peoples. The Project Area is located entirely on freehold land and Native Title has been determined not to exist across the area.

Project description

The Project proposes both permanent and temporary infrastructure.

Permanent site infrastructure will comprise a BESS with capacity of 100 MW with up to 4-hour duration, hardstand areas and internal roads, as well as ancillary infrastructure including onsite buildings.

Temporary site infrastructure will include construction compound, equipment laydown areas and fuelling stations.

The Project also includes a proposed grid connection via an underground cable to the existing Snowtown Substation located directly east of the proposed BESS site; developed as part of the Snowtown I Wind Farm.

Construction, operation, and decommissioning

Construction of the Project is planned to commence in 2027 and is expected to take approximately 14 months; concluding in 2028. The selected contractor(s) will be encouraged to source workers from the local region and to provide opportunities for local businesses, where practicable.

The Project is expected to have an operational lifespan of approximately 20 years (unless extended subject to separate approval). At the end of the Project lifespan, infrastructure will be decommissioned, dismantled and removed from site. The Environment Protection Authority (EPA) waste management hierarchy will be applied, including reuse or recycling of waste materials where practicable.

Environmental assessment and technical studies

Ecology (fauna and flora)

Land within the Project Area has been cleared for agricultural activities (cereal cropping). A vegetation survey undertaken for the Project identified two native vegetation associations (VAs) in the road reserves directly adjacent to the Project Area. These were:

- VA 1: *Austrostipa scabra* grassland with exotic grasses and herbs. This VA runs along most of the road reserve along Hewitt Road, as well as a small patch toward the northeast end of the boundary on Wokurna Road.
- VA 2: *Acacia pycnantha* over exotic herbs and grasses. This exists in a small patch in the road reserve off Hewitt Road, just south of the Snowtown Substation

Both VAs were identified to have a high incursion of weeds.

The Project will require up to 0.0247 ha of native vegetation clearance within VA 1 to establish access to the Project Area. Approval for this clearance will be sought under the *Native Vegetation Act 1991*.

Proposed native vegetation clearance is not expected to impact any State or Commonwealth threatened flora or fauna species.

Surface water

A Desktop Hydrology Assessment was undertaken for the Project to assess the hydrology and flood conditions of the Project Area and potential risk to the indicative Project footprint. The assessment identified that the Project Area is located on the western side of a hillside, within an approximate 1 km^2 catchment and is intersected by two ephemeral drainage lines; one of which intersects the centre of the Project Area in proximity to the indicative Project footprint, and the other being located towards the southern extent of the Project Area.

The assessment identified that the 1% Annual Exceedance Probability design discharge for the catchment upstream of the indicative Project footprint is approximately 11 cubic metres per second and recommended that detailed hydrologic and hydraulic modelling be undertaken to define the flood extent, depths and velocities for flow paths intersecting the Project Area, and to inform require design flood levels and drainage works. This modelling will be undertaken during the detailed design phase.

Soil and geology

A preliminary geotechnical assessment was undertaken for the Project with the aim of providing preliminary advice relating to the design of foundations required to support the BESS, as well as pavements and bulk earthworks.

Desktop searches indicated that the Project Area is likely to be underlain by high angle and low angle Quaternary alluvial/fluvial sediments.

The assessment included a review of previous geotechnical investigations undertaken across the Project Area, and identified the presence of expansive clays. The assessment identified California Bearing Ratio values for pavement design as low as 2%, which may impact on pavement design. The soils in the Project Area may be collapsing and expansive and the soil characteristics should be confirmed through additional testing. Furthermore, the design of concrete and steel structures should consider potential for mild aggressivity of the soil to steel.

The assessment concluded that it is generally expected that near-surface materials should be readily excavatable by conventional earthmoving equipment, however recommended consideration of the potential for encountering rock or Kunkar capping at shallower depths.

Site contamination

A search of relevant EPA databases, including the EPA Site Contamination Index and Public Register, was undertaken and identified there are no records of site contamination within the Project Area. The nearest EPA record of site contamination is approximately 20 km away. Furthermore, the nearest EPA licenced facility is a petrol station located over 9 km away in Snowtown. The review did not identify an elevated risk of site contamination being present within the Project Area, however recommended that additional preliminary site investigations be undertaken prior to construction to determine whether a potential contaminating activity has occurred within the area. Furthermore, the contamination status of material should be assessed where required as part of spoil management procedures during construction.

Aboriginal cultural heritage

The Project Area is within Narungga traditional lands; and within the Narungga Nation Native Title Claim; although the Project is on freehold land where Native Title has been determined not to exist.

A search of registered sites was lodged via the Attorney-General's Department – Aboriginal Affairs and Reconciliation and advised that there are no records of Aboriginal heritage sites, objects or remains within the Project Area.

Tilt Renewables is currently engaging with the Narungga Nation Aboriginal Corporation and cultural heritage surveys have been undertaken across the Project Area with Traditional Owner involvement. The aim of the cultural heritage surveys was to obtain a better understanding of cultural heritage values and to identify any areas within the Project Area that present a high risk of damage to Aboriginal heritage sites or objects, and to allow for the design to be micro-sited, if required, to reduce risks to Aboriginal cultural heritage.

Noise assessment

An Environmental Noise Assessment has been undertaken for the Project to review compliance with the noise goals established in the *Environment Protection (Commercial & Industrial Noise) Policy 2023* (Noise Policy). The assessment considered a worst-case-scenario noise model, which considered the noisiest BESS model under consideration and modelled units located at the closest part of the site boundary to the nearest sensitive receiver, which is along the northwestern boundary and is nearest to an involved stakeholder.

The assessment concluded that under a worst-case scenario, predicted noise levels from operation of the Project will be compliant with the goal noise levels at nearby sensitive receivers; with the greatest predicted noise levels expected not to exceed 46 dB(A), which is below the criteria of 50 dB (A). As such, the Project is expected to be compliant with the Noise Policy.

Traffic impact assessment

A Traffic Impact Assessment (TIA) has been undertaken to assess the traffic demands and impacts of the Project.

The Project Area has two road frontages; Wokurna Road along the northeastern boundary and Hewitt Road along the southern boundary. The primary access point to the Project Area will be created off Wokurna Road and will be used to support the construction phase as well as the operational phase of the Project. Hewitt Road will be used as emergency and secondary access to the facility.

It is expected that construction traffic will predominantly access the Project Area via August Highway (a State Maintained Road and gazetted freight route) and Wokurna Road (east) (a local, unsealed road), with the exception of concrete supply which may access the Project Area from Upper Yorke Road and Wokurna Road (west).

The TIA concluded that the proposed access routes were generally acceptable for the anticipated volume of construction traffic and that construction traffic impacts can likely be managed through an appropriate Traffic Management Plan and regular monitoring and maintenance of unsealed roads and intersections where required.

The Project is not expected to generate significant volumes of traffic during operation, and as such, no significant impacts to the road network are anticipated.

Visual impact assessment

A Landscape Character and Visual Impact Assessment (LCVIA) was undertaken to consider the potential visual impacts of the Project, including cumulative impacts taking into account existing and proposed developments in the area.

The LCVIA considered that the visual impacts from the Project could potentially be experienced within a 2 km radius Zone of Theoretical Visual Influence (ZTVI) and recommended that within this ZTVI, the Project would be indiscernible or inconspicuous within the landscape when viewed from sensitive receivers. Furthermore, it was concluded that the locality is one characterised through the presence of highly visible renewable energy infrastructure and more utilitarian services infrastructure, and as such, the Project may be seen as a complementary and additional visual feature of the landscape.

Air quality assessment

An air quality assessment was undertaken for the Project, which considered the potential dust-related air quality impacts from the construction and operation of the Project.

Construction activities that have the potential to impact air quality include earthworks, stockpiles and wheel-generated dust from vehicles travelling on unsealed access tracks. With the implementation of appropriate mitigation measures, air quality impacts during construction of the Project are considered to be manageable.

Given the nature of the Project, significant ongoing operational air quality impacts are not expected, and would be limited mostly to airborne dust due to vehicle movement on unsealed access tracks.

BESS hazard and risk assessment

Preliminary Hazard Analysis (PHA) was undertaken for the Project. The PHA outlined potential design and operational risks of the Project and recommends mitigation measures to be considered during the Project's detailed design. The PHA considered risks presented by electrical hazards, thermal runaway, bushfire, flooding, operational noise emissions, seismic events, pollutant release, lightning strikes, vehicular impact, physical security breaches, and cybersecurity breaches.

The PHA identified that inadvertent electric shock was assigned a high risk; however, with the recommended mitigation measures in place this risk could be reduced to moderate. The assessment also identified that thermal runaway events were assigned a moderate risk rating. All other risks were considered low.

Appropriate mitigation and management measures will be implemented to mitigate hazards to an acceptable level.

Social and community assessment

A Social and Community Assessment (SCA) was developed for the Project using a desktop research approach. The SCA was based on statistical information from the Australian Bureau of Statistics, State and Local Government websites, and Regional Development Australia Yorke and Mid North and analysis of the stakeholder and community engagement for the Project carried out to date.

The SCA defined the social area of influence of the Project by considering stakeholders most likely to experience direct and indirect socio-economic impacts, and their geographic location, and provides a baseline summary of the current socio-economic conditions of the social locality surrounding the proposed Project. The SCA considered that the area of influence for the Project is likely to comprise the communities of Wokurna, Snowtown, and Mundoora.

The SCA recommended that construction and operation of the Project is likely to result in a combination of both positive and negative community impacts, including but not limited to economic benefits to the local economy through increased spending and employment opportunities, as well negative impacts from disruptions due to traffic, noise or air quality impacts during construction. Tilt Renewables' proposed Benefit Sharing Plan will also result in benefits for the local community during construction and operation of the Project.

Potential social impacts of the Project will be managed through ongoing engagement with potentially impacted stakeholders, as well as implementation of appropriate management and mitigation measures to be implemented through the Construction Environmental Management Plan (CEMP), Operational Management Plan (OMP) and associated sub-plans.

Planning and land use assessment

The Project Area is situated on freehold agricultural land under the Rural Zone of the P&D Code, directly adjacent to the Snowtown Substation (located on Tilt Renewables owned land and associated with the existing Snowtown I Wind Farm).

Renewable energy facilities, including battery storage systems, are a form of development that is explicitly mentioned to contribute to the Desired Outcome (DO) of the Rural Zone, to support the economic prosperity of South Australia, as stated in DO 1. Deemed to Satisfy Criteria/Designated Performance Feature 1.1 also identifies renewable energy facilities as a land use that is envisaged within the Zone.

The following Overlays are applicable to the Project: Hazards (Bushfire – General Risk), Hazards (Flooding – Evidence Required), Native Vegetation and Water Resources. The DOs of these Overlays have been used to inform the scopes of assessments and technical studies undertaken in support of the Project.

Public health and safety

During construction and operation of the Project, public and third-party health and safety impacts may result from improper use or maintenance of plant or machinery (including electric shock), fires, inappropriate handling of hazardous substances, improper traffic management, improper handling or management of contaminated soils, nuisance from dust or noise, or trips or falls.

Risks to the public and third parties will be managed though establishment of site security measures and in accordance with the mitigation measures set out in the environmental impact assessment. Furthermore, a stand-alone Health and Safety Management Plan will be developed to address the requirements of the *Work Health and Safety Act 2012*.

Environmental impact assessment criteria

As required under the HRE Act, an environmental impact assessment has been undertaken for the Project in accordance with the Environmental Impact Assessment Criteria. Relevant elements of the environment considered in the assessment include native vegetation, native fauna, surface water, land contamination, Aboriginal cultural heritage, noise, traffic, air quality, social and economic value, public and third-party health and safety, and bushfire risk.

Corresponding environmental impact assessment schedules have been prepared in an environmental impact report (EIR) table, which demonstrate each environmental element, corresponding phase of the Project, potential impact event, source, pathway, environmental receptor, uncertainties and assumptions, sensitivity to change, source pathway receptors and description of the likely impact.

Additional tables outlining control measures, environmental objectives and criteria, as well as an Environmental Significance Assessments are also provided in the EIR. These tables demonstrate the frequency, duration, extent, and severity of potential impacts within the context of the sensitivity of the receiving environment.

Conclusion

This EIR has been developed to support Tilt Renewables' proposal to develop a BESS in Wokurna, approximately 10 km northwest of Snowtown in South Australia. The EIR is submitted to DEM to support the AIL application for the Project, under the HRE Act.

A number of detailed technical studies and assessments have been undertaken as part of the Project in order to gain an in-depth understanding of the potential issues, impacts, and corresponding mitigation measures required. Environmental management measures will be applied whenever necessary, to help mitigate any potential impacts of the Project upon either the biophysical or social environment.

Potential impacts will be managed during the construction process via a CEMP (or sub-plans) to address areas of environmental, cultural, and social risk. The CEMP and any sub-plans will be prepared in consultation with relevant regulatory authorities to support adherence to all relevant guidelines and policies. The operational phase of the Project will be guided by an OMP.

The assessment demonstrates that the Project is consistent with relevant assessment provisions of the HRE Act and the P&D Code, and it is considered that the Project warrants License Approval subject to reasonable conditions.

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1 Introduction

1.1 The Snowtown BESS

Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust is proposing to develop the Snowtown BESS project (the Project) in Wokurna, approximately 10 kilometres (km) northwest of Snowtown in South Australia. The proposed Project comprises a Battery Energy Storage System (BESS) with a generating capacity of up to approximately 100 megawatts (MW) with up to 4-hour duration (MWh).

This Environmental Impact Report (EIR) relates to the proposed BESS as described in Section 4.

1.2 The Applicant

The Applicant for the Project is Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables) and is a subsidiary of the Tilt Renewables group, which operates under a stapled entity comprising PARF Company 1 Pty Ltd (ACN 613 789 692) and PARF Company 2 Pty Ltd (ACN 613 789 772). The Tilt Renewables group is the ultimate holding company of the Applicant (and therefore the Project).

The Tilt Renewables group has a strong history of developing and owning renewable energy assets; with over 1.8 gigawatts (GW) of operational assets around Australia and over 5 GW in their development pipeline. Within South Australia, the Tilt Renewables group operates the 98.7 MW Snowtown I Wind Farm and has been granted Planning Consent under the *Planning, Development and Infrastructure Act 2016* (PDI Act) for the 288 MW Palmer Wind Farm.

WSP Australia Pty Limited (WSP) has been engaged by Tilt Renewables to support in the preparation of the Associated Infrastructure Licence (AIL) for the Project, under the *Hydrogen and Renewable Energy Act 2023* (HRE Act), including development of this EIR.

Applicant details are provided below in Table 1.1.

Table 1.1 Applicant details

Name of Applicant	Tilt Renewables Australia Pty Ltd (ACN 101 038 331) as trustee for the Snowtown BESS Project Trust (ABN 98 404 455 329)
ABN	98 404 455 329
ACN	101 038 331
Project contact	Daniel Banfai
Postal address of Applicant	Level 24, 600 Bourke Street, Melbourne VIC 3000
Consultant contact	Tenille Anderson
Postal address of consultant	Level 17, 83 Pirie Street, Adelaide, SA, 5000

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1.3 Timing and staging

The Project is currently in the planning and concept design stage. Anticipated timeframes are presented in Table 1.2.

These dates present the earliest expected occurrence of key stages of the Project. Timeframes may be extended depending on a number of factors. More certainty regarding the overall Project timeline will be known during preparation of the Operational Management Plan (OMP).

Table 1.2 Project schedule

Activity	Anticipated date
Construction commences	Year 1 of licence (2027)
Commissioning commences	Year 3 of licence (2028)
Construction concludes / Full operation commences	Year 3 of licence (2028)
Operation	20 years duration from year 3 of licence (2028 to 2048)
Decommissioning	From year 23 of licence (2048)

1.4 Scope of this document

The scope of this document is designed to meet the EIR requirements as outlined in Section 61 of the HRE Act and the Regulation 32 of the *Hydrogen and Renewable Energy Regulations 2024* (HRE Regulations) (see Section 2.1.3).

1.5 Structure and content of the report

The structure of this EIR is outlined as follows:

- **Section 1 – *Introduction*** provides an overview of the Project background, the Applicant, and proposed timelines for activities proposed under the AIL application.
- **Section 2 – *Legislative framework*** provides an overview of relevant legislation and the expected AIL application pathway.
- **Section 3 – *Strategic context*** outlines the Project benefits and objectives, and consistency with state targets, local government guidelines and strategic directions.
- **Section 4 – *Project description*** describes the details of the proposed development.
- **Section 5 – *Project Area*** provides an overview of the site locality, site history and land tenure.
- **Section 6 – *Existing environment*** describes existing conditions of the Project Area.
- **Section 7 – *Community and stakeholder engagement*** provides an overview of stakeholder engagement activities undertaken by the Applicant, matters raised, and the Project Consultation Plan.
- **Section 8 – *Environmental impact assessment*** details the outcomes of the environmental assessments completed for the Project including ecology, hydrology and drainage, soils and geology, site contamination, Aboriginal cultural heritage, noise, traffic, visual amenity, air quality, BESS hazards, social impacts and public health and safety; and provides an assessment against the relevant policies of the Planning and Design Code (P&D Code) under the PDI.
- **Section 9 – *Environmental impact assessment criteria*** summarise the environmental impacts and management in accordance with the Environmental Impact Assessment Criteria how these will be minimised.
- **Section 10 – *Conclusion and recommendations*** provides a summary of the environmental assessment and its recommendations.

2 Legislative framework

2.1 *Hydrogen and Renewable Energy Act 2023*

2.1.1 Need for approval

An energy storage system with a name plate capacity of greater than 5 MW that is to be connected to a transmission or distribution network within South Australian land or coastal waters is a prescribed as an *associated infrastructure activity* under Regulation 3(2)(b) of the HRE Regulations and is a *regulated activity* under the HRE Act. Under the HRE Act, a person must not undertake a regulated activity unless the activity is authorised, or exempted from authorisation, under the HRE Act.

2.1.2 Approval pathway

The Project is seeking an AIL under Sections 23 and 31 of the HRE Act.

2.1.3 Environmental Impact Report

This EIR has been developed to meet the requirements of Section 61(2) of the HRE Act, which states that an EIR must be developed in respect of a proposed authorised activity. Specifically, it states that:

An environmental impact report must:

a) take into account the environment, cultural and other values as those matters are relevant to the assessment; and

b) take into account risks inherent in the authorised operations to the health and safety of the public; and

c) contain sufficient information to make possible an informed assessment of the likely impact of the authorised operations on the environment; and

d) include an assessment of the environmental impact of authorised operations to which the report applies against the environmental impact assessment criteria; and

e) be prepared in accordance with the requirements of the regulations.

(Hydrogen and Renewable Energy Act 2023 - Version 11.7.2024).

Regulation 32(2) of that HRE Regulations prescribes that the EIR must contain the following information:

a) a description of the authorised operations to be undertaken and the location at which the operations are to be undertaken;

b) a description of the specific elements of the environment that can reasonably be expected to be affected by authorised operations, with particular reference to the environment and existing land uses;

c) data relating to biodiversity within the area of land to which the report relates that can reasonably be expected to be affected by authorised operations;

d) an assessment of the cultural and heritage values of Aboriginal and Torres Strait Islander persons and other persons within the area of land to which the report relates that can reasonably be expected to be affected by authorised operations, and the public health and safety risks inherent in undertaking those operations (insofar as these matters are relevant in the particular circumstances);

e) if relevant and required by the Minister – an assessment of the continuity of supply with respect to hydrogen;

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f) information on consultation that has occurred in accordance with the approved consultation plan, including specific details about relevant issues that have been raised and any response to those issues (but not including confidential information).

(Hydrogen and Renewable Energy Regulations 2024 - Version 11.7.2024)

Table 2.1 identifies where the requirements of the HRE Act and HRE Regulations have been addressed within this report.

Table 2.1 Environmental impact report requirements

Legislative requirement	EIR section(s)
Section 61(2) of the *Hydrogen and Renewable Energy Act 2023*	
a) *take into account the environment, cultural and other values as those matters are relevant to the assessment; and*	Section 6 and Section 8
b) *take into account risks inherent in the authorised operations to the health and safety of the public; and*	Section 4.3 and Section 8.13
c) *contain sufficient information to make possible an informed assessment of the likely impact of the authorised operations on the environment; and*	Section 6 and Section 8
d) *include an assessment of the environmental impact of authorised operations to which the report applies against the environmental impact assessment criteria; and*	Section 9
e) *be prepared in accordance with the requirements of the regulations.*	See below
Regulation 31(2) of the *Hydrogen and Renewable Energy Regulation 2024*	
a) *a description of the authorised operations to be undertaken and the location at which the operations are to be undertaken;*	Section 4 and Section 5
b) *a description of the specific elements of the environment that can reasonably be expected to be affected by authorised operations, with particular reference to the environment and existing land uses;*	Section 6
c) *data relating to biodiversity within the area of land to which the report relates that can reasonably be expected to be affected by authorised operations;*	Section 6.2
d) *an assessment of the cultural and heritage values of Aboriginal and Torres Strait Islander persons and other persons within the area of land to which the report relates that can reasonably be expected to be affected by authorised operations, and the public health and safety risks inherent in undertaking those operations (insofar as these matters are relevant in the particular circumstances);*	Section 6.7, Section 6.8 and Section 8.5
e) *if relevant and required by the Minister – an assessment of the continuity of supply with respect to hydrogen;*	Not applicable
f) *information on consultation that has occurred in accordance with the approved consultation plan, including specific details about relevant issues that have been raised and any response to those issues (but not including confidential information).*	Section 7

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2.1.4 Statement of environmental objectives

As required under Section 62 of the HRE Act, an AIL must not be granted unless an approved Statement of Environmental Objectives (SEO) for the regulated activity is in force. The SEO must address the matters outlined in the EIR; and, set out environmental objectives, leading performance criteria, and reportable incidents for undertaking the activity.

To meet the requirements of Section 62 of the HRE Act, a SEO has been prepared for submission to the Department for Energy and Mining (DEM) (Snowtown BESS Statement of Environmental Objectives – PS216718-WSP-ADL-ENV-REP-002).

2.1.5 Certificate from the Technical Regulator

As required under Section 31(1)(d) of the HRE Act and Regulation 18(1)(k) of the HRE Regulations, a licence application under the HRE Act for an electricity generating plant (including a BESS) that is to be connected to the State's power system must be accompanied by a certificate from the Office of the Technical Regulator (OTR) certifying that the proposed electricity generation is compliant with the requirements of the Technical Regulator in relation to the security and stability of the State's power system.

The required certificate for the Project was issued by the OTR on 13 May 2025 and has been provided to DEM as an attachment to the AIL application letter.

2.2 Planning, Development and Infrastructure Act 2016

As the Project falls under the provisions of the HRE Act, the Project does not require Approval under the PDI Act.

It is understood that the EIR and SEO for the Project may be referred to the Planning and Land Use Services within the Department for Housing and Urban Development (DHUD) for referral under Section 73 of the HRE Act, as a prescribed body administering the PDI Act. To support this referral, Planning and Land Use Assessment has been undertaken to provides an assessment of the Project against the relevant provisions of the P&D Code (established under the PDI Act) and is provided in Appendix A.

2.3 Other approvals

A number of other environmental approvals, authorisations, and permits may be required to support both the construction and operation phases of the Project. The key ancillary approvals are detailed in Table 2.2.

Table 2.2 Ancillary approvals

Approval or permit	Relevant legislation	Statutory authority	Relevance	Requirement
Assessment against the Building Rules	*Planning, Development and Infrastructure Act 2016* (PDI Act)	Building Certifier (under the PDI Act)	Under the relevant planning legislation, development which constitutes 'building work' requires assessment against the Building Rules.	**Required** as the Project proposes building work.
Environment Authorisation to undertake a prescribed activity of environmental significance	*Environment Protection Act 1993* (EP Act)	Environment Protection Authority (EPA)	Prescribed activities of environmental significance require a licence or exemption under the EP Act.	**Not required** as the Project does not propose to undertake prescribed activities of environmental significance.

Approval or permit	Relevant legislation	Statutory authority	Relevance	Requirement
Native vegetation clearance approval	*Native Vegetation Act 1991* (NV Act)	Native Vegetation Council (NVC)	The removal of any protected native vegetation requires approval under the NV Act.	**Required** as the Project involves the clearance of native vegetation protected under the NV Act.
Water Affecting Activities Permit	*Landscape South Australia Act 2019* (LSA Act)	Northern and Yorke Landscape Board	Required for creation or modification of a well, creation or modification of certain dams or other structures that collect or diverts water, direct impacts to a watercourse, lake or floodplain, or drainage or discharge directly or indirectly into a watercourse or lake.	**Not required** as the Project does not propose water affecting activities requiring a permit (as prescribed in the *Northern and Yorke Water Affecting Activities Control Policy*).
Section 23 authorisations	*Aboriginal Heritage Act 1988* (AH Act)	Minister for Aboriginal Affairs	Required for any damage, disturbance or interference with Aboriginal sites, objects or remains (where otherwise unavoidable).	**Unlikely to be required** Detailed cultural heritage surveys will be undertaken across the Project Area. At this stage, it is intended that the detailed design of the Project will be micro-sited to avoid all impacts to Aboriginal sites, objects and remains. Engagement with Traditional Owners is ongoing and is intended to support the protection of cultural heritage values.
Heritage permit	*Heritage Places Act 1999*	South Australian Heritage Council	Required to alter, damage or destroy State or Local heritage place.	**Not required** The Project will avoid all direct impacts to non-Aboriginal heritage places. It is intended that construction impacts (i.e., the transport of heavy vehicles past listed non-Aboriginal heritage places along the transport route) will be managed such that indirect impacts are avoided.
Road Works Permit	*Road Traffic Act 1961*	Department for Infrastructure and Transport (DIT)	Required to carry out road works on roads managed by DIT.	**Unlikely to be required** as the outcomes of the Traffic Impact Assessment (TIA) assessed State maintained roads to be suitable for the expected construction traffic but final permitting requirements will be determined by the construction contractor, once engaged.

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Approval or permit	Relevant legislation	Statutory authority	Relevance	Requirement
Road Works Permit	*Local Government Act 1999*	Councils	Required to alter public roads, including by carrying out works in, on, across, under or over a Council-managed road.	**Unlikely to be required** as the outcomes of the (TIA) assessed local roads to be suitable for the expected construction traffic, however final permitting requirements will be determined by the construction contractor, once engaged.
Oversize Overmass Permit	*Heavy Vehicle National Law (South Australia) Act 2013*	National Heavy Vehicle Regulator	Required where vehicles exceed the gazetted mass, dimension or operating requirements of roads.	**Required** for the transport of plant and materials to site.
Wastewater Works Approval	*South Australian Public Health Act 2011*	SA Health	For on-site wastewater systems.	**Required** for the wastewater systems proposed as part of the Project.

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3 Strategic context

3.1 Project benefits and objectives

The Project is expected to have an operational life of 20 years, during which time it will operate to support the South Australian energy system by providing up to 100 MW/400 MWh of energy storage and discharge capacity as well as Fast Frequency Response (FFR) at a rate of at least 150 milliseconds. Battery storage of this nature plays an important role in South Australia's renewable energy dominant system; with the FFR provided by these systems being able to act as an alternative to inertia, which cannot be provided by a wind farm alone. The provision of FFR through development of the Project will help to support the stability and security of the State's energy system and will support the South Australian Government's target to achieve 100% renewable energy by 2027 (Department for Energy and Mining, n.d.).

Construction of the Project is expected to occur over an approximate 14-month period. At the peak of the construction phase, it is expected that up to approximately 50 full-time workers will be required. The selected contractor(s) will be encouraged to source workers from the local region and to provide opportunities for local businesses, where practicable. In addition to opportunities for local workers and business directly engaged by Tilt Renewables and its contractor(s), indirect opportunities are also expected to be generated for businesses in the region due to the flow-on effects from the expected increase in population in the region during the 14-month construction period.

During operation, the Project will be remotely operated and normally not staffed. Inspections and maintenance activities will occur throughout the approximate 20-year operation period and will typically require up to two staff. Operational and maintenance services will be sourced from local workforce and/or businesses, where practicable.

Additional workforce will be required during the decommissioning phase but requirements are not currently known.

Tilt Renewables has committed to a Benefit Sharing Plan of $60,000 for the construction phase followed by $60,000 (+CPI) per annum for the operational life of the Project. The plan will focus on education and training, social impact, energy and environmental projects. Tilt Renewables will seek to co-design the plan with the Wakefield Regional Council, Narungga Nation Aboriginal Corporation (NNAC), and local community groups such as the Snowtown Progress Association.

The Benefits Sharing Plan is expected to be split as follows:

- 75% ($45,000 + CPI) for initiatives that benefit the local or regional community
- 25% ($15,000 + CPI) for initiatives that benefit the Narungga people.

3.2 Policy context

3.2.1 Planning and Design Code

The P&D Code is established under the PDI Act and aims to establish comprehensive policies for the assessment of development in South Australia.

The P&D Code structure includes Zones, Subzones, Overlays and General Development Policies; with the Zone being the principal organising layer which establishes the type of development that is envisaged within a particular location.

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3.2.2 State Planning Policies

State Planning Policies (SPPs) are a planning instrument under the PDI Act, which have been developed to create an umbrella for land use in South Australia. The key objectives of the SPPs are to promote liveability, sustainability, and prosperity across the state. Relevant SPPs include:

- State Planning Policy 5: Climate Change
- State Planning Policy 8: Primary Industry
- State Planning Policy 12: Energy.

3.2.3 Regional plans

Each region in South Australia has a plan to guide development and meet the requirements of the SPPs. Each Regional Plan sets out the direction for future planning and development in a specific region. Regional Plans are prepared by a Joint Planning Board in partnership with relevant councils and include a long-term vision, contextual information about the region, recommendations about the application and operation of the P&D Code, and a framework for the public realm on infrastructure within the region or area.

The relevant Regional Plan for the Project is currently the Mid North Region Plan. This plan was originally developed in 2011, and although requiring update to meet contemporary energy, environment and social priorities, it identifies a number of key goals which remain applicable including:

- attracting industry to the region, particularly where there is infrastructure capacity for growth (for example, electricity, gas, roads, rail, and shipping infrastructure)
- providing greater employment opportunities and challenges to retain young people in the region; and
- expanding local electricity generation through renewable energy sources, such as wind farms and gas-fired peak demand plants, which would provide greater capacity for economic activity.

(Department of Planning and Local Government, 2011).

The Mid North Region Plan is expected to soon be replaced by the Yorke Peninsula and Mid North Regional Plan, which is currently being prepared under the PDI Act. This would comprise a combined plan for the currently separated regions of Yorke Peninsula and the Mid North of South Australia and maintains a focus on developing renewable energy projects in the region (PlanSA, n.d.).

3.2.4 Local government policy alignment

The Mid North region of South Australia is one of the State's most important regions for renewable energy development as it has an excellent endowment of both wind and solar resources in relatively good proximity to the State's transmission network.

The Wakefield Regional Council, being the applicable Local Government Area for the Project, has developed the Wakefield 2030 Community Plan which provide a 10-year vision for the area. The Plan establishes a number of key strategies, including to react 'green' industries to the region (Wakefield Regional Council, 2023).

Engagement with Council and other relevant stakeholder engagement is discussed further in Section 7.

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4 Project description

4.1 Proposed development

The Project involves the construction of a BESS and ancillary infrastructure. The BESS suppliers are still being finalised but the maximum generating capacity of the Project would be 100 MW with up to 4-hours duration.

Key elements of the Project seeking authorisation under the AIL include:

- BESS with capacity of 100 MW with up to 4-hour duration. There are expected to be up to around 112 Battery Pack Containers, Final number will be subject to detailed design and may increase/decrease subject to final supplier requirements. The Battery Pack Containers will have an appearance similar to a shipping container and will be finished in neutral colours. The BESS will also include inverters, inverter transformers and associated control, monitoring and protection equipment.
- Ancillary infrastructure including auxiliary supply transformers.
- Hardstand areas.
- Drainage and erosion control features.
- Internal roads, access tracks, and parking.
- Water management infrastructure (water tanks, water supply, detention pond, water treatment).
- Onsite buildings (operations and maintenance, switchroom and control room, storage).
- Underground cabling.
- Harmonic filter yard (if required).
- Lightning protection rods, which would consist of galvanised steel monopole masts.
- Communications tower (if required).
- Site fencing and security.
- Business identification and safety signage.
- Temporary site infrastructure, including:
  - construction compound
  - equipment laydown areas
  - fuelling stations
  - washdown bay (if required).

The Project also includes a proposed grid connection to ElectraNet's existing Snowtown Substation located immediately east of the proposed BESS site, developed as part of the Snowtown I Wind Farm. The Project will tie into the substation behind the existing wind farm connection point. Modification works to the existing Snowtown Substation will be required as part of the project to facilitate the connection of the BESS to the electricity grid. Substation works are expected to include:

- installation of a new isolator and earth switch
- installation of a 33 kilovolt (kV) conductor between the new isolator and the existing wind farm isolator
- 33 kV cable trench from the BESS Facility into the substation
- associated protection, control, and metering equipment to be installed in the existing Snowtown Wind Farm substation building.

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It is noted that the values and dimensions discussed in this section are preliminary only. Details will be confirmed though the final design phase of the Project.

4.2 Proposed layout

The proposed preliminary layout for the Project is shown in Figure 4.1.

The preliminary Project layout presented has been developed based on site optimisation and minimising impacts to stakeholders and the environment.

The final location of infrastructure will be subject to detailed design, which will allow for design and engineering requirements of the final supplier; and to allow for infrastructure to be shifted to avoid further constraints if identified during ongoing and future investigations.

As such, it is requested that allowance can be made for the provision of final infrastructure locations (final designs) to be captured as a condition of the AIL or during the approval of the OMP.

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Legend

- Project Area
- Existing 132kV Transmission Line
- Existing 33kV Transmission Line
- Indicative Underground Cable
- Indicative Underground Substation Cable
- Indicative BESS Infrastructure
- Indicative Internal Road
- Indicative Bench
- Indicative Switchroom and Control Room
- Indicative Harmonic Filter
- Indicative O&M Building
- Indicative Detention Pond
- Indicative Water Tank
- Indicative Washdown Bay
- Indicative Spare BESS Infrastructure
- Indicative Fence
- Existing Substation
- Tilt Owned Land
- Cadastre

Note: Indicative layout and subject to change

Date: 23/05/2025
Version: C
GDA2020 MGA Zone 54
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N

0 50 100 Meters

Document Path: G:\GIS\Project Data\Development\SA\SnowTown Battery Storage\Maps\mxd\STBS_13A_RL_Preliminary Layout_A3L_20250521.mxd

Snowtown BESS

Indicative Project Layout

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4.3 Construction, operation, and decommissioning

4.3.1 Construction

4.3.1.1 Indicative timeline

Construction of the Project is planned to commence in 2027 and is expected to take 14 months; concluding in 2028.

4.3.1.2 Construction activities and staging

The workforce for construction of the Project is expected to be up to approximately 50 full-time workers across 14-month period, peaking at various stages depending on construction activities.

The majority of vehicle movements will access the site via the main access to the Project which will be created off on Wokurna Road, north-west of the intersection with Hewitt Road. An additional access point on Hewitt Road will be used as emergency and secondary access to the facility.

Construction is expected to occur in two phases, noting there may be some overlap between the phases:

- Phase 1: Civils (site establishment, site civil works, and concreting)
- Phase 2: Installation (equipment delivery, installation, and commissioning of electrical and mechanical).

Approximate staging for Project construction is provided in Table 4.1.

Table 4.1 Construction staging (approximate)

Phase	Construction phase/activity	Approximate Duration
Phase 1 – site / civil works	Site mobilisation / service relocation	Week 0–1
	Earthworks (Includes importing rubble from quarry)	Week 1–4
	Civil and structural (Including incoming concrete from an offsite facility)	Week 4–20
Phase 2 – installation	Mechanical and electrical – including battery cubes, buildings, inverters/ transformers, harmonic filter yard (if required), substation works and cabling	Week 20–40
	Commissioning and testing	Week 40–56

Concrete for the project will be trucked from an appropriately licenced offsite facility. Rubble and sand for concrete and tracks will be sourced from an established quarry(s).

As recommended in the EPA Construction Noise Information Sheet – EPA 425/23 (Environment Protection Authority, 2023) construction activities that may cause adverse noise impacts will be undertaken between the hours of 7.00 am to 7.00 pm Monday to Saturday, where practicable. Activities required to be undertaken outside of the hours of 7.00 am and 7.00 pm Monday to Saturday will be restricted, where practicable, to activities that are unlikely to cause impact to amenity of the area or otherwise will not be undertaken without prior approval from the EPA.

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4.3.1.3 Construction Environmental Management Plan

A Construction Environmental Management Plan (CEMP) will be prepared prior to the commencement of construction. The CEMP will identify the environmental management and monitoring measures that would need to be implemented during the construction phase. The CEMP will:

- Provide a framework for the management of potential environmental impacts
- Provide guidance to the contractor(s) and help them meet their obligations; particularly under the EP Act, as well as other relevant statutory requirements
- Provide an overview of all environmental values of the Project Area in association with the implications of the construction methodology and provide detail of the individual environmental commitments of the Project
- Outline and discuss the implications of all relevant legislation and State and Commonwealth guidelines that will need to be incorporated into management measures.

At a minimum, the CEMP will cover the following key issues:

- Aboriginal heritage; including a site discovery procedure and/or an individual Cultural Heritage Management Plan
- Air quality and dust suppression
- Flora and fauna
- Weeds, pests and diseases control
- Noise and vibration; including a Noise and Vibration Management Plan, prepared as a sub-plan of the CEMP
- Traffic and access, including a summary of the Traffic Management Plan (TMP)
- Water quality protection; including an individual Soil Erosion and Drainage Management Plan (SEDMP), prepared as a sub-plan of the CEMP
- Materials, fuels, waste management, and storage of hazardous substances
- Emergency and fire management, including a summary of the Emergency Management Plan
- Health and safety in accordance with the *Work Health and Safety Act 2012* (WHS Act) will be addressed in a stand-alone Health and Safety Management Plan prepared for the Project.

4.3.2 Operation

4.3.2.1 Operational activities

It is anticipated that the Project will have an operational lifespan of 20 years. Any proposed extension of project life will be reviewed closer to the Project end date and a subsequent licence extension would be requested if required.

The Project will be remotely operated and normally unstaffed. Inspections and maintenance activities will occur throughout the approximate 20-year operation period and will typically require up to two staff.

The operation and ongoing maintenance will be managed through an OMP, which will be in accordance with Section 66 of the HRE Act, and Regulation 37 of the HRE Regulations. In accordance with the requirements of the Act and Regulations, the OMP will specify:

- the authorised operations proposed to be undertaken
- the statement of environmental objectives to which the plan applies
- how proposed authorised operations will be managed, including details of the management systems and controls that will ensure compliance with the relevant statement of environmental objectives

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and will set out:

- policies of the licensee that address the achievement of regulatory requirements and objectives
- resources that will be applied to effectively implement the plan
- recognised industry practices and procedures that will be applied in:
  - undertaking authorised operations
  - achieving compliance with regulatory requirements
- processes for managing physical, operational, procedural or organisational changes in respect of authorised operations
- systems that will manage risks allowing achievement of the regulatory objectives arising from undertaking authorised operations including:
  - the controls that will be implemented to eliminate or reduce risks associated with authorised operations
  - the systems that will ensure the implemented controls will be clearly defined and achieved
  - practices and procedures to ensure employees, contractors and visitors to the licence area have the appropriate competency, training (including ongoing training), induction and supervision
  - mechanisms for consulting and communicating with external parties in relation to authorised operations
  - systems to identify, investigate and report incidents arising from authorised operations
  - practices and procedures to be followed in the event of an emergency relating to authorised operations
- the manner in which the effectiveness of a matter referred to in a preceding paragraph will be monitored, evaluated, audited and reviewed
- the manner in which the licensee intends to comply with the statement of environmental objectives in force in relation to authorised operations
- the day on which authorised operations will, or are proposed to, commence
- any other relevant matter as determined by the Minister.

The OMP will be developed prior to the commencement of Project operation and submitted to DEM for approval.

4.3.2.2 Hours of operation

The Project will have capacity to operate on a 24 hour/7 day per week basis but is not expected to continuously operate. The occurrence and duration of operations would be based primarily on energy demand and commercial considerations.

4.3.2.3 Emergency management

An Emergency Management Plan will be developed for the Project. At a minimum, the plan will include the following key items:

- key responsibilities and authorities
- emergency contacts
- evacuation plan
- incident and injury management
- emergency preparedness information
- emergency response actions
- specific measures relating to fire (including bushfire and general), flooding, and the risk of electric shock
- post-emergency investigations, rehabilitation, and records.

The Emergency Management Plan will be developed with consideration of relevant Australian Standards (including *AS 3745:2021 Planning for Emergencies in Australian Facilities*) and should be developed in consultation with the Country Fire Services (CFS).

Site personnel and visitors will be required to undertake a site induction prior to entering the site; and will include induction of key emergency management procedures.

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The site will be clearly signed with emergency contact details and site layout with respect to emergency response and evacuation.

The risk of bushfire will be managed throughout operation of the Project through the following measures:

- Establishment and maintenance of a 10 m (minimum) perimeter asset protection zone
- Maintenance of equipment as per manufacturers specification, including establishment of required separation distances
- Provision of water storage tanks with the final volume to be specified in the Emergency Management Plan developed in consultation with the CFS and in consideration of the Country Fire Authority of Victoria *Design Guidelines and Model requirements for Renewable Energy Facilities* (CFA Guidelines) and *AS 2419.1-2021 Fire hydrant installations.*
- Infrastructure will be serviced by a network of internal access tracks designed in consideration of the CFA Guidelines, which will be constructed of an all-weather surface and will allow movement of emergency service vehicles in a forward direction around the site. The access track network will be maintained to facilitate safe access for emergency service vehicles and site evacuation
- Lightning protection rods will used installed to reduce fire risks associated with lightning strikes. Lightning protection rods will be designed in accordance with *AS 1768:2021 Lightning protection* and *IEC 62305 Protection Against Lightning.*

4.3.2.4 Maintenance

During the operational phase, all infrastructure associated with the Project will remain the responsibility of the Applicant and its contractor(s).

A number of core activities will be undertaken onsite during the operation of the Project including scheduled and un-scheduled maintenance of the BESS and ancillary infrastructure. Maintenance works will include monitoring of equipment, cleaning, repairs, and replacement of worn or broken parts and maintenance of access tracks.

4.3.2.5 Site security

The BESS will be enclosed in high security fencing once constructed, likely a chain-link fence around 2.8 m to 3 m high and topped with barbed wire. Fencing is only required around BESS infrastructure and is not required around the permitter of the Project Area. Access to the BESS will be controlled by gates to facilitate authorised access only.

Closed-circuit television (CCTV) will be established around the perimeter of fenced areas, along with security lighting, where required.

4.3.3 Decommissioning

The Project is expected to have an operational lifespan of approximately 20 years (unless extended subject to separate approval).

At the end of the Project lifespan, infrastructure will be decommissioned, dismantled and removed from site. Additional workforce will be required during the decommissioning phase but requirements are not currently known.

The EPA's waste management hierarchy will be applied, where practicable. Consideration would be given for infrastructure components that may be suitable for reuse or recycling.

A Decommissioning and Rehabilitation Management Plan (DRMP) will be prepared which would outline the approach to be adopted to decommission infrastructure associated with the Project and rehabilitate the topsoil to its pre-construction condition suitable for current agricultural land uses (or other use as agreed in consultation with the landowner).

5 Project Area

5.1 Site location and legal description

The Project is located directly west of the existing Snowtown Substation and Snowtown I Wind Farm; just west of the junction of Wokurna Road and Hewitt Road, Wokurna, near Snowtown in the Mid-North region of South Australia. The Project locality is shown in Figure 5.1.

The site will be located on land parcels known as Allotment 100 of Deposited Plan 117950 and Piece 101 of Deposited Plan 117950 (see Figure 5.2). Both parcels are freehold land. Certificates of Title (CTs) for the Project Area are detailed in Table 5.1 and copies of the CTs are attached in Appendix B.

Table 5.1 Certificates of Title

Certificate of Title Volume/Folio	Parcel ID	Owner
CT 6210/929	Piece 101 of Deposited Plan 117950	Private landowner
CT 6232/117	Allotment 100 of Deposited Plan 117950	Snowtown Wind Farm Pty Ltd

A lease option deed has been secured across CT 6210/929.

Snowtown Wind Farm Pty Ltd is a subsidiary of Tilt Renewables Australia Pty Ltd, and as such, no lease option deed is required across Allotment 100 of Deposited Plan 117950.

Works would be required in road reserves of Wokurna Road and Hewitt Road to enable access to the site. Both roads are managed by the Wakefield Regional Council. Appropriate agreements will be in place prior to any works on road reserves.

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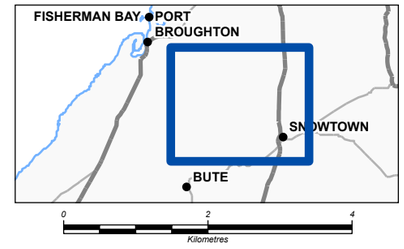
Snowtown BESS project

Figure 5.1
Project Locality

Legend

- Road
- Project Area
- LGA Boundary



Coordinate system: GDA2020 MGA Zone 54

Scale ratio correct when printed at A3

1:85,000 Date: 22/05/2025

Data sources: SA Government, Metromap

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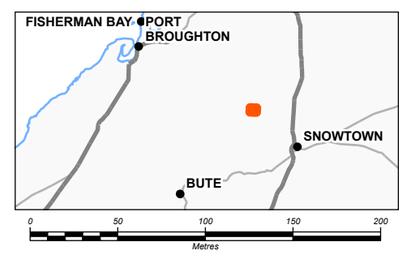
Snowtown BESS project

Figure 5.2
Certificates of Title

Legend

- Project Area
- Existing Transmission Line Easement
- Cadastre



Coordinate system: GDA2020 MGA Zone 54

Scale ratio correct when printed at A3

1:3,500 Date: 14/05/2025

Data sources: SA Government, Metromap

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5.2 Site description

5.2.1 Natural environment

The Project Area encompasses approximately 13 ha and is situated on cropped land, with no native vegetation remaining within the boundaries of the Project Area (see Photo 5.1). The Project Area is intersected by a number of overhead transmission lines, connecting into the adjacent Snowtown Substation to the east of the site (see Photo 5.2).

Some remnant native grassland (*Austrostipa scabra* grassland with exotic grasses and herbs) and regenerating *Acacia* sp. exists along the roadsides adjacent to the Project Area (see Photo 5.3 and Photo 5.4). Vegetation within the Project Area and proposed impacts from the Project have been documented in an Ecological Assessment prepared by WSP (2025a). Outcomes of the report are discussed further in Sections 6.2 and 8.1. The Ecological Assessment report is provided in Appendix C.

The site slopes gently from east to west (see Figure 5.3) and is intersected by two drainage lines: one in the central portion of the site and one to the southern end of the site (refer Photo 5.5). Site drainage is discussed further in Sections 6.4 and 8.2.

Note: View looking south from Wokurna Road (coordinates 234874.188 E 6266085.366 N)

Photo 5.1 Cropped land within and adjacent to the Project Area intersected by existing overhead transmission lines

Notes: Wind turbine generators (WTGs) from the Snowtown I Wind Farm are shown to the east. View looking northeast from Hewitt Road (coordinates 231544.994 E 6376534.468 N).

Photo 5.2 Cropped land within the Project Area intersected by existing overhead transmission lines leading to the existing Snowtown Substation

Notes: The Project Area and Snowtown Substation is shown to the left, with WTGs from the Snowtown I Wind Farm shown in the background. View looking northeast from Hewitt Road (coordinates 234882.560 E 6265797.610 N).

Photo 5.3 *Austrostipa scabra* grassland with exotic grasses and herbs along Hewitt Road

Note: View looking northwest from Hewitt Road (coordinates 234949.730 E 6265825.970 N).

Photo 5.4 *Acacia pycnantha* over exotic herbs and grasses along Hewitt Road

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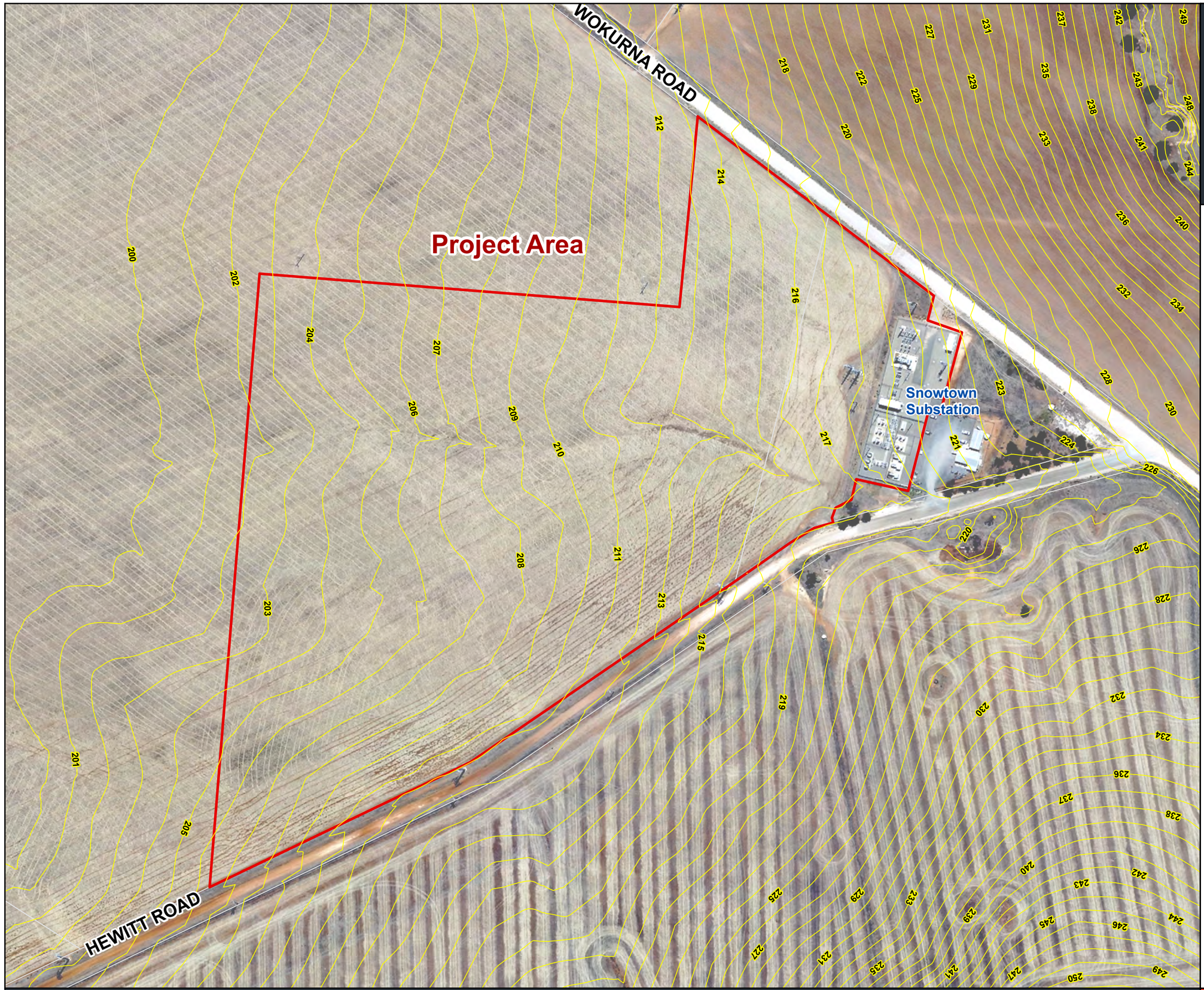
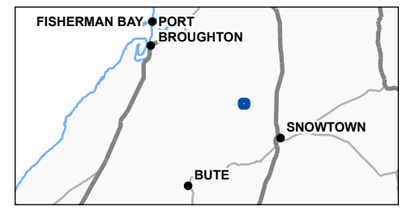


Snowtown BESS project

Figure 5.3
Elevation

Legend

- Project Area
- Elevation Contour (m)
- Cadastre



0 25 50 75 100
Metres

Coordinate system: GDA2020 MGA Zone 54

Scale ratio correct when printed at A3

1:2,500 Date: 22/05/2025

GDA 2020

Data sources: SA Government, Metromap

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Note: View looking northwest from Hewitt Road (coordinates 234931.391 E 6265826.475 N).

Photo 5.5 Drainage line through the centre of the Project Area

5.2.2 Local community

The Project is situated within the Wakefield Regional Council Local Government Area (LGA), in South Australia's Yorke Mid North Region. The local area of influence comprises of the ABS Suburbs and Localities (SALs) of Snowtown, Wokurna, and Mundoora, with Snowtown being the nearest township, located approximately 10 km southeast of the Project Area. These communities are characterised by low population densities, older median ages (ranging from 49 to 54 years) and a strong agricultural identity, with many residents engaged in farming and related industries.

The regional area of influence includes Wakefield-Barunga West and Clare ABS Statistical Area Level 2 (SA2s).

The area is known for its resilience and community spirit, shaped by its agricultural heritage and experiences with environmental challenges such as drought and bushfires. The Wakefield Regional Council promotes inclusive and connected communities and supports renewable energy developments as a means of regional revitalisation. Community engagement is strong, with high levels of volunteering and participation in local initiatives, although concerns exist about the sustainability of this engagement as the population ages.

Cultural diversity is limited, with a small proportion of households speaking a language other than English. However, the area has a higher-than-average representation of Aboriginal and Torres Strait Islander peoples, particularly in the local social locality. Educational attainment is also lower than the state average, with fewer residents holding tertiary qualifications.

5.2.3 Local economy

The gross regional product for Wakefield-Barunga West and Clare SA2s was estimated at $2.3 billion, representing 0.75% of South Australia’s gross state product for the 2021–22 financial year (REMPLAN, 2022). Agriculture, forestry, and fishing (ABS category) represents 23% of the economic output (gross revenue) for Wakefield-Barunga West and Clare SA2s, contributing approximately $530 million in the 2021–22 financial year.

Regional Development Australia Yorke and Mid North's (RDAYMN) Strategic Plan 2021–2026 notes that the region provides 57.1% of South Australia's installed wind generation and 40.6% of South Australia's grain output (RDAYMN, 2023). RDAYMN and Wakefield Council highlight their focus on promoting renewable energy projects in the region. In June 2024 RDAYMN reported that renewable energy projects for the broader Yorke and Mid North Region were estimated at $9.8 billion, with some of these in the Wakefield-Barunga West region (RDAYMN, 2024).

The top employment industry across Wakefield-Barunga West and Clare SA2s is agriculture, forestry and fishing (ABS category), followed by health care and social assistance. Snowtown, Wokurna, and Mundoora SALs are predominantly areas of agricultural production, where between 20% and 69.7% of the population are employed in these industries.

5.3 Land tenure

The Project is being developed wholly on freehold land under two landowners; one being Snowtown Wind Farm Pty Ltd which is a subsidiary of Tilt Renewables. Tilt Renewables has secured a lease agreement over areas within the Project Area under the control of the separate, private landowner.

It is expected that upgrade works may be required to both local and state-maintained roads (limited to possible vegetation trimming on state-maintained roads) to facilitate site access. Engagement with both Council and DEM will be undertaken to facilitate the required agreements to support the works.

5.4 Zoning

The Project is wholly located within the Rural Zone of the P&D Code (see Figure 5.4). There are no Subzones applicable across the area.

Renewable energy facilities are an envisaged land use under Rural Zone. As per the 'Land Use Definitions Table' in Part 7 of the P&D Code (State Planning Commission, 2025), the Project is classified as a *renewable energy facility* given the following:

- The definition of a renewable energy facility:

  Means land and/or water used to generate electricity from a renewable source such as wind, solar, tidal, hydropower, biomass and/or geothermal;

  This use may also include:

  a) any associated facility for the storage and/or transmission of the generated electricity;

  b) any building or structure used in connection with the generation of electricity.

- As per Column C of the 'Land Use Definitions Table', the definition of a *renewable energy facility* also includes a *battery storage facility.*

A Planning and Land Use Assessment has been prepared for the Project by WSP (2025b) to assess the Project against the applicable policies of the P&D Code. The Planning and Land Use Assessment is discussed in Section 8.12, with the full report provided in Appendix A.

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Snowtown BESS project

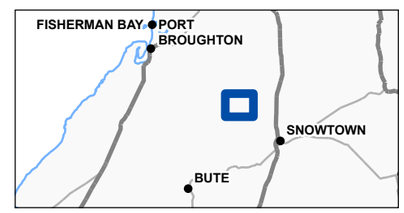
Figure 5.4
Planning and Design
Code Zones

Legend

- Sensitive Receiver
- Project Area
- Road

Planning and Design Code Zone

- Rural



Coordinate system: GDA2020 MGA Zone 54

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1:18,000 Date: 21/05/2025

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5.5 Existing infrastructure and services

A review of existing infrastructure and services within the Project Area was undertaken via desktop assessment utilising data sources including:

- Before You Dig Australia (BYDA)
- Location SA Map Viewer (Goverment of South Australia, n.d.)
- CTs.

Location SA Viewer and BYDA search results are attached in Appendix D.

5.5.1 Existing services

The BYDA and Location SA Map Viewer reviews revealed no existing services within the Project Area.

5.5.2 Easements

Review of Title Plans for applicable CTs supplied by Tilt Renewables (see Appendix B) identified the following easements across the Project Area:

- Land Marked C Easement (CT 6210/929 and CT 6232/117)
- Land Marked H Easement (CT 6210/929)
- Land Marked J Easement (CT 6210/929).

The approximate locations of identified easements are displayed in Figure 5.5.

The locations of easements were identified early in the design process. The design has sought to minimise works within the easements. No structures or infrastructure will be placed within the identified easements, with the exception of access tracks which will be designed in consultation and with approval of the easement holder(s) as to not impact the function of the easements.

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Snowtown BESS project

Figure 5.5
Easements and Services

Legend

- Project Area
- Existing Transmission Line Easement
- Cadastre

0 50 100 150 200
Metres

Coordinate system: GDA2020 MGA Zone 54

Scale ratio correct when printed at A3

1:3,500 Date: 13/05/2025

GDA 2020

Data sources: SA Government, Metromap, Esri overview basemap

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5.6 Surrounding land use

The land use directly adjacent to the Project Area is mostly used for cropping and sheep grazing. The Project Area is directly bound by the following:

- North – agricultural land on both sides of Wokurna Road
- East – Snowtown Substation (located on Tilt Renewables owned land and associated with the Snowtown I Wind Farm)
- South – agricultural land over Hewitt Road
- West – agricultural land.

The nearest sensitive receiver is an involved stakeholder located approximately 800 m northwest from the closest point of the Project Area (and approximately 1 km from the indicative footprint of the proposed infrastructure). The next nearest sensitive receiver is over 1.5 km away from the Project Area (see Figure 5.4).

The Project Area is in the vicinity of a number of existing and proposed renewable energy projects, including:

- Snowtown Wind Farm (existing) – located directly east of the Project Area
- Barn Hill Wind Farm and Battery (proposed) – located approximately 9 km north of the Project Area.
- Clements Gap Wind Farm (existing) – located approximately 18 km north of the Project Area.

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6 Existing environment

6.1 Climate

The climate of the Project Area is described to be typically mediterranean, with seasons predominantly defined by mild wet winters and hot dry summers (Berkinshaw & McGregor) with a mean annual rainfall of 432 millimetres (mm) (WSP Australia Pty Limited, 2025c).

6.2 Flora and fauna

An Ecological Assessment of the Project Area was undertaken by WSP (Appendix C). The assessment included a desktop assessment utilising relevant databases as well as a field assessment of the Project Area and adjacent road reserves undertaken on 3 December 2024 following NVCs Bushland Assessment Method (BAM) and Scattered Tree Assessment Method (STAM).

6.2.1 Flora

The Ecological Assessment identified that the vegetation within the Project Area is comprised of agricultural land (cereal cropping), with some patches of non-native grasses and herbs. No native vegetation was identified within the Project Area (WSP Australia Pty Limited, 2025a).

Two native vegetation associations (VAs) were identified in the road reserves directly adjacent to the Project Area. These include:

- VA 1: *Austrostipa scabra* grassland with exotic grasses and herbs. This VA runs along most of the road reserve along Hewitt Road, as well as a small patch toward the northeast end of the boundary on Wokurna Road.
- VA 2: *Acacia pycnantha* over exotic herbs and grasses. This exists in a small patch in the road reserve off Hewitt Road, just south of the Snowtown Substation.
- Both VAs were identified to have a high incursion of weeds. The location of native vegetation adjacent to the Project Area is shown in Figure 6.1.

One state-listed flora species (*National Parks and Wildlife Act 1972* – NPW Act) was identified during the field assessment. This was a single Rohrlach's Bluebush (*Maireana rohrlachii*) (NPW Act: Rare) located in the road reserve of Hewitt Road, towards the southern end of the Project Area.

No nationally-listed (*Environment Protection and Biodiversity Conservation Act 1999* – EPBC Act) species or Threatened Ecological Communities (TECs) were identified to occur within the Project Area.

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Snowtown BESS project

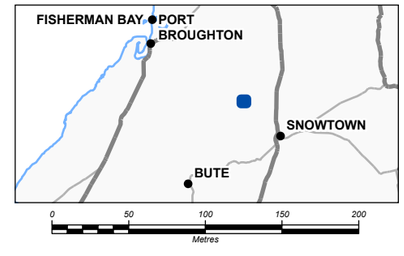
Figure 6.1
Native Vegetation

Legend

- Project Area

Vegetation Associations

- A1: *Austrostipa scabra* grassland with exotic grasses and herbs
- A2: *Acacia pycnantha* over exotic herbs and grasses
- Exotic - Non-native grasses and herbs
- Exotic - Cropping land



Coordinate system: GDA2020 MGA Zone 54

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1:4,000 Date: 27/05/2025

GDA 2020

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6.2.2 Fauna

The Ecological Assessment deemed that three protected flora species could potentially occur within the Project Area:

- Southern Whiteface (*Aphelocephala leucopsis*) (EPBC Act: Vulnerable)
- Pygmy Blue-tongue Lizard (PBLT) (*Tiliqua adelaidensis*) (EPBC Act and NPW Act: Endangered)
- Yellow-tailed Black Cockatoo (*Zanda funerea whiteae*) (NPW Act: Vulnerable).

  During the field assessment, a number of spider holes were identified in the in the road reserve along Hewitt Road, which could potentially provide habitat for PBLT. As such, a targeted PBTL survey was undertaken in March 2025 by Umwelt (2025) to search the spider holes for PBTL and determine the suitability of habitat for the species. The survey did not identify any PBTL and assessed the area as unlikely to provide important habitat for the species.

  Furthermore, the Project Area was assessed as unsuitable for the provision of important habitat for Southern Whiteface (*Aphelocephala leucopsis*) and/or Yellow-tailed Black Cockatoo (*Zanda funerea whiteae*); although it may support common species, such as bird species that forage within grasslands such as Australasian Pipit (*Anthus novaeseelandiae*) and Brown Songlark (*Cincloramphus cruralis*) (WSP Australia Pty Limited, 2025a).

6.2.3 Weeds

A number of weeds were observed within or adjacent to the Project Area during the field assessment, including three species Declared under the LSA Act (WSP Australia Pty Limited, 2025a):

- Artichoke Thistle (*Cynara cardunculus ssp. flavescens*) – Declared weed
- Silver-leaf Nightshade (*Solanum elaeagnifolium*) – Declared weed
- Bathurst Burr (*Xanthium spinosum*) – Declared weed.

6.3 Conservation

A search of relevant databases was undertaken to identify protected conservation areas within 20 km of the Project Area.

The search did not identify any NPW Act reserves, NV Act Heritage Agreement or Significant Environmental Benefit areas, or areas under the State Significant Native Vegetation Overlay under the P&D Code within 20 km of the Project Area (Department for Environment and Water, n.d.; PlanSA, n.d.).

As such, the Project will not impact protected conservation areas.

6.4 Water resources

A Desktop Hydrology Assessment undertaken for the Project by WSP (2025c). The assessment identified that the Project Area is located on the western side of a hillside, within an approximate 1 km^2 (999994.34 m^2) catchment.

The Project Area is intersected by two drainage lines; one of which intersects the centre of the Project Area in proximity to the indicative Project footprint, and the other being located towards the southern extent of the Project Area.

The location and flow of drainage lines and contributing catchment is shown in Figure 6.2.

The Desktop Hydrology Assessment is provided in Appendix E, with potential impacts summarised in Section 8.2.

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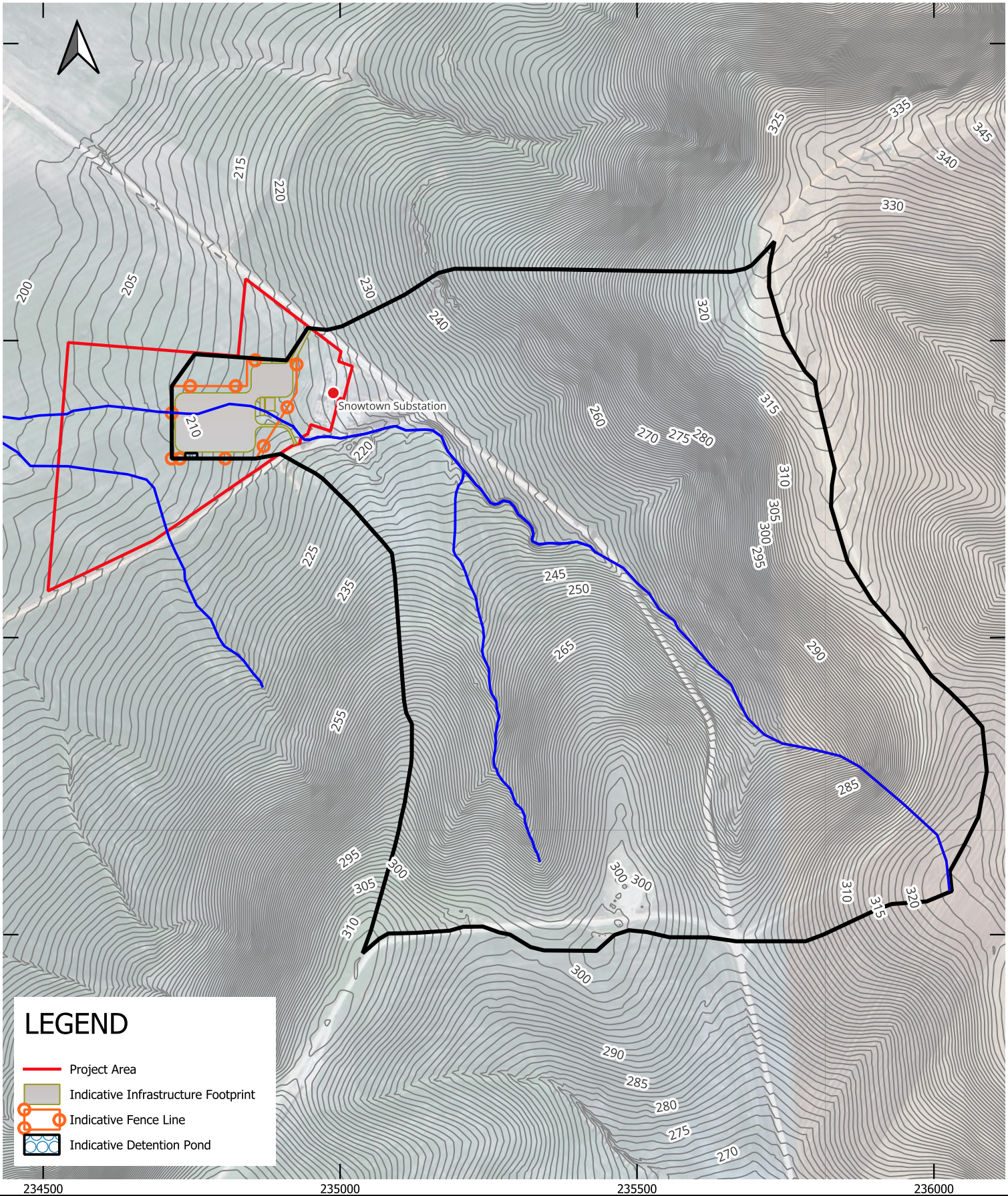

Legend

- 1m Contours
- Catchment Boundary
- Flowpath

Project	Snowtown BESS Project
Title	Catchment Boundary
Client:	Tilt Renewables Australia Pty Ltd
Project No:	PS216718
Rev:	1
Date:	24-06-2025

0 250 500 m

GDA2020 / MGA zone 54

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6.5 Soils, geology, and hydrogeology

6.5.1 Soils and geology

A review of the 100k geology layer in the South Australian Resource Information Gateway (SARIG) database (n.d.) was undertaken; and identifies that the Project Area is likely to be underlain by Quaternary alluvial/fluvial sediments. The geological survey of South Australia (1:250,000 Burra sheet) (Department of Mines, 1964) shows that the quaternary sediments are associated with potential high angle and low angle deposits. Barunga sandstone is shown to the east of the site (the Barunga Ranges are located to the east). Kunkar capping on alluvial plains is also noted on the map, approximately 2 km west of the Project Area.

A preliminary geotechnical investigation was undertaken across the Project Area by SMEC Australia (2017) for a previously proposed project in the area: the Snowtown North Solar Farm (SNSF), now ceased. The investigation included drilling four boreholes to depth of 4.72 metres below ground level (mbgl) to 4.95 mbgl and laboratory testing of samples including classification testing, shrink-swell test, Emerson, and CBR tests. The soil profile encountered generally included topsoil underlain by low to high plasticity calcareous clay, gravelly clay and sandy clay of very stiff to hard consistency to depths of around 2 mbgl to 4 mbgl. This is generally underlain by residual soil consisting of medium to high plasticity clay of very stiff to hard consistency to termination depth. Refusal was not noted in any of the boreholes. Some sand and clayey sandy gravel layers up 1.2 m thick were also encountered in one of the boreholes.

6.5.2 Groundwater

No groundwater was encountered during the SMEC Australia (2017) investigation.

A search of the Water wells (visible 1M) layer in SARIG (n.d.) indicated the closest wells are 2.5 km east of the Project Area, however no standing water level was recorded.

As discussed in Section 6.5.1, groundwater was not encountered in the 4.72 mbgl to 4.95 mbgl boreholes drilled for the SMEC investigation across the Project Area (SMEC Australia, 2017). A search of the SARIG database (n.d.) identified the nearest groundwater (borehole) records in the area are located approximately 4 km to the east of the Project Area, where standing water level were encountered between 25 mbgl and 35 mbgl.

6.6 Site contamination

A search of the EPA Site Contamination Index (2025a) was undertaken and identified there are no records of site contamination for the two land parcels within the Project Area. The nearest site contamination records are in the town of Bute, located approximately 20 km south-west of the Project Area. Of the two records located in Bute, only one record specifies a potentially contaminating activity (PCA), which is for *fertiliser manufacture* (Environment Protection Authority, 2025a).

Search of the EPA Public Register (2025b) identified that there are no EPA licenced facilities located within the Project Area. The nearest records listed on the Public Register are located around the town of Snowtown. EPA licences issued in proximity to the Project Area are summarised as follows:

- EPA Licence no. 51016 issued to LH Perry & Sons Pty Ltd for the activity *Petrol Stations* – located on CT 6204/267, 4765 Augusta Highway, Snowtown SA 5520 – approximately 9.3 km south-east of the Project Area
- EPA Licence no. 50586 (cancelled 2023) issued to Alraya Pty Ltd for the activity *Meat processing works* – located on CT 5346/24, 4490 Augusta Highway, Snowtown, SA 5520 – approximately 11 km south-east of the Project Area

The nearest record of an EPA environmental protection order (EPO) was identified in Snowtown, issued in March 2000 for environmental nuisance in the form of noise. The EPO was listed as closed.

There were no Clean Up orders for properties within the Project Area or surrounding area (Environment Protection Authority, 2025b).

6.7 Aboriginal heritage

The Project Area is located on Narungga traditional lands, which extend across the Yorke Peninsula. Narungga traditional heritage interests for the Project Area are represented by the community appointed organisation the NNAC.

The Narungga have always occupied Yorke Peninsula and have consistently maintained a strong connection to their traditional country and language. Traditional Narungga country extended as far as Port Broughton and east to the Hummock Ranges and Barunga Ranges. Their neighbours were the Kaurna of the Adelaide Plains and the Nukunu peoples to the north.

A previous desktop assessment of the Project Area was undertaken as part of preparation of the development application for the formerly proposed SNSF (Golder Associates, 2017). The assessment included a search of registered sites via the then Department of State Development – Aboriginal Affairs and Reconciliation. The search results showed that no entries had been recorded within the Project Area.

An updated search of registered sites was lodged in 2025 via the Attorney-General's Department – Aboriginal Affairs and Reconciliation (AGD-AAR). The search was returned on 16 May 2025 and advised that there are no records of Aboriginal heritage sites, objects or remains within the Project Area.

Given that no Aboriginal heritage sites or objects have been identified across the Project Area and that the site has been subjected to disturbance from ongoing agricultural activities, the risk to Aboriginal heritage is expected to be low. It is understood, however, that all Aboriginal heritage sites, objects and remains are protected under the AH Act, whether they have been previously identified or not.

Risks to Aboriginal heritage and mitigation and management measures will be further confirmed through the outcomes of a cultural heritage survey that was undertaken across the Project Area and adjacent road reserves on 10 June 2025. The survey was undertaken by Integrated Heritage Services (IHS) with participation from Traditional Owners. The survey outcomes report, including a desktop assessment incorporating anthropological, archaeological, and historical research on the Project Area, is currently being developed (refer to Section 7.1.7 for a summary of engagement with NNAC and Section 8.5 for further discussion on Aboriginal heritage risks and proposed management and mitigation measures).

6.8 Native Title

The Project Area and surrounds is wholly located within the Narungga Nation Native Title Claim (Tribunal Number SCD2023/002 / Federal Court SAD88/2022). The application was determined on 14 March 2023, in which Native Title was determined not to exist within the Project Area (National Native Title Tribunal, n.d.). Notably the specific land of the Project Area is located within freehold land, which is not subject to native title claims.

6.9 Non-Aboriginal heritage

Searches of the South Australian Heritage Database, Australian Heritage Database, and heritage Overlays under the P&D Code via the South Australian Property Planning Atlas were undertaken to identify any registered non-Aboriginal heritage places within 5 km of the Project Area. The searches identified:

- There are no Local or State heritage places or State Heritage Areas protected under the *Heritage Places Act 1993* within 5 km of the Project Area (Department for Environment and Water, n.d.)
- There are no World, National or Commonwealth Heritage listed places protected under the EPBC Act within 5 km of the Project Area (Department of Climate Change, Energy, the Environment and Water, n.d.)

- There are no Representative Buildings or areas under the Historic Area Overlay within 5 km of the Project Area (PlanSA, n.d.).

Non-Aboriginal heritage values may still be present on site whether they have been previously recorded or not. However, as no non-Aboriginal heritage places have been identified in the area and given the Project Area has been subjected to ongoing disturbance due to agricultural land uses, the risk of encountering unregistered non-Aboriginal heritage places is considered low.

6.10 Socio-economic

The socio-economic profile of the social area of influence of the Project reflects its rural and aging population. The combined population of Snowtown, Wokurna, and Mundoora SALs is approximately 620 people, representing a small fraction of the broader regional population. Median ages in these towns range from 49 to 54 years, significantly higher than the South Australian average of 41, indicating a predominantly older demographic, many of whom are retired or semi-retired.

Economic activity in the area is centred around agriculture, forestry, and fishing (ABS category), which are the primary sources of employment. The region also sees employment in health care, retail, and education. Despite this, socio-economic disadvantage is notable, particularly in Snowtown, which has a low Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) score and a median weekly household income of just $771 – well below the state average.

Access to services is limited, with residents often relying on larger towns such as Clare for healthcare, education, and retail. Snowtown offers basic amenities, including a hospital, primary school, and small businesses. Public transport is minimal, and private vehicles are the primary mode of transport. Despite these challenges, the community is generally supportive of renewable energy developments, viewing them as opportunities for economic growth and regional revitalisation.

6.11 Mining and resources

The Project Area does not interact with any active mining and resources licences:

- There are no Mining and Production Tenements under the *Mining Act 197*1 across the Project Area (Department for Energy and Mining, n.d. a).
- There are no Opal and Exploration Licences under the *Mining Act 1971* across the Project Area (Department for Energy and Mining, n.d. b).
- There are no Petroleum, Geothermal and Gas Storage Licence under the *Petroleum and Geothermal Energy Act 2000* across the Project Area (Department for Energy and Mining, n.d. c).

6.12 Roads and traffic

The Project Area will have the main construction access point located on Wokurna Road, north-west of Hewitt Road where the majority of vehicle movements will access the site. A site access point on Hewitt Road will be used as emergency and secondary access to the facility.

It is expected that the construction traffic will access the site via either of the two routes below:

- Traffic generated from the south (general deliveries, quarry materials, personnel):
  - Augusta Highway – Wokurna Road (east)

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- Traffic generated from the north (concrete supply):
  - Upper Yorke Road – Wokurna Road (west).

Augusta Highway and Upper Yorke Road are both owned and maintained by DIT and are gazetted freight routes.

Wokurna Road is a locally maintained road, extending approximately 23.5 km between Upper Yorke Road and the Augusta Highway and passing immediately adjacent to the Project Area by the junction with Hewitt Road about 8 km west of the August Highway. The road is predominantly unsealed, with some short, sealed sections adjacent to residences. The road is utilised for residences sparsely located along the road, agricultural land uses, and a school bus (among other uses) but is also understood to also be utilised by large vehicles (WSP Australia Pty Limited, 2025d).

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7 Community and stakeholder engagement

7.1 Consultation history to date

Tilt Renewables has previously engaged with the community through face-to-face meetings, information packs sent to all neighbours within 5 km of the Project Area and other key stakeholders including Council and government agencies, local businesses and community organisations, and an open invitation community information session. An outline of this past consultation is provided below.

7.1.1 Host landowner

Tilt Renewables has a longstanding relationship with the Host Landowner for the Project through Snowtown I Wind Farm and other historical development projects proposed on the land. Tilt Renewables re-engaged with the landowner in early 2024 to introduce the Project and discuss the landowner's interest in hosting the Project. The landowner has been supportive of the Project and in March 2025 entered into a commercial agreement with Tilt Renewables to host the Project.

7.1.2 Department of Energy and Mining

WSP, on behalf of Tilt Renewables, undertook early engagement with DEM regarding the licence and documentation requirements for the Project. An introductory email was sent to DEM in February 2025 and provided an overview of the Project, Preliminary Layout, and summary of proposed environmental studies to support the EIR. Clarification was also sought regarding requirements for the SEO, certification from the Technical Regulator and Work Program.

Further consultation was undertaken with DEM via the OTR. Consultation was focused on the requirement to seek certification from the OTR confirming that the proposed the Project is compliant with the requirements of the Technical Regulator in relation to the security and stability of the State's power system. Engagement was undertaken via email and a meeting held March 2025 between Tilt Renewables, WSP and an officer from the OTR. Subsequently, an application for certification from the OTR was lodged on 7 April 2025 (and revised on 12 May 2025), with the certification granted on 13 May 2025 (discussed further in Section 2.1.5).

7.1.3 Snowtown BESS community information sessions, April 2025

Two community information sessions were held at the Snowtown Soldiers Memorial Hall on Tuesday, 29 April 2025, with a total of 11 attendees – 7 at the first session (12:00 pm–3:00 pm) and 4 at the second (4:00 pm–7:00 pm). Among them were 4 local Snowtown community members and 7 landowners associated with the Snowtown I Wind Farm, with four Tilt Renewables staff available to consult with the community and respond to questions.

The sessions were promoted via the following channels:

- community newsletter advertisements
- Snowtown community April 2025 newsletter
- Brinkworth community April 2025 newsletter
- Wakefield Regional Council Facebook page
- email notification to the 15 Snowtown I Wind Farm landowners
- letter sent to every residential address within 5 km of the Project Area.

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7.1.4 Snowtown BESS doorknock, April 2025

Tilt Renewables' staff undertook a doorknock of all residents' homes within 5 km of the Project Area on 3 April 2025. The purpose of the doorknock was to introduce the Project, share information and communicate opportunities to get involved in the Project planning and development process. Of the 19 residences:

- 8 residents were met with
- 8 residents were not home so materials were left at their property
- 3 properties either did not have a dwelling or were inaccessible.

7.1.5 Snowtown BESS project website, phone, and email

A Project website was established and has been maintained since March 2025, available here: https://tiltrenewables.com/portfolio/snowtown-bess/.

The website provides an overview of the Project as well as contact details (phone and email) where interested stakeholders or members of the public can seek further information, direct any complaints or sign up to the Project newsletter mailing list.

The website is regularly updated with Project fact sheets, FAQs, and updates on the planning and approvals process.

7.1.6 Engagement with Wakefield Regional Council

Tilt Renewables has engaged Wakefield Regional Council on multiple occasions via stakeholder meetings with senior executive staff and briefings with Elected Members about the Project and its progress. The most recent meeting with council took place on 20 February 2025 and covered the consultation approach and benefit sharing. Council has also promoted the Project community information sessions via its channels.

7.1.7 First Nations engagement

The Project acknowledges the Narungga peoples as the traditional custodians of the lands within the Project's social area of influence, also respects clan-specific interests, such as those of the Windera people.

Engagement with First Nations communities is guided by the First Nations Clean Energy Strategy 2024–2030 (Australian Government, 2024), which aims to empower communities with clean energy, foster equitable partnerships, and deliver economic benefits. Engagement is further informed by the Aboriginal and Torres Strait Islander Best Practice Principles for Clean Energy Projects (First Nationa Clean Energy Network, 2022), which promote culturally respectful, inclusive, and best practice approaches to large-scale renewable energy developments.

Tilt Renewables has commenced engagement will NNAC, with the following activities having been undertaken to date:

- A Project briefing memo was provided to NNAC (via RAWSA) in February 2025
- Tilt renewables have requested to attend a NNAC Board meeting to allow representatives from the Project present to the NNAC Board on the Project. The NNAC Board have not yet been able to accommodate the request for attendance at the meeting at present, however discussions are still ongoing.
- HIS undertook a cultural heritage survey across the Project Area and adjacent road reserves. The survey was conducted on 10 June 2025 with participation from Traditional Owners and Tilt Renewables' staff. The survey will be supported with a desktop assessment (in progress), which will provide an overview of pervious anthropological, archaeological, and historical research on the Project Area as well as outcomes from the field survey.

Ongoing engagement with NNAC will continue throughout Project planning and development, with the Project team remaining available to meet at NNAC's convenience and committed to transparently communicating the outcomes of cultural heritage assessments.

7.2 Consultation Plan

Section 61(4) of the HRE Act requires consultation on a proposed EIR and SEO. Furthermore, Regulation 33(2) of the HRE Regulations requires that the applicant must present a Consultation Plan for approval that:

- includes a list of all identified landowners, traditional owners under the AH Act and government agencies
- describes the proposed method of engagement and how the licensee intends to respond to relevant issues raised during consultation
- focuses the engagement on the environmental objectives, assessment criteria, and methods for managing and controlling potential impacts
- identifies all relevant parts of the environmental impact report that will be consulted upon
- allows public submissions, if relevant.

The Consultation Plan prepared for the Project is provided in Appendix F. A summary of issues raised and how these issues have been considered in the Project design or environmental impact assessment is provided in Table 7.1.

It should be noted that this Consultation Plan only covers Applicant-led consultation prior to submission of the EIR and SEO to DEM for approval, as required under Section 61(4) of the HRE Act. Further consultation will occur after submission of the EIR and SEO to DEM, which will include public consultation of the EIR and SEO, along with supporting technical studies as appendices of the EIR, by DEM as required under Section 72 of the HRE Act, and ongoing consultation by Tilt Renewables which will occur outside of the HRE Act process.

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Table 7.1 Summary of issues raised and how the issues have been considered in the Project design or environmental impact assessment [placeholder – to be updated after public consultation]

Issue raised	Concerned stakeholder(s)	How the issue has been considered

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8 Environmental impact assessment

8.1 Ecology (flora and fauna)

8.1.1 Assessment methodology

Flora and fauna impacts for the Project have been considered based on the Ecological Assessment undertaken for the Project by WSP (2025a). The assessment included:

- Desktop assessment to determine the potential for any nationally- or State-threatened flora or fauna species and TECs within the Project Area
- A field assessment undertaken in accordance with the *Bushland Assessment Manual* (Native Vegetation Council, 2024). The field assessment was undertaken on 3 December 2024 by an NVC Accredited Consultant
- A targeted PBTL survey undertaken on 25 March 2025 by an NVC Accredited Consultant.

Further information on the assessments undertaken is provided in the Snowtown BESS Ecological Assessment provided in Appendix C. The targeted PBTL survey is provided as Appendix B of the Ecological Assessment.

8.1.2 Potential impacts

8.1.2.1 Flora

The Project Area is situated within non-native cropping land, with the only impacts to native vegetation within the road reserves along Wokurna Road and Hewitt Road. Native vegetation impacts within these areas are required in order to support establishment and construction of access to the Project Area. It is expected that these impacts will result in clearance of up to 0.0247 hectares of VA 1: *Austrostipa scabra grassland* with exotic grasses and herbs; noting the area of clearance will be further reduced through the detailed design phase where feasible (WSP Australia Pty Limited, 2025a).

The Project will avoid impacts to higher quality vegetation in proximity to the Project Area, including VA 2: *Acacia pycnantha over* exotic herbs and grasses located on Hewitt Road near the Snowtown Substation, as well as the *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare) identified on Hewitt Road towards the southern end of the Project Area.

The maximin native vegetation clearance area for the Project is shown in Figure 8.1.

The native clearance was assessed to be a Level 2 and will require approval under the NV Act with an estimated Significant Environmental Benefit (SEB) offset of approximately $500. Albeit as small amount of clearance (<0.05 ha), the clearance level is elevated to Level 2 due to the potential presence of NPW Act and EPBC Act listed species including PBTL, Southern Whiteface and Yellow-tailed Cockatoo. However, further assessment indicates the habitat is poor or unsuitable for these species.

The Project has potential to cause indirect impacts to native vegetation due to the generation of dust during construction and the risk of altering hydrology which could impact the quality of native vegetation in proximity to the Project.

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Snowtown BESS project

Figure 8.1
Vegetation associations
and proposed Clearance Area

Legend

Clearance Area

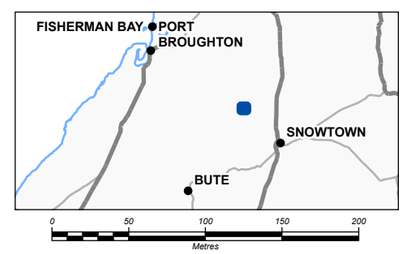
Vegetation Associations

A1: *Austrostipa scabra* grassland with exotic grasses and herbs

A2: *Acacia pycnantha* over exotic herbs and grasses

Exotic - Non-native grasses and herbs

Exotic - Cropping land



0 50 100 150 200
Metres

Coordinate system: GDA2020 MGA Zone 54

Scale ratio correct when printed at A3

1:4,000 Date: 27/05/2025

Data sources: SA Government, Metromap

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8.1.2.2 Fauna

Given that the Ecological Assessment deemed that the Project Area and adjacent road reserve are not likely to provide important habitat for threatened species under the NPW Act or EPBC Act, it is not expected that any threatened species will be impacted by the Project (WSP Australia Pty Limited, 2025a). As the Project is not likely to impact any EPBC listed species, the Project does not require referral under the EPBC Act. This has been confirmed by an EPBC Risk Assessment for the Project, undertaken in accordance with the Department for Climate Change, Energy and the Environment's (2013) *Significant Impact Guidelines 1.1* (WSP Australia Pty Limited, 2025b).

Vegetation clearance may result in impacts to foraging habitat for common bird species, such as Australasian Pipit (*Anthus novaeseelandiae*) and Brown Songlark (*Cincloramphus cruralis*) but impacts are not expected to be significant, as the vegetation does not provide important habitat for these species.

Common bird species foraging in the area may also be indirectly impacted by noise generated during construction and operation of the Project.

8.1.2.3 Weeds and pests

The field assessment identified that weed growth was prevalent in and adjacent to the Project Area, which included three species of Declared weeds under the LSA Act (WSP Australia Pty Limited, 2025a) (discussed further in Appendix C). As such, activity from the Project has an elevated risk of facilitating the spread of weeds within and from the Project Area through the movement of plant material or through soil on vehicles and equipment. This could lead to increased weed growth as well as a reduction in the quality of habitat for native flora and fauna species.

Furthermore, the movement of plant material or soil could potentially spread disease or pests that could impact on livestock or crops within or surrounding the Project Area.

8.1.3 Management and mitigation measures

The following management and mitigation measures are recommended to minimise potential impacts to flora and fauna as a result of the Project:

- Detailed design will seek to further minimise impacts to native vegetation and will avoid impacts to higher quality native vegetation identified in and around the Project Area, specifically the patch of *Acacia pycnantha* over exotic herbs and grasses and the individual of *Maireana rohrlachii* (Rohrlach's Bluebush).
- No clearance of native vegetation will occur until the appropriate authorisations are in place.
- Native vegetation clearance will be appropriately offset with a SEB determined based on the final clearance area. The SEB will be delivered in accordance with NVC's *Policy for a Significant Environmental Benefit 2020.*
- Construction, operation and rehabilitation will be undertaken in accordance with any conditions applied under native vegetation clearance approval.
- The CEMP and OMP for the Project will include standard procedures for minimising impacts to native vegetation and fauna, including (but not limited to) clearly delineating the area to be cleared minimise the risk of clearance occurring outside of the approved disturbance footprint and ensuring appropriate dust and water management is undertaken to reduce potential native vegetation impacts.
- Weed and biosecurity measures will be documented in the CEMP and OMP and will be developed to comply with legislative requirements. This will include management measures to control the establishment and dispersal of weeds and disease throughout the Project Area. Targeted control of isolated priority weed occurrences should be undertaken, as required.
- The construction contractor will be required to seek a permit under the LSA Act for the transportation of Declared weeds on public roads, should plant matter or soil contaminated by plant matter (including seeds) from Declared weeds require offsite disposal.

8.2 Hydrology, erosion, and drainage assessment

The following section provides a summary of the outcomes of a Desktop Hydrology Assessment that was undertaken for the Project.

The full Desktop Hydrology Assessment is provided in Appendix E.

8.2.1 Assessment methodology

The aim of the Desktop Hydrology Assessment was to assess the hydrology and flood conditions of the Project Area and potential risk to the indicative infrastructure footprint.

The assessment was undertaken via the following:

- obtaining and reviewing available topographic data and climate data including rainfall data
- delineating and defining catchments areas contributing to surface water runoff
- identify constraints and limitations from a flood risk perspective.

The topography of the assessment area was defined through the 50 cm LiDAR contours captured in October 2017 and provided by Tilt Renewables on 7 November 2024, which covers approximately 8 km^2 from the existing substation to Barunga Top Road downstream of the BESS site. The 1 m contours covering the area further upstream of the indicative Project footprint was also provided by Tilt Renewables and was used for catchment delineation.

8.2.2 Potential impacts

The Desktop Hydrology Assessment identified that the indicative Project footprint is located within a flow path with catchment area of approximately 1 km^2 (999994.34 m^2) (as shown in Figure 6.2). As such, Project siting and detailed design should consider the potential overland flooding from the upslope catchment and its flow path. The assessment identified that the 1% Annual Exceedance Probability (AEP) design discharge for the catchment upstream of the indicative Project footprint is approximately 11 cubic metres per second (m^3/s). It is recommended that detailed hydrologic and hydraulic modelling including the climate change effects, informed by survey or high-resolution topographic data, be undertaken to define the flood extent, depths and velocities along this flow path across the infrastructure footprint to assess the flood conditions and potential impacts of the Project.

It should be noted that this flow path is not identified as a Priority Watercourse under the *Northern and Yorke Water Affecting Activities Control Policy* (2020) (the Northern and Yorke Landscape Board being the applicable Landscape Management Region for the Project Area) and as such, impacts to this flow path are understood to not require a Water Affecting Activities Permit (WAAP) under the LSA Act.

Construction of the Project will involve earthmoving activities to form the access tracks and hardstands for structures. There is an approximate 9 m level difference from the eastern side to the western side of the Project Area. Therefore, the site works may include benching or shoring depending on the depth of excavation.

Civil works are likely to include the stripping of topsoil and localised regrading to ensure the access roads are trafficable and drains stormwater away from the access track and the Project Area. Any localised regrading across the Project Area will need to be considered in terms of potential impacts to existing watercourses and catchments.

Trenching (to link power, communications, stormwater culverts) are likely to include the stripping of topsoil, excavation, backfill and replacing of topsoil. Excess excavated material should be utilised in fill zones elsewhere within the Project Area where practicable.

Despite no existing record of shallow groundwater (see Section 8.3), there still could be a potential for groundwater to be encountered during excavation for the trenching of services and excavations for structures. In the unlikely scenario that groundwater is encountered during construction, dewatering activities would need to be undertaken in accordance with the EPA guideline *Water Quality: Environmental management of dewatering during construction activities* (2021).

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Storm events during construction may result in sediment impacting downstream watercourses. Class 1 or 2 pollutants present during construction have the potential to enter waterways downstream and impact the environment. Class 1 or 2 Pollutants are listed under the *Environment Protection (Water Quality) Policy 2015*, stating a person must not discharge these pollutants into waterways or onto land from which it is likely they will enter a waterway.

Spills and leaks from construction vehicles may cause contamination and enter waterways. Standard operating procedures should be followed during construction to ensure machinery is well maintained and do not enter the site with any leaks present.

Based on the current indicative layout, Project infrastructure will be required to be filled above the design flood levels with appropriate freeboard and additionally cut-off drains potentially required to divert the upstream runoff. It is recommended that the feasibility of potential cut-off drains for diverting the upstream surface runoff be investigated considering the design and environmental constraints, if any. Subject to further investigation and modelling, a basin may also be required for the Project Area, to reduce the peak runoff discharge to mitigate any potential impact to the downstream area.

The Project will increase the quantity of impervious surfaces across the Project Area, due to the construction of hardstand zones, buildings, and access tracks; and in turn will increase runoff and risk of erosion and pollutant contribution downstream. External surface flows may pass over the BESS facility and if not captured or diverted, increase the risk of erosion and pollutant contribution downstream.

Operation of the Project is likely to generate waste streams including operational equipment waste, for example replaced battery modules, used transformer oil, etc., on-site office waste and waste generated by workers including general waste and recycling from everyday operations. While only minimal chemicals are expected to be kept onsite during operation, pollutants from the operation of the Project should be prevented from entering surface flows and any local stormwater system. If contaminated stormwater is discharged into any waters or onto land in a place from which it is reasonably likely to enter any waters (including by processes such as seepage or infiltration or carriage by wind, rain, sea spray or stormwater or by the rising of the water table) it is deemed an offence under the *Environment Protection (Water Quality) Policy 2015.*

8.2.3 Management and mitigation measures

The following management and mitigation should be implemented to manage potential risk to water quality impacts and to mitigate the potential flood risks to the Project:

- Further detailed flood modelling will be undertaken to inform the detailed design of the Project. The detailed flood modelling will be informed by survey or high-resolution topographic data.
- Key project components (e.g., BESS, electrical infrastructure or buildings) will be located away from the flow paths or alternatively, the finished level of the proposed bench area and key project components will be raised above the design flood levels with appropriate freeboard.
- Surface water management measures will be designed to have sufficient capacity to mitigate any potential flood impacts to the existing substation adjacent to the Project Area. This should include:
  - consideration cut-off drains to divert upstream surface runoff
  - consideration of requirements for cross drainage structures or low-level causeways across access tracks
  - consideration of detention requirements to reduce flood risks and mitigate potential flood impacts.
- The final design will be developed such that pre-development flows of the wider catchment are not adversely impacted.

- Site water quality controls will be designed so that any stormwater runoff from the Project Area is to meet all relevant regulatory requirements under the EP Act and the *Environment Protection (Water Quality) Policy 2015* and associated Australian Runoff Quality Guidelines. This may include treatment of pollutants such as Total Nitrogen, Total Phosphorus, Total Suspended Solids, Gross Pollutants, and oils if there is a notable risk posed to the downstream existing network or watercourses.
- The detention pond and any sediment control measures will include regular monitoring and maintenance to support compliance with *Environment Protection (Water Quality) Policy 2015*.
- A SEDMP will be developed and implemented during construction, as a sub-plan of the CEMP.
- Disturbed areas not required for ongoing use will be stabilised following construction works.

8.3 Soils and geology

8.3.1 Assessment methodology

A soils and geology assessment has been undertaken for the Project Area and included the following:

- A geotechnical desktop search using publicly available information (as summarised in Section 6.5)
- Assessment of potential impacts of construction on soils and groundwater based on technical experience and a review of baseline conditions outlined in Section 6.5 and the Preliminary Geotechnical Investigation Report undertaken by SMEC Australia (2017).

8.3.2 Potential impacts

The following sections outline geotechnical considerations for the Project, based on the available geotechnical data for the Project Area (as discussed in Section 6.5).

8.3.2.1 Presence of topsoil

Topsoil of 300 mm thick was found in the 2017 geotechnical investigation. Topsoil will not be suitable as a founding layer for footings and or pavements/hardstands and would need to be stripped and stockpiled, and may be suitable for reuse following further geotechnical assessment.

8.3.2.2 Trafficability/pavements

As outlined in Section 6.5, the Project Area may be underlain by alluvial clay soils, which may be expansive, close to surface. Clay and soils are susceptible to softening upon wetting and construction traffic may cause disturbance of softened soils, causing rutting if mitigation measures are not implemented.

8.3.2.3 Excavatability

It is generally expected that near-surface materials should be readily excavatable by conventional earthmoving equipment, but consideration should be given to the potential for encountering rock strength material and potential Kunkar (calcrete) capping. Further assessment of excavatability will be required to inform construction of the Project.

8.3.2.4 Surface runoff and dispersive soils

Consideration should be given to the potentially dispersive nature of the soils in the Project Area but this should be confirmed by site-specific testing. Consideration should be given to erosion of soil materials during rainfall events.

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8.3.2.5 Groundwater

Groundwater is unlikely to affect excavations for footing within the Project Area, since the formation levels are likely to be well above groundwater.

It is possible that shallow perched groundwater may be encountered. The presence and the level of perched groundwater could change over time as perched groundwater is derived from local infiltration of water into the sub-surface soil profile, such as by recharge of surface water run-off into the ground below unsealed areas in the general vicinity following prolonged or heavy rainfall.

8.3.2.6 Re-use of site won material

As outlined by SMEC Australia (2017), site won materials below the topsoil profiles, including clay, sandy clay, gravelly clay, and clayey gravel from excavations may be suitable for re-use as structural or general fill; however, further testing and assessment will be required to compare material types with the project specifications.

8.3.2.7 Soil aggressivity

The results of chemical testing from the 2017 investigation indicate that for buried structures and exposure classification of 'non- aggressive' for concrete and 'mild' for steel. This assessment was based on testing of two samples of soil and further testing will be required to assess exposure classification as the design develops.

8.3.3 Management and mitigation measures

The following management and mitigation measures are recommended with respect to geotechnical impacts relating to the Project:

- Allowance should be made for the construction and maintenance of rubble access tracks and platforms (crushed rock material surfacing) to provide trafficable surfaces for construction
- Consideration should be given to the potential of encountering rock strength material in the near surface profile
- Consideration should be given to erosion of soil materials during rainfall event. Allowance should be included for additional geotechnical testing and potential for erosion protection, especially near the drainage lines
- Consideration should be given to the impact of perched groundwater and requirements for remedial measures during construction. Dewatering may be required depending on the extent of perched water encountered (if any)
- Allowance should be included for further testing to assess soil aggressivity
- As the above assessment is based on review of published information and a previous preliminary investigation undertaken in 2017, it is recommended that the detailed design is supported by further investigation and geotechnical assessment.

8.4 Site contamination

8.4.1 Assessment methodology

A limited desktop review was undertaken for the Project Area and surrounds to consider PCAs that may have occurred in the area which may impact the Project. The review included a search of the SA EPA Public Register (2025b) for information pertaining to environmental authorisations, licenses or new applications for licenses, site contamination, EPOs, or Clean Up orders.

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8.4.2 Potential impacts

There were no known properties recorded on the EPA Public Register as a contaminated site within the Project Area, and the nearest records relate to properties in Bute, located 20 km south-west of the Project Area. There are no EPA-licensed facilities within the Project Area, and the closest record related to a property approximately 9.3 km south-east of the Project Area for the activity Petrol Stations (Environment Protection Authority, 2025b).

Based on the limited desktop review undertaken, the site does not appear to present an elevated risk of site contamination; however, this is based on limited information and additional preliminary site investigations should be undertaken prior to construction to determine whether a PCA has occurred within the Project Area.

As part of spoil management procedures, the contamination status of material will need to be assessed (as discussed in Section 8.4.3).

8.4.3 Management and mitigation measures

The following recommendations are made for the management of spoil and mitigation of potential risks to the environment and human health from site contamination during construction phase of the Project:

- Site won material may be re-used on-site provided it is appropriately tested and classified as suitable for the proposed land use, in addition to any geotechnical considerations.
- Soil may be re-used at an alternate site provided the requirements of the EPA (2013) *Standard for the Production and Use of Waste Derived Fill* are met.
- Any soil surplus to on-site requirements and proposed for disposal off-site to a licensed waste facility shall be assessed utilising the criteria specified in EPA (2010) Cu*rrent Criteria for the Classification of Waste including Commercial and Industrial Waste (Listed) and Waste Soil*. Acceptance shall be subject to contaminant concentrations, associated waste classification and the licence conditions of individual waste receival facilities.
- Construction phase environmental management and mitigation measures for soil shall be documented in the Project CEMP.

8.5 Aboriginal cultural heritage

8.5.1 Engagement and assessment

WSP has engaged IHS to facilitate a cultural heritage survey across the Project Area and adjacent road reserves. The survey was conducted on 10 June 2025 with participation from Traditional Owners. The survey outcomes report, including a desktop assessment incorporating anthropological, archaeological, and historical research on the Project Area, is currently being developed.

A key outcome of the Heritage Survey Report will be to provide a risk assessment of the Project; highlighting specific areas or activities that may present a risk of damage to Aboriginal heritage sites or objects, and to provide management and mitigation measures to avoid impacting cultural heritage.

Outcomes of the survey and consultation will be incorporated into the detailed design of the Project. If any high-risk Aboriginal heritage sites or objects are identified across the Project Area, the design will aim to avoid these.

In addition, the following management and mitigation measures will be adopted to minimise the risk of impacts to potential unidentified Aboriginal sites or objects:

- If recommended as an outcome of the survey and/or if any Aboriginal heritage sites, objects, or remains are discovered on site, a cultural heritage management plan will be developed with Traditional Owner involvement, and implemented. This management plan would consider the significance of the finds and the potential need for micrositing or amending the design to avoid particular areas.

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- A site discovery procedure will be incorporated into the CEMP, to be implemented in the instance that a potential site or object is discovered during construction works. A suitably qualified Archaeologist will be engaged to assist in the identification of potential discoveries, if required.
- Heritage matters and procedures will be included in site induction, to be undertaken by all site personnel.

The Heritage Survey Report will be provided to DEM separately as some of the information contained may be confidential.

In addition, IHS has facilitated introduction of the Project to NNAC, including distributing a Project briefing memo to NNAC (via RAWSA) in February 2025 and requesting a place at a NNAC Board meeting to allow representatives from the Project present to the NNAC Board on the Project. The NNAC Board have not yet been able to accommodate the request for attendance at the meeting at present, however discussions are still ongoing.

8.6 Noise assessment

An Environmental Noise Assessment has been undertaken for the Project by Sonus (2025). The full assessment report is provided in Appendix G.

8.6.1 Assessment methodology

The Environmental Noise Assessment was undertaken to predict compliance of Project operation with the relevant noise goal levels under the *Environmental Protection (Commercial and Industrial Noise) Policy 2023* (Noise Policy).

The Noise Policy provides goal noise levels to be complied with at sensitive receivers based on the P&D Code Zone in which the noise source and the noise receivers are located. The Noise Policy states that where compliance with the goal noise levels is achieved, the general environmental duty under Section 25 of the EP Act is satisfied in relation to noise from a noise source.

The Noise Policy provides the following goal noise levels for operation of the Project and closest receivers both located within the *Rural Zone*:

- An average noise level (L_{eq}) of no more than 57 dB(A) during the day (7:00 am to 10:00 pm)
- An average noise level (L_{eq}) of no more than 50 dB(A) during the night (10:00 pm to 7:00 am).

Based upon 24-hour operation of the BESS, the night-time (10:00 pm to 7:00 am) goal noise level was considered to be the most relevant assessment criterion for assessment of the Project in relation to compliance with the Noise Policy.

The Environmental Noise Assessment used a worst-case scenario approach to model expected noise levels at the four nearest sensitive receivers; which considered sound power data from the noisiest of the two BESS models under consideration, as well as theoretical positioning of proposed noise sources at the closest part of the Project Area to the nearest sensitive receiver – being along the western side of the Project Area as shown in Figure 8.2.

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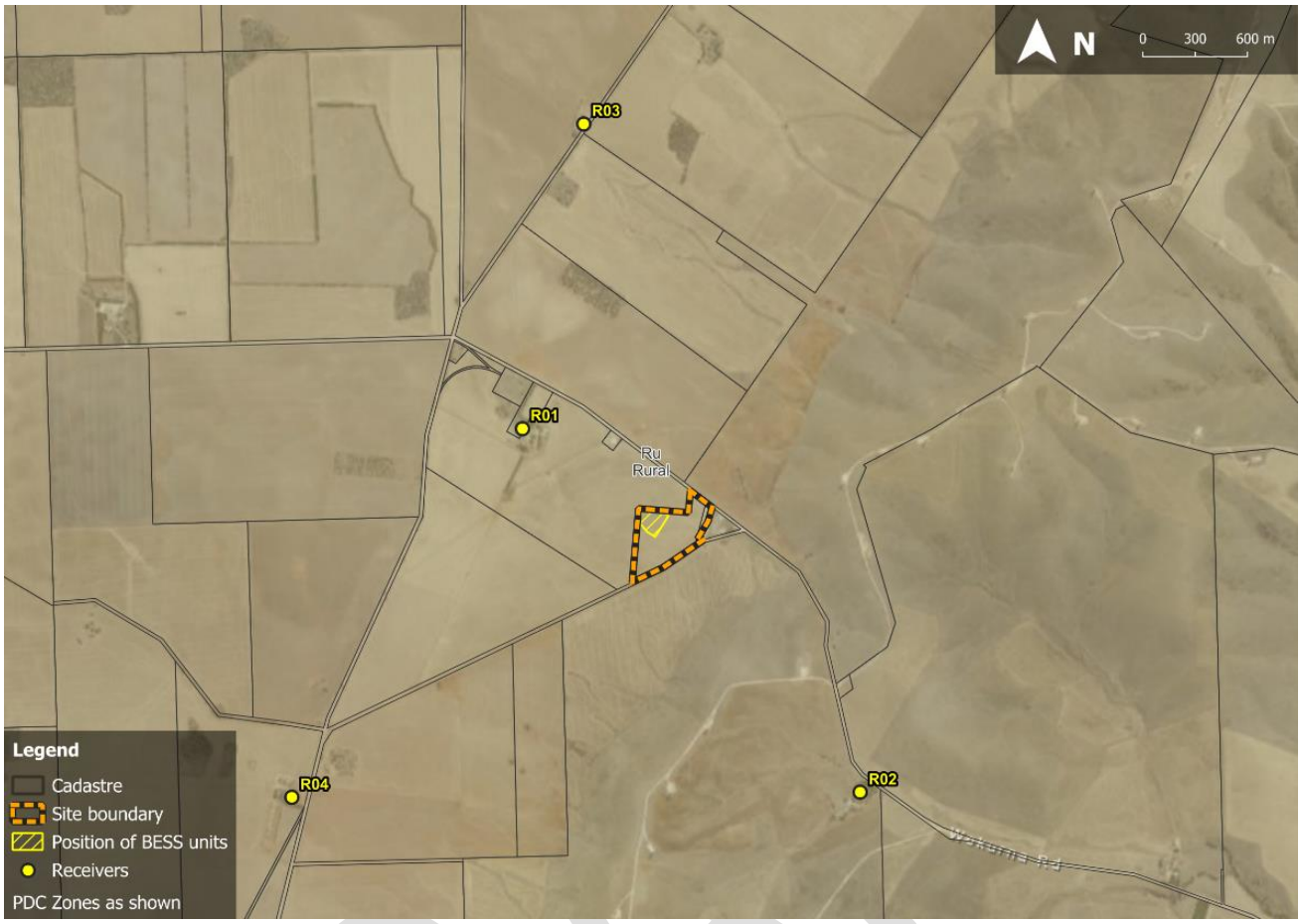

Figure 8.2 Project Area, noise sensitive receiver locations, and modelled worst-case noise source location

Noise from BESS facilities can attract an adjustment for tonal noise character under the Noise Policy if a tone is found to be prominent at the receiver location. No background noise measurements were undertaken as part of the Environmental Noise Assessment, and as such, the Environmental Noise Assessment presented predicted noise levels both with and without a +5 dB(A) adjustment for tonal noise character.

Noise predictions were made using the CONCAWE noise propagation model in SoundPLAN noise modelling software. The CONCAWE noise model divides meteorological conditions into six separate “weather categories”, depending on wind speed, wind direction, time of day and level of cloud cover. Weather Category 1 provides the weather conditions associated with the “lowest” propagation of noise, whilst Weather Category 6 provides “worst-case” (i.e., highest noise level) conditions. Predictions of noise levels generated from the Project were made based upon Weather Category 6.

8.6.2 Potential impacts

The Environmental Noise Assessment found that under a worst-case scenario, noise generated during operation of the Project is modelled to reach 46 dB(A), inclusive of a +5 dB(A) adjustment for tonal noise, at the nearest noise sensitive receiver (see Table 8.1). As such, noise from operation of the Project is expected to remain within the established environmental noise criteria and be compliant with the goal noise levels under the Noise Policy (Sonus, 2025).

Table 8.1 Predicted noise levels

Receiver Location	Criterion Noise Level [dB(A)]	Predicted Noise Level [dB(A)]	
		Without adjustment for tonal noise	With adjustment for tonal noise
R01	50	41	46
R02	50	<20	<25
R03	50	28	33
R04	50	26	31

Construction of the Project may also result in temporary noise impacts from vehicles, plant or machinery to nearby noise sensitive receivers during the approximate 14-month construction period.

8.6.3 Management and mitigation measures

As recommended in the EPA Construction Noise Information Sheet – EPA 425/23 (Environment Protection Authority, 2023) construction activities that may cause adverse noise impacts will be undertaken between the hours of 7.00 am to 7.00 pm Monday to Saturday, where practicable. Activities required to be undertaken outside of the hours of 7.00 am and 7.00 pm Monday to Saturday will be restricted, where practicable, to activities that are unlikely to cause impact to amenity of the area or otherwise will not be undertaken without prior approval from the EPA.

In addition, all reasonable and practicable measures will be taken to minimise noise resulting from the Project during construction to minimise its impact to sensitive receivers. These measures will include:

- Locating noisy equipment (such as cement mixers and masonry saws) so that their impact on neighbouring premises is minimised (e.g., by maximising the distance to noise sensitive receivers)
- Operate plant so as to minimise noise impacts, such as using the minimum power required to complete the task
- Shutting or throttling down equipment (such as backhoes, cranes, bobcats, loaders and generators) whenever they are not in actual use
- Ensuring that all plant is property maintained and that noise reduction devices such as mufflers are fitted and operating effectively

Noise measures for the Project construction will be further detailed in the CEMP.

Based on the findings of the Environmental Noise Assessment (refer to Appendix G), no management or mitigation measures will be required for operational noise.

8.7 Traffic impact assessment

A Traffic Impact Assessment (TIA) was prepared for the Project by WSP (2025d). The full TIA is provided in Appendix H.

8.7.1 Assessment methodology

The TIA was conducted using the following high-level methodology:

- review of the existing site location and constraints
- site inspection of the Project Area and the local road network in the area of influence of the construction activities
- review of the road network including available traffic counts and crash statistics (provided by council and/or traffic volumes and crashes extracted from SA Location Viewer (Goverment of South Australia, n.d.)

- review of previous studies including a TIA Report undertaken for the previously proposed SNSF, which comprised a solar farm and BESS facility within the currently proposed Snowtown BESS Project Area
- review of documents provided by Tilt Renewables relating to the current Project
- review of construction traffic estimates, including volumes provided by Tilt Renewables as well as numbers estimated by WSP
- assessing the physical, operational, and safety impacts along the preferred route for traffic generated during the construction and operational phases of the Project
- identification of measures to mitigate or avoid potential impacts commensurate with the duration of the construction activities.

8.7.2 Potential impacts

The TIA outlined potential impacts to traffic during both the construction and operation phases of the Project. The eventual decommissioning phase will need to be investigated at the time of decommissioning as traffic conditions cannot be adequately considered given the long operational life of the Project. Traffic impact during the decommissioning phase was therefore not assessed as part of the TIA.

The TIA was developed considering:

- Site access via two routes: Augusta Highway to Wokurna Road (east), and Upper Yorke Road to Wokurna Road (west).
- Travel via Barunga Top Road and Barunga Gap Road is discouraged due to limited sight distances at their intersection and the additional travel required on unsealed roads. Instead, Augusta Highway and Upper Yorke Road are recommended as the preferred access routes to the Project Area.

8.7.2.1 Construction

During the construction period, changes to the volume of traffic along the proposed access routes are expected. During Phase 1 – Civil Works, Augusta Highway is expected to serve as the primary access route. Traffic volumes will vary by stage, with approximately 25–30 vehicle trips per day during the mobilisation period, 20–35 trips per day during earthworks and rising further to 30–40 trips per day during the civil and structural works.

During Phase 2 – Installation, Augusta Highway will continue to be the main access route. The highest traffic volumes are expected during the mechanical and electrical installation stage with 50–60 trips per day. This will reduce slightly during the commissioning and reliability testing phase with an estimated 35–45 trips per day.

Based expected traffic volumes during the approximate 14-month construction period (discussed above), the following impacts are anticipated during construction of the Project:

- Project related traffic will increase traffic volumes along the designated transport routes, however based on the expected traffic forecasts for the Project, it is expected that the distribution of vehicle movements will not significantly affect the nominated roads. Temporary increases in daily traffic are projected to range between 30% and 60% on Wokurna Road (east), and up to 20% on Wokurna Road (west). These roads currently experience low traffic volumes, so the relative increase is notable but manageable, though are utilised by large farming equipment and school buses which may require special consideration in regard to construction traffic management. Along Augusta Highway, the increase is expected to be minimal, estimated at 2–4% of existing daily traffic volumes.
- No impacts are expected at key intersections expected to be used by construction traffic, including Augusta Highway/Wokurna Road, Upper Yorke Road/Wokurna Road, and Hewitt Road/Wokurna Road. The current layout and capacity of these intersections are considered sufficient to accommodate the projected traffic volumes.

8.7.2.2 Operation

During normal operations, the Project is expected to be remotely operated, generating very small numbers of vehicles for ongoing operations and maintenance activities. Therefore, significant impacts to the road network are not anticipated.

8.7.3 Management and mitigation measures

8.7.3.1 Construction

The following mitigation measures are recommended to reduce traffic impacts during the construction of the Project:

- Develop a Traffic Management Plan (TMP) to manage all aspects of the Project's delivery. The TMP should address the safe movement of vehicles associated with the Project to, from, and within the Project Area
- Establish and maintain communications with the local authority and local residents (and any other stakeholders) who use the roads regularly to keep them informed on every phase of the Project and what to expect in terms of vehicle traffic movements. Specifically, maintain regular contact and good relations with the residents of the properties located along Wokurna Road between Barunga Top Road and Augusta Highway
- It is recommended that the construction contractor liaise with adjacent farms, to understand timing of livestock movements and educate workers and delivery drivers of the possibility of stock movements which may at times restrict access
- Parking vehicles along the local roads should be discouraged, with adequate parking for workers provided on-site during the construction phase and normal operations
- Where it is in the control of the construction contractor, encourage regular truck operators to use the same local roads to access the Project Area so that the local community becomes familiar with the changed traffic conditions
- During major construction works, ensure plant/equipment/material deliveries are coordinated, ensuring that there is not a need for vehicles to queue on the local road network while waiting to access the site
- Minimise or avoid traffic-generating activities at night-time to avoid noise nuisance and travel along the unlit and unsealed sections of roads and junctions
- If over-dimensional or over-mass vehicles are required, conduct a heavy vehicle assessment and act on the assessment findings prior to submitting an application for permits to operate over dimensional or over-mass vehicles along the required routes
- The following mitigation measures are recommended to reduce impacts with relation to Wokurna Road:
  - The TMP should consider the need for school bus warning signs to be installed at the bus stops along Wokurna Road. It is also recommended that the construction contractor liaise with the local school to determine timings of the bus movements.
  - It is suggested that prior to the commencement of construction activities along Workurna Road, Tilt Renewables, through its delivery contractor, should arrange conditions surveys to be undertaken along the key access roads that may be used during the Project. This will provide a basis for restoring any Project related damage upon completion, if required
  - The construction contractor should ensure that the roads are maintained in an appropriate condition to provide safe movement along them. This will include routine maintenance to clear roads and junctions of loose material, repairing potholes and sections of worn payment, ad-hoc maintenance to restore pavements following inclement weather. This includes dust suppression during dry periods
- The following mitigation measures are recommended to reduce impacts with relation to key intersections:
  - Ongoing monitoring of the road pavement condition and maintenance should be undertaken along Wokurna Road/Augusta Highway, Wokurna Road/Hewitt Road and Wokurna Road/Upper Yorke Road intersections
  - Installation of a new hazard board sign opposite to Wokurna Road on the east side of Augusta Highway to improve visibility of the intersection should be considered in the TMP

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- Consult DIT regarding the need for tree trimming to the north of Augusta Highway, Upper Yorke Road and Wokurna Road intersection to improve restricted sight distances at the intersection.

8.7.3.2 Operation

It is recommended that the following key mitigation measures to be employed during the normal operation phase of the Project to minimise potential traffic impacts:

- Ensuring vehicles accessing the site for general operations/monitoring and maintenance park on-site to reduce impacts to other road users
- Minimise or avoid traffic-generating activities at night-time so as to avoid noise nuisance and travel along the unlit and unsealed sections of roads and junctions.

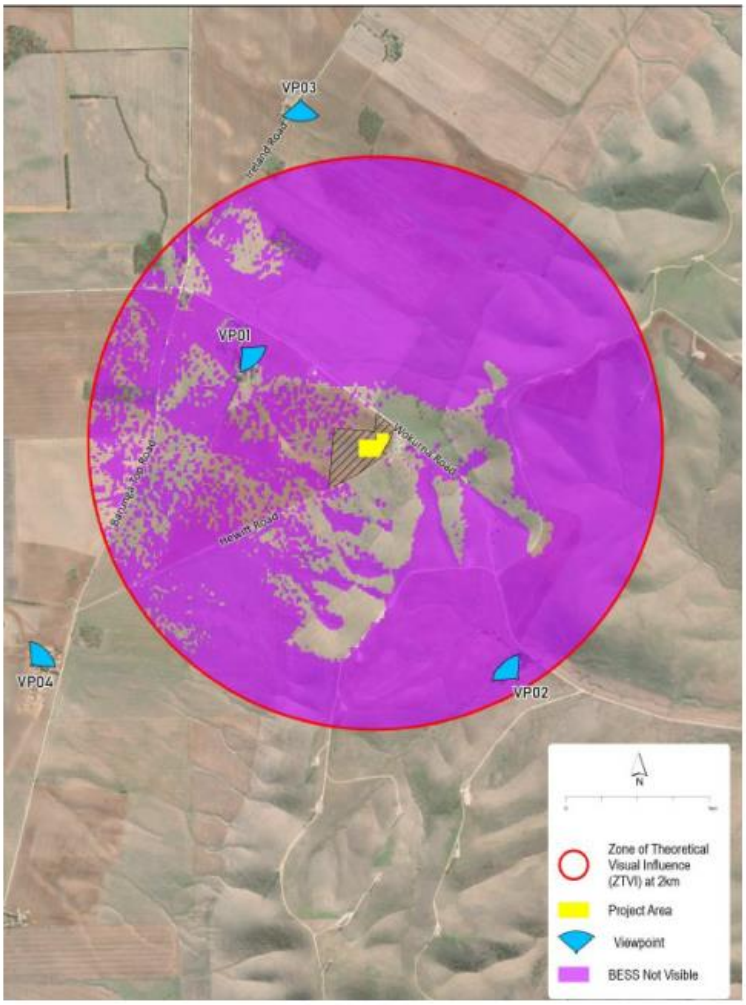
8.8 Visual impact assessment

A Landscape Character and Visual Impact Assessment (LCVIA) was prepared for the Project by Hemisphere Design (Aus) Pty Ltd (2025). The full LCVIA is provided in Appendix I.

8.8.1 Assessment methodology

The LCVIA for the Project involved consideration of best practice guidelines in qualitatively considering the landscape character as prescribed by the *Guidelines for Landscape and Visual Impact Assessment (third edition)* (Landscape Institute (UK), 2013) and the likely visual impact of a Project. The following assessment methodology was employed:

- A preliminary desktop study was completed using Google Earth to remotely analyse the geographical area within which the Project is located. As part of this study, the likely 'Zone of Theoretical Visual Influence' (ZTVI), Viewpoints and, where relevant, a Visibility Shadow were determined. The ZTVI is the defined geographical area within which modification to the contextual landscape as a result of the Project could be potentially discernible or visible. For this Project, the ZTVI was deemed to comprise of a 2 km radius from the centre of the Project (refer to Figure 8.3).
- On-site visit to the area within the ZTVI was undertaken to substantiate, corroborate and refine the desktop assessment. This allowed the determination of areas where the Project will and will not be visible; as well as to identify Viewpoints and Sensitive Receptors (SR) for the Project within the immediate and wider contextual landscape. Photographs were taken on-site from relevant Viewpoints and other general locations to facilitate graphic presentation of the likely development. Four Viewpoints were identified and all of them considered as SRs. The SRs are all locations where views of the more visually prominent infrastructure elements of the Project are potentially likely to be obtained from publicly accessible locations (refer to Figure 8.3).
- A landscape assessment was undertaken that evaluates the physical and visual character of the area, including landform, land use, and cultural features. It establishes a baseline to judge how the Project might affect the landscape's quality. Scenic quality is rated from high to none, based on the presence and condition of valued features. The landscape's sensitivity to change assesses how well landscape can absorb the visual impact of the development. Sensitivity levels range from high to negligible and are influenced by factors like land use, openness of views, potential for mitigation, and how valued or frequently viewed the landscape is.
- A cumulative visual impact assessment was then undertaken to evaluate the additional visual changes caused by the Project when considered alongside other existing or planned developments in the area.



(Hemisphere Design (Aust) Pty Ltd, 2025)

Figure 8.3 Zone of theoretical visual influence (ZTVI) and identified Viewpoints

8.8.2 Existing conditions

The landscape surrounding the Project Area was found to be characterised as being of low scenic quality and has a low sensitivity to change.

The Project is situated in a sparsely populated area west of Snowtown, within a landscape dominated by open agricultural fields and existing renewable energy infrastructure, including the Snowtown and Clements Gap Wind Farms. These wind farms, along with transmission lines, were identified as prominent and accepted visual features in the area. The landscape was described as monumental and expansive, with minimal vegetation, allowing it to absorb large-scale infrastructure without significant visual disruption.

The immediate setting of the Project was described as a rural corridor framed by the Barunga Range, characterised by uniform cropping fields and minimal tree cover. The visual experience was explained to be relatively subdued, with the existing substation infrastructure already present in the foreground. The surrounding local roads are unsealed and primarily used by residents, meaning public exposure to the Project is limited.

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8.8.3 *Potential impacts*

During the construction of the Project, temporary changes to visual amenity will occur. Construction works within the Project Area are not anticipated to significantly affect visual amenity. Any changes will be due mainly, but not limited to, the presence of construction equipment, earthworks activities, and an overall increase in the number of people and large vehicles at the site and at roadside locations. The changing visual environment and activity during construction will be temporary and as the number of individuals impacted will likely be low, is not considered further in the visual impact assessment.

The LCVIA assessed that the Project would be indiscernible or anonymous within the landscape when viewed from the identified Viewpoints. Photomontages showing an impression of the proposed Project infrastructure, within the landscape from the four Viewpoints are provided in below in Figure 8.4, Figure 8.5, Figure 8.6, and Figure 8.7 (Hemisphere Design (Aust) Pty Ltd, 2025).

(Hemisphere Design (Aust) Pty Ltd, 2025)

Figure 8.4 Photomontage view of the Project from Viewpoint 01 (VP01) adjacent 953 Wokurna Road looking southeast

(Hemisphere Design (Aust) Pty Ltd, 2025)

Figure 8.5 Photomontage view of the Project from Viewpoint 02 (VP02) adjacent 631 Wokurna Road looking northwest

(Hemisphere Design (Aust) Pty Ltd, 2025)

Figure 8.6 Photomontage view of the Project from Viewpoint 03 (VP03) adjacent 127 Ireland Road looking south

(Hemisphere Design (Aust) Pty Ltd, 2025)

Figure 8.7 Photomontage view of the Project from Viewpoint 04 (VP04) adjacent 1185 Barunga Top Road

The LCVIA recommended that when considering the operational impacts of the Project individually and cumulatively on the visual landscape within the 2 km ZTVI, the Project would result in no change to all four SR locations (Hemisphere Design (Aust) Pty Ltd, 2025). The locality is one characterised through the presence of highly visible renewable energy infrastructure and more utilitarian services infrastructure, and as such, the Project may be seen as a complementary visual feature of within the landscape.

8.8.4 Management and mitigation measures

Given the expected lack of change regarding visual impacts of the Project, mitigation measures are not deemed to be required.

As outlined in Section 4.1, as part of the Project design the BESS infrastructure will be finished in neutral colours, which will assist in minimising visual impacts.

8.9 Air quality assessment

8.9.1 Assessment methodology

An air quality assessment was undertaken for the Project, which considered the potential dust-related air quality impacts from the construction and operation of the Project. The background air quality in the Project Area and surrounds is typical of rural Australia. The potential air impacts during the construction and operation of the Project were assessed using a risk-based qualitative approach.

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8.9.2 Potential impacts

The main air quality impacts during construction of the Project would be associated with airborne particulate matter (PM) of varying size fractions (deposited dust, Total Suspended Particulates [TSP], PM_{10}, and $PM_{2.5}$) from the following typical construction activities:

- site preparation works; including fencing, preliminary civil works and drainage, access road and internal track construction, construction of site offices and facilities
- installation of footings and infrastructure
- removal of temporary construction facilities and rehabilitation of disturbed areas.

Equipment required for construction is expected to include earth moving equipment, trucks, and cranes. Materials required will include gravel, concrete, and infrastructure components.

Odour emissions for some of the activities e.g., excavation works of potentially contaminated soil, may also occur although it is anticipated that any such occurrence would be localised and not impact sensitive receptors off-site, and furthermore, is not currently expected based on the outcomes of the desktop site contamination review (see Section 8.4). Emissions (CO, NO_x, SO_2, particulate matter fractions [PM_{10} and $PM_{2.5}$], volatile organic compounds (VOCs) and semi-volatile organic compounds [SVOCs including PAHs]) from heavy commercial vehicles (HCVs) and mobile plant and machinery would occur from the combustion of diesel and petrol fuel.

Impacts from the operation of mobile plant and machinery would depend on the number and power outputs of the combustion engines, the quality of the fuel and engine maintenance. Notwithstanding, these sources are considered to be minor given their intermittent nature, duration, geographical extent over which these emissions occur and the low number of sensitive receptors that may be directly impacted.

There are no sensitive residential receivers within 250 m of the Project Area, therefore potential impacts associated with earthworks and construction activities are expected to be insignificant. The transport of materials, equipment or construction personnel to the Project Area may generate dust generation on unsealed roads. Sensitive receivers along these roads have the potential to be affected by wheel-generated dust, but the impact is anticipated to be minor due to the intermittent nature of construction and low number of vehicle movements.

Proposed management measures presented in Section 8.9.3. have been developed to minimise air quality impacts during construction.

Given the nature of the Project, ongoing operational air quality impacts are not expected, and would be limited mostly to airborne dust due to vehicle movement on unsealed access tracks.

At the end of the Project lifespan, the Project will be decommissioned. The main air emission sources during decommissioning are likely to be during:

- removal of all infrastructure from the Project Area
- remediation of the land to its pre-Project development condition.

Low levels of particulate matter of varying size fractions and vehicular emissions may be generated during these works and are not expected to impact on the receiving environment.

8.9.3 Management and mitigation measures

The following management and mitigation measures are recommended to manage potential air quality impacts from the Project during construction:

- Construction air quality management measures are to be detailed in the CEMP and implemented during construction to minimise particulate and gaseous emissions as far as reasonably practicable. Measures will include (but are not limited to):
  - use of water sprays or dust suppression surfactants as required for dust suppression

- adjusting the intensity of activities based on observed dust levels and weather forecasts (e.g., periods of high winds, >10 metres per second)
- minimising the amount of materials stockpiled and position stockpiles away from surrounding receivers
- keep stockpiles bunded, moist or covered to minimise wind erosion. Cover/protect other areas susceptible to significant dust emissions from wind erosion
- ensure vehicles remain on designated tracks and adhere to on-site speed limits. Regular watering on unsealed surfaces and unsealed road, particularly during periods of dry and windy conditions (> 10 metres per second)
- covering of loads
- stabilising disturbed areas as soon as practicable, including new access routes
- minimising the extent of disturbance as far as practicable
- regularly conduct visual inspections of dust emissions and apply additional controls as required.
- vehicles and machinery will be fitted with appropriate emission control equipment and maintained in a proper and efficient manner
- unnecessary idling of vehicles will be avoided.

- During both construction and operation of the Project, vehicle speeds on unsealed roads and access tracks will be limited to minimise wheel generated dust.

8.10 BESS hazard and risk assessment

A Preliminary Hazard Analysis (PHA) was undertaken for the Project. The PHA outlines potential design and operational risks of the Project and recommends mitigation measures to be considered during the Project's detailed design. The full PHA is provided in Appendix J.

8.10.1 Assessment methodology

The PHA utilised the following methodology to assess the risk associated with the Project:

- Identification of risks associated with the proposed system and the aspects of the system were investigated including electrical hazards, thermal runaway, bushfire, flooding, operational noise emissions, seismic events, pollutant release, lightning strikes, vehicular impact, physical security breaches, and cybersecurity breaches.
- Assigning a *likelihood of occurrence* rating for each risk. The likelihood was scored on a scale of one to five, with one representing a *rare* likelihood, two being *unlikely*, three being *possible*, four being *likely* and five being *almost certain*
- Assigning a *severity of consequences* rating for each risk. The severity was scored on a scale of one to four, with one representing *minor consequence*, two being *medium consequence*, three being *severe consequence* and four being *critical*
- Calculation of risk category. Risks were categorised by their severity (consequence) and their probability (likelihood) and relate to risk prior to the implementation of mitigation measures (and hence are not reflective of risks relating to the final design of the Project)
- Identification of possible mitigation strategies.

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8.10.2 Potential Impact

The PHA identified that inadvertent Electric Shock was assigned a *high risk*; however, with the recommended mitigation measures in place this risk could be reduced to *moderate*. The assessment also identified that Thermal Runaway events were assigned a *moderate risk* rating. As raised above, these risk ratings are prior to the implementation of additional mitigation measures and may not be reflective of the final design for the Project. All other risks were considered *low* (WSP Australia Pty Limited, 2025e).

8.10.3 Management and mitigation measures

Recommendations for management and mitigation measures for moderate or high risks were:

- **Electric Shock:** To reduce the risk of Electric shock, a Safety in Design workshop is to be held during detailed design to address the risk across the various components of the BESS, with controls and mitigations implemented and installed as appropriate.
- **Thermal Runaway:** To reduce the risk of a thermal runaway event, WSP (2025e) recommends the design and installation of an independent fire detection system, in addition to the Battery Management System that is expected to be inbuilt to each inverter battery module. Control and monitoring network communications within BESS yards should be designed and maintained such that they remain secure and reliable throughout the operation phase. Any reliance on public communication networks to support fire detection and BESS management systems should be avoided or designed to ensure high service reliability. A fire safety study should be completed during the detailed design stage to determine the required safety clearances, radiant heat flux withstand requirement and firefighting methodologies. BESS modules should be certified to UL1973 (or equivalent) and BESS units tested to UL9540A system level tests, allowing for the use of UL9540A test data from similar BESS modules, where any deviations in equipment are minor and do not impact thermal runaway characteristics.
- Ongoing monitoring of electrical safety compliance and implementation of various safe working procedures throughout the Project development is also recommended.

Although all other hazards were considered low risk following the assessment, additional mitigation and management measures are provided Section 3 of the PHA (see Appendix J) to further lower these risks.

8.11 Social impact assessment

A Social and Community Assessment (SCA) was undertaken for the Project by WSP (2025f). The full assessment is provided in Appendix K.

8.11.1 Assessment methodology

The SCA was developed using a desktop research approach. It was based on statistical information from the Australian Bureau of Statistics, State and Local Government websites, and Regional Development Australia Yorke and Mid North (RDAYMN) and analysis of the stakeholder and community engagement Tilt Renewables have carried out to date.

The SCA adopted a proportionate level of assessment for the Project guided by the New South Wales Government (2023) *Social Impact Assessment Guideline* (SIA Guideline) and Technical Supplement as the current leading practice methodology for scoping and assessing impacts in Australia. This methodology also meets the requirements for a scoping-level of assessment detailed in PlanSA guidance for Impact Assessed development under the PDI Act (PlanSA, 2022).

The SCA defines the social area of influence by considering stakeholders most likely to experience direct and indirect socio-economic impacts, and their geographic location, and provides a baseline summary of the current socio-economic conditions of the social locality surrounding the proposed Project.

The local area of influence comprises the communities and landholdings that will directly experience impacts. This includes Wokurna, Snowtown, and Mundoora ABS Suburbs and Localities (SAL).

The regional area of influence is formed by the communities expected to experience indirect social impacts, particularly regarding employment and accommodation. This area is compromised by Wakefield–Barunga West and Clare ABS Statistical Area Level 2 (SA2s). Clare is included as it is assumed that some workers will be accommodated there.

Qualitative and quantitative sources were used to identify and evaluate the potential impacts that the Project may have on the communities and people in the social locality during construction and operation of the BESS and associated infrastructure. Social impacts identified in the assessment were categorised according to community, way of life, access, culture, health and wellbeing, surroundings, livelihoods and decision making.

The significance (positive or negative) of each social impact was then assessed based on likelihood and magnitude. Where potential impacts were considered to have negative consequences, or where potential opportunities exist, management or mitigation measures were proposed.

8.11.2 Potential impacts

The SCA identified that the construction phase of the Project is likely to result in the following potential positive social and community impacts:

- Increased spending at local businesses positively contributing to local economy, temporarily increasing income for business owners.
- Increased demand for local short-term accommodation from the non-resident workforce will boost the regional economy, benefiting short-term providers in Clare and Snowtown. It is noted, however, that this could strain the tourism market if capacity is limited, resulting in a medium negative impact.
- Increased employment opportunities for regional labour force, positively contributing to local and regional economy, and social wellbeing.

The SCA identified the following potential negative social and community impacts may result from the construction phase of the Project:

- Increased traffic reducing local producers' ability to conduct livestock activities and harvesting.
- Temporary increases in heavy vehicle traffic may disrupt daily routines and compromise road safety. Additionally, an influx of non-resident workers could heighten public safety concerns due to potential unsafe driving behaviours, impacting the community's overall sense of security.
- Amenity impacts (noise, air, and visual impacts).

The SCA identified that the only negative social impact during the operation phase of the Project is community stress due to perceived increased risk of bushfire, which could pose a threat to both community safety and the natural environment. However, this phase also brings two long-term positive impacts:

- The implementation of the Benefit Sharing Plan, designed to enhance social and economic outcomes for both local and regional communities, supporting sustainable development and community resilience.
- Maintaining the operational reliability of the electricity grid for the region.

From a cumulative perspective, the Project may contribute to increased traffic volumes, leading to accelerated road wear, infrastructure damage, and heightened safety concerns. Conversely, the cumulative economic impact is expected to be positive, driven by procurement opportunities and increased demand for goods and services during construction (WSP Australia Pty Limited, 2025f).

8.11.3 Management and mitigation measures

Table 8.2 details the key social impact mitigation measures recommended by the SCA to avoid, minimise or mitigate negative impacts of the Project and to maximise the positive impacts identified.

Table 8.2 Recommended mitigation measures

Ref	Impact	Mitigation / Enhancement	Summary
1	Procurement of local goods and services resulting in increased spending at local businesses. Increased employment opportunities for local and regional labour force.	Create employment opportunities for local workers and communities Stakeholder engagement Goods and Services Register	It is recommended that Tilt Renewables identifies opportunities for employment of local and regional workforce, as well as promoting the engagement of regional suppliers on the Project. This should be discussed with the contractor to be engaged. A Goods and Services Register should be established and maintained to allow local businesses to register their interest in providing goods and services for the Project during the construction phase. Registered businesses should be invited to 'meet the contractor' sessions. These sessions would provide information about Project opportunities, pre-qualification requirements, and allow businesses to provide feedback on how to maximise local participation.
2	Increased traffic impacting people's daily routines, travel, public safety and sense of road safety.	Traffic management planning and stakeholder engagement with landowners and Councils Complaints Handling Procedure	Implementation of the TMP and community consultation to ensure adequate notification of works and traffic changes. Implementation of traffic mitigation measures identified in the traffic impact assessment (refer to Section 8.7.3 for further information). Implementation of traffic mitigation measures identified through community consultation where fair and reasonable (for example to avoid impact on stock movements along the Project transport route). Implement a Complaints Handling Procedure for the Project.
3	Impact on sense of safety, community due to increased non-resident population.	Workforce code of conduct management and stakeholder engagement Complaints Handling Procedure	Developing and implementing a workforce code of conduct and expectations for behaviour will mitigate impacts of an increased non-resident population. For example, not wearing hi-vis clothing when in communities when off-shift. Implement a Complaints Handling Procedure for any complaints related to the Project.

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Ref	Impact	Mitigation / Enhancement	Summary
4	Reduced sense of place due to construction activities (noise, air and visual impacts).	Management measures outlined in technical papers related to noise, air and visual impacts Stakeholder engagement Complaints Handling Procedure	Management measures for noise, air, and visual impacts would be developed as part of the CEMP (see Sections 8.6.3, 8.8.4, and 8.9.3) and in consultation with the affected landowner. Nearby landowners would be promptly informed about the overall construction schedule and any road closure (if needed). The Complaints Handling Procedure should be clearly explained to ensure timely responses to concerns and updates on solutions.
5	Negative impact for tourism market if capacity of short-term accommodation providers is constrained.	Construction workforce accommodation and employment planning.	The non-local workforce is expected to primarily be accommodated in Clare, located approximately 40-minute drive from the Project Area. Some workers may also be located at Snowtown given its close location just 10 km from the Project Area. It is recommended that the contractors are required to identify the most suitable options to accommodate non-local workers to minimise potential shortages of accommodation in Clare and Snowtown, which could be addressed in the CEMP (or sub-plan) and may involve consultation with the Council and other relevant stakeholders.
6	Community stress due to perceived increased risk of bushfire impacting on safety and deterioration of natural environment.	Incorporation of relevant design measures (e.g., on-site water tanks) CEMP Bushfire assessment and hazard management plan Stakeholder engagement	Thorough assessment to avoid and minimise risk of bushfire is recommended (see Section 8.10.3). It is recommended that contractor engages with local councils, communities, and the CFS to inform the bushfire management measures included in the Project's Emergency Management Plan.
7	Cumulative impact of increased traffic including accelerated deterioration of roads damage to road infrastructure, impact on safety and perceived safety.	Preparation of TMP and stakeholder engagement with other project proponents and Councils	To support traffic management planning, engagement with other project proponents regarding nearby projects is recommended to support regional coordination on traffic management and minimise cumulative impacts on communities. A TMP is proposed to be prepared for the Project (as outlined in Section 8.7.3).

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8.12 Planning assessment

A planning and land use assessment was undertaken for the Project. The full assessment is provided in Appendix A.

8.12.1 Assessment methodology

This Planning and Land Use Assessment was undertaken using the following methodology:

- Review of the Project Area and determination of the applicable Zones, Subzones and Overlays under the P&D Code based on the P&D Code version 2025.6, adopted 27 March 2025 (State Planning Commission, 2025)
- Determination of the category of development for the proposed land use, as defined under the applicable Zones and Subzones
- Review of available Project information and existing technical studies
- Assessment of the proposed Project against the applicable Zones, Subzones, Overlays and General Development Policies under the P&D Code
- Recommendation on whether the Project is consistent with the P&D Code.

8.12.2 Planning and Design Code

The P&D Code is not a statutory instrument under the HRE Act, and as such, the Project is not required to strictly comply with the planning policies applicable to the Project Area. However, in assessing whether to grant an AIL for the Project, it is anticipated that the Minister/DEM will refer the EIR and SEO to DHUD as a prescribed body under Section 73 of the HRE Act, as an administrative unit of the Public Service under a Minister responsible for Administration of the PDI Act. During this referral, it is understood that DHUD will provide comment on the Project against the P&D Code for consideration in the Minister's assessment.

The Project is wholly located within the Rural Zone of the P&D Code. There are no Subzones applicable across the Project Area (PlanSA, n.d.). Zoning for the Project is shown above in Figure 5.4.

Renewable energy facilities, including battery storage systems, are not assigned a categorisation under the Rural Zone (State Planning Commission, 2025), and hence would be considered a Performance Assessed Development under Section 105(b) of the PDI Act.

It is noted that the Rural Zone does assign a Restricted Development classification on renewable energy facilities within the Significant Landscape Protection Overlay or Character Preservation District Overlay, however neither of these Overlays apply to the Project Area.

The Desired Outcome (DO) for development within the Rural Zone is seeks:

> *DO 1: A zone supporting the economic prosperity of South Australia primarily through the production, processing, storage and distribution of primary produce, forestry and the generation of energy from renewable sources.*
>
> *DO 2: A zone supporting diversification of existing businesses that promote value-adding such as industry, storage and warehousing activities, the sale and consumption of primary produce, tourist development and accommodation.*
>
> (State Planning Commission, 2022)

The Project, comprising a battery storage facility, directly supports DO 1 of the Rural Zone by supporting facilities that generate energy from renewable sources.

The following Overlays also apply to all or part of the Project Area:

- Hazards (Bushfire – General Risk)

- Hazards (Flooding – Evidence Required)
- Native Vegetation
- Water Resources
- Dwelling Excision
- Limited Land Division.

Assessment of the Project against the DOs and Overlays is presented in the following subsections.

8.12.2.1 Hazards (bushfire – general risk)

As the Project is located in an area identified in the Hazards (Bushfire – General Risk) Overlay, it will be designed in consideration of the *Ministerial Building Standard 008: Designated bushfire prone areas – additional requirements*[1] and (in the absence of applicable South Australian based Guidelines for renewable energy facilities) in consideration of the Country Fire Authority of Victoria CFA Guidelines (2023) (DO 1 and DO 2). The Preliminary Hazard Analysis undertaken for the Project (see Section 8.10) identifies potential design and operational risks of the Project, including bushfire risks, and provides mitigation measures to be considered during the Project's detailed design.

8.12.2.2 Hazards (flooding – evidence required)

Due to the location of the Project Area within the Hazards (Flooding – Evidence Required) a Desktop Hydrology Assessment was undertaken (discussed in Section 8.2) to understand the hydrology setting for the Project, including flow paths and high-level flood conditions. The assessment identified that the proposed Project infrastructure is located at the end of an approximately 1 km^2 catchment draining towards the Project. The final Project layout and design will be required to consider the potential overland flooding from that upstream catchment and its flow path. Based on the current conceptual layout of the Project, the Project Area will be required to fill above the design flood levels with appropriate freeboard and additionally cut-off drains may be required to divert the upstream runoff. Further hydrology and hydraulic assessment and modelling will be undertaken to support the detailed design to inform design levels, potential micro-siting away from flood prone areas, drainage requirements to minimise interruption to flood and flow regimes (DO 1 and Performance Outcome-PO 1.1).

8.12.2.3 Native vegetation

The Project is located within the Native Vegetation Overlay and native vegetation in the area is protected under the NV Act. The Project has sought to minimise impacts to native vegetation by siting the Project on an agricultural property that has previously been cleared of native vegetation and directly adjacent to the Snowtown Substation, which will avoid the need for development of a long overhead transmission and associated vegetation clearance. Furthermore, ecological surveys were undertaken early in the design process to identify areas of higher quality vegetation within and around the site; and progression of the design sought to avoid impacts to these areas (discussed further in Section 8.1) (DO 1, PO 1.1, and PO 1.2). However, a small amount of native vegetation clearance for the Project is unavoidable given that some native grassland within the road reserve of Wokurna Road and Hewitt Road will need to be cleared along the Project boundary to establish site access, and as such, approval will be sought from NVC.

[1] *Ministerial Building Standard 008: Designated bushfire prone areas – additional requirements* apply to Class 1, 2 and 3 buildings only. The Project does not propose any of these classes of buildings, and as such, the standard will be referred to for guidance only and is not required to be strictly complied with.

8.12.2.4 Water resources

The Project is located within the Water Resources Overlay. The design of the Project has sought to avoid the interruption of natural flow paths of watercourses (DO 1 and DO 2). As identified in the Desktop Hydrology Assessment (refer Section 8.2), the Project is located at the end of an approximate 1 km^2 catchment draining toward the site. The detailed design of the Project will need to take flow paths associated with the catchment into consideration to both minimise impacts to surface water and minimise risks posed to Project infrastructure (PO 1.1), and as such, the detailed design of the Project will be supported by further hydraulic modelling. The CEMP and OMP for the Project will include management and mitigation measures minimise and control the risk of water quality impacts (DO 1, DO 2, and PO 1.1).

8.12.2.5 Dwelling excision and limited land division

The Project does not propose the alteration or creation of new allotments, and as such, the Dwelling Excision Overlay and Limited Land Division Overlay are not relevant to the Project and were not discussed further in this assessment.

The Project is appropriately located within the Rural Zone, where renewable energy facilities are an envisaged land use. The Project is not expected to adversely impact adjacent agricultural land uses and has been designed to minimise hazard or nuisance to adjacent land users (DO 1 and PO 1.1 of the General Development Policies – Infrastructure and Renewable Energy Facilities). The siting of the Project has sought to minimise visual impact, by being located adjacent to the existing Snowtown Substation and Snowtown I Wind Farm and is also shielded from view from sensitive receptors by the natural topography of the land. The LCVIA undertaken for the Project (discussed in Section 8.8) recommended that the Project is not likely to cause adverse effects or have irreparable consequence for the visual amenity of the locality of wider contextual landscape (PO 2.1).

8.13 Public health and safety

8.13.1 Potential impacts

During construction and operation of the Project, public and third-party health and safety impacts may result from:

- injury or death from the improper use or improper maintenance of plant or machinery, including inadvertent electric shock
- fires including fire from electrical equipment as well bushfires spreading through the Project Area
- injury or death resulting from inappropriate handling of hazardous substances
- injury or death from improper traffic management
- exposure due to the improper handling or management of contaminated soils
- nuisance from exposure to dust generated by construction of the Project
- nuisance from exposure to noise generated by construction or operation of the Project
- injury or death due to trips or falls.

8.13.2 Management and mitigation measures

Electric shock, fire, exposure, traffic, noise, and air quality risks to the public and third parties will be managed in accordance with the mitigation measure set out in the applicable sub-sections of Section 8.

The following additional management and mitigation measures will be implemented to manage potential risk to public and/or third-party health and safety during construction and rehabilitation of the Project:

- A Health and Safety Management Plan will be developed to address the *Work Health and Safety Act 2012,* as well as air quality, noise and vibration, traffic impacts, hazardous materials, and fuels and waste management – which may present a risk to public health and safety
- An Emergency Management Plan will be prepared as outlined in Section 4.3.2.3.
- Unauthorised access to the construction area will be prevented using temporary construction fencing, as required

- All plant and equipment will be secured to prevent unauthorised access
- Appropriate directional and hazards signage will be provided around and within the construction site, as required
- All construction personnel and visitors will be required to sign-in and undertake a site induction
- Additional security, including patrolling and CCTV will be utilised where appropriate.

The following additional management and mitigation measures will be implemented to manage potential risk to public health and safety during operation of the Project:

- The Health and Safety Management Plan and the Emergency Management Plan will be updated for the operations phase to ensure they address the potential health and safety issues associated with operations.
- The performance of operations and maintenance activities will be monitored through annual compliance audits supported by intermittent inspections that will consider the implementation and effectiveness of control measures for maintenance works
- BESS infrastructure will be enclosed by securing fencing, with access controlled by gates to facilitate authorised access only. CCTV and security lighting will also be incorporated, where required.
- All site personnel and visitors will be required to sign-in and undertake a site induction
- Routine and non-routine maintenance will be undertaken throughout the life of the Project, to ensure that infrastructure operates efficiently and to minimise the risk of health and safety incidents. All maintenance activities will be supported by an appropriate Job Safety and Environmental Analysis or Safe Work Method Statement (or equivalent).

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9 Environmental impact assessment criteria

9.1 Background

This section summarises the environmental impact assessment prepared to satisfy the Environmental Impact Assessment Criteria (the Criteria), required under Part 4 of the HRE Act.

The Criteria establishes a holistic assessment and draws upon the aspect-specific impact assessments presented in Section 8, taking into account both the existing environment (Section 6) and the nature and extent of the Project (Sections 4 and 5). The Criteria are captured as six core criteria:

1. Criteria 1 – Element of the Environment. Criteria 1 is addressed in Section 9.2; and identifies environmental elements that can be reasonably expected to the affected by the Project's proposed activities.
2. Criteria 2 – Potential Impact Events. Criteria 2 considers the source, pathway and environmental receptors informed by the understanding of the relevant environmental elements (Criteria 1, see Section 9.2) and proposed activities (see Sections 4, 5 and 8). Criteria 2 is addressed in Section 9.3.
3. Criteria 3 – Confirmation of Impact Events. Criteria 3 confirms where source, pathway and environmental linkages (per Criteria 2, Section 9.2) are realised. This allows for identification of which activities and associated pathways require mitigation and control (Criteria 4). Criteria 3 is addressed in Section 9.4.
4. Criteria 4 – Control and Management Strategies and Uncertainty Assessment. Criteria 4 articulates mitigation and management strategies proposed to address known linkages as identified per Criteria 3. Criteria 4 is addressed in Section 9.5.
5. Criteria 5 – Environmental Significance Assessment. Criteria 5 assesses the level of significance of potential impact events (per Criteria 2 and Criteria 3). Significance is addressed in Section 9.5.
6. Criteria 6 – Statement of Environmental Objectives (SEO). The SEO is provided as a separate document.

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9.2 Environmental elements, views of affected parties, legislation, standards, and receptors

Table 9.1 Environmental elements, views of affected parties, legislation, standards, and receptors [placeholder – to be updated after stakeholder consultation as documented in the Consultation Plan]

Environmental element	Views of affected parties	Applicable government legislation	Applicable non-legislated standards	Environmental receptor

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9.3 Environmental impact assessment

Table 9.2 Environmental impact assessment

Environmental element	Phase of project	Impact ID	Potential impact event	Source	Pathway	Environmental receptor	Uncertainties and assumptions	Sensitivity to change (in assumptions)	Confirmation of source-pathway-receptor (Yes/Uncertain/No)	Description of the likely impact (prior to mitigation)
Native vegetation	Construction	NV1	Loss of biodiversity and/or ecological value.	Clearance of native vegetation.	Manual/mechanical removal of vegetation or disturbance from repeated vehicle movements.	Native vegetation	The Ecological Assessment (WSP Australia Pty Limited, 2025a) assumes that no impacts are to occur outside of what has been quantified (i.e., does not take accidental vegetation loss into account).	Potential change to impacts if species classifications are amended through legislation or policy.	Yes – native vegetation surveys have identified occurrences within the Project Area. Native vegetation clearance will be necessary to establish access to the Project Area.	Reduction in biodiversity and loss of native flora species within the Project Area.
Native vegetation	Construction and decommissioning	NV2	Loss of biodiversity and/or ecological value.	Degradation of native vegetation condition.	Dust/waste deposition for vehicle movements and construction activities.	Native vegetation	No uncertainties or assumptions apply.	Potential change to impacts if species classifications are amended through legislation or policy.	Yes – native vegetation is present directly adjacent to the Project Area.	Reduction in biodiversity and loss of native flora species within the Project Area.
Native vegetation	Construction, operation and decommissioning	NV3	Spread/incursion of weed species.	Clerance of native vegetation. Soil disturbances.	Weed/pathogen spread via poor vehicle hygiene and/or opportunistic weed incursion following vegetation clearance.	Vegetation (native vegetation and agricultural)	No uncertainties or assumptions apply.	Potential new weed/ pathogen classifications.	Yes – sensitive vegetation (native vegetation and agricultural) is present directly adjacent to the Project Area.	Reduction in biodiversity and loss of native flora species adjacent to the Project Area.
Native fauna	Construction	NF1	Loss of biodiversity and/or ecological value.	Clearance of habitat (native vegetation) for native fauna.	Habitat loss through manual/mechanical removal of vegetation or disturbance from repeated vehicle movements.	Native fauna	Ecological assessment assumes that no impacts are to occur outside of what has been quantified (i.e., does not take accidental habitat loss into account).	Potential change to impacts if species classifications are amended through legislation or policy.	Yes – ecological assessment has identified that native fauna may utilise the Project Area.	Reduction in biodiversity through habitat clearance adjacent to the Project Area.
Native fauna	Construction, operation and decommissioning	NF2	Injury/death of native fauna during the construction, operation and decommissioning periods.	Earthworks and/or vehicle movement.	Direct collision by vehicle or machinery collision.	Native fauna	As fauna may be transient, some species may be present on the site during and post-construction that were not present during the survey period.	External impacts on fauna mobility (such as weather, climate or infrastructure projects further afield) may impact which species are present on the site during the construction period.	Yes – ecological assessment has identified that native fauna may utilise areas within and adjacent to the Project Area.	Loss of individuals from a particular species.
Surface water	Construction, operation and decommissioning	SW1	Disruption of flow paths.	Earthworks, stockpiling or Project infrastructure.	Obstruction of waterways.	Waterways	Hydrology assessment (WSP Australia Pty Limited, 2025c) was desktop only, and did not include detailed flood modelling.	Proposed detailed flood modelling may alter understanding of flow paths.	Yes – desktop hydrology assessment identified that Project Area is intersected by two drainage lines	Disruption to waterway morphology and hydrological processes.

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Environmental element	Phase of project	Impact ID	Potential impact event	Source	Pathway	Environmental receptor	Uncertainties and assumptions	Sensitivity to change (in assumptions)	Confirmation of source-pathway-receptor (Yes/Uncertain/No)	Description of the likely impact (prior to mitigation)
Surface water	Construction, operation and decommissioning	SW2	Water quality impacts.	Earthworks and soil disturbance from construction machinery and vehicles.	Soil disturbance.	Waterway quality	Hydrology assessment (WSP Australia Pty Limited, 2025c) was desktop only, and did not include detailed flood modelling.	Proposed detailed flood modelling may alter understanding of flow paths.	Yes – earthworks are required during construction and sedimentation is likely if there are storm events during the construction period.	Reduced water quality of flow paths. Erosion and sedimentation.
Land contamination	Construction	LC1	Human and/or environmental health impacts from exposure to contaminated materials.	Soil disturbance encountering previously unidentified contaminated soil.	Excavation and then exposure to contaminated material.	Human and environmental health	Assessment is based on EPA Site Contamination Index (2025a) and public register (2025b).	Soil or groundwater contamination may be present, even though it is not registered with the EPA.	Uncertain – the desktop review did not identify an elevated risk of encountering site contamination however preliminary site investigations have not been undertaken.	Impacts to human and environmental health from exposure to contaminated material (in absence of appropriate management).
Land contamination	Construction, operation and decommissioning	LC2	Human and/or environmental health impacts from exposure to hazardous goods via spills/leaks.	Storage and use of fuels, oils and lubricants.	Spills via mishandling and/or machinery failure.	Flora, fauna, soil, surface water, human health	Hazardous good requirements yet to be determined. Machinery refuelling method(s) yet to be determined.	Hazardous goods risks and requirements may differ once final Project requirements are established.	Uncertain – hazardous goods requirements and maintenance needs yet to be determined.	Impacts to human and environmental health from exposure to hazardous goods (in absence of appropriate mitigation).
Aboriginal cultural heritage	Construction	AH1	Damage/destruction to Aboriginal heritage sites, objects, remains.	Earthworks impacting previously unidentified Aboriginal cultural sites, objects or remains.	Soil disturbances.	Aboriginal cultural heritage sites, objects and remains.	Potential for previously unidentified subsurface and/or obscured heritage sites and objects that may only be encountered during Project works.	In the event that an Aboriginal heritage site, object or human remains be identified within or in close proximity to the disturbance footprint, the likelihood of finding additional heritage items may increase.	Uncertain – no registered items or places of Aboriginal cultural heritage significance were identified in the AGD-AAR, search however the outcomes will need to be confirmed via a cultural heritage survey.	Damage to any items/places comprising Aboriginal cultural heritage significance from excavation.
Noise	Construction and decommissioning	N1	Disruption to wellbeing of sensitive receivers through noise exceedances.	Noise generated by construction or decommissioning activities.	Plant and machinery generating noise emissions.	Local community/ neighbours, fauna (sensitive receivers)	Construction methodology yet to be determined.	Minimal sensitivity to change in assumption.	Yes – noise generating activities will occur during construction.	Excessive noise impacting sensitive receiver wellbeing. Environmental noise impacting fauna behaviour.
Noise	Operation	N2	Disruption to wellbeing (of sensitive receiver) through noise exceedances.	Noise generated by operation of infrastructure components including BESS modules and inverters.	Project operation generating noise emissions.	Local community / neighbours (sensitive receivers)	Environmental Noise Assessment (Sonus, 2025) is based on worst-case scenario.	Noise assumptions may not materialise. Land use changes outside of the Project Area may occur during operation of the project and may introduce additional sensitive receivers.	Yes – assessment (Sonus, 2025) indicates that noise will be generated by operation of Project.	Noise causing nuisance to neighbouring sensitive receivers.

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Environmental element	Phase of project	Impact ID	Potential impact event	Source	Pathway	Environmental receptor	Uncertainties and assumptions	Sensitivity to change (in assumptions)	Confirmation of source-pathway-receptor (Yes/Uncertain/No)	Description of the likely impact (prior to mitigation)
Traffic	Construction and decommissioning	T1	Overloading of the local road network including functionality and safety of intersections.	Construction vehicles moving on and off site.	Construction vehicles.	Local road network	Expected traffic volumes and traffic schedule is estimated based on projects of a similar scale and nature.	Final traffic volumes and schedule will be determined by construction contractor.	Yes – based on outcomes of TIA (WSP Australia Pty Limited, 2025d) construction of the Project is likely to have some effect on the surrounding road network.	Minor disruptions to the local road network due to construction traffic access and egress.
Air quality	Construction and decommissioning	AQ1	Decrease in air quality at sensitive receivers due to dust emissions.	Civil earthworks.	Disturbed particle matter (such as soils or sand) dispersing in atmosphere.	Local residents, native vegetation and fauna.	Construction staging and methodology is unknown. Assessment is based on standard practices.	Construction staging and methodology will be determined by construction contractor. Weather conditions propagating dust plumes may not eventuate. Unforeseen weather events may exacerbate dust plumes.	Yes – earthworks will be required to support construction.	Impacts to human and environmental health and wellbeing from increased exposure to dust.
Air quality	Operation	AQ2	Decrease in air quality at sensitive receivers due to dust emissions from vehicle movements on unsealed roads and access tracks.	Vehicle movement on unsealed roads and access tracks.	Disturbed particle matter (such as soils or sand) dispersing in atmosphere.	Local residents, native vegetation and fauna.	Operational traffic access routes are unknown.	Weather conditions and final operation and maintenance requirements may impact dust generation. Road upgrades may occur in future resulting in sealing of nearby local roads. Land use changes outside of the Project Area may occur during operation of the Project and may introduce additional sensitive receivers	Yes – local road network surrounding Project Area is predominantly unsealed roads.	Impacts to human and environmental health and wellbeing from increased exposure to dust.
Social and economic value	Construction, operation and decommissioning	SE1	Disruption of community and stakeholder well-being due to increase in activity and change in landscape during construction and operation.	Project infrastructure and workforce	Flow on effect to community and businesses.	Surrounding community and businesses.	Final construction workforce numbers are unknown at this stage. Community consultation is ongoing.	Construction workforce numbers will be determined by contractors. Unforeseen events may change availability of services in the region or community profile.	Yes – given the scale of the Project, stakeholder impacts are expected to some degree.	Shortage of available services in the region (included but not limited to accommodation) during construction, as well as change in amenity due to construction, operation and decommissioning of the Project.

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Environmental element	Phase of project	Impact ID	Potential impact event	Source	Pathway	Environmental receptor	Uncertainties and assumptions	Sensitivity to change (in assumptions)	Confirmation of source-pathway-receptor (Yes/Uncertain/No)	Description of the likely impact (prior to mitigation)
Public and third-party health and safety	Construction, operation and decommissioning	HS1	Injury or death to member of the public or third party.	Project hazards (various)	Unmitigated or improperly managed hazards.	Members of the public and third parties	Final construction methodology is unknown at this stage. Final operational requirements are unknown at this stage.	Construction and operational requirements will be determined by contractors.	Yes – given the nature of the Project, hazards are expected to some degree.	Increased risk of injury or death to a member of the public or third party due to unmitigated or improper management of Project hazards, including but not limited to inadvertent electric shock, trips or falls in excavated areas, or improper use of plant and equipment.
Bushfire risk	Operation	BF1	BESS Thermal Runaway or electrical hazards causing bushfire.	Faults or malfunctions in electrical equipment.	Spread of fire originating from faults and malfunctions in electrical equipment.	Flora, fauna, people and structures.	Preliminary Hazard Analysis (WSP Australia Pty Limited, 2025e) does not factor in potential changes to adjacent and surrounding land uses.	External factors such as weather, vegetation restoration and regeneration, road network condition and land use may alter bushfire risk of the Project Area.	Yes – Project Area is within the York and Mid North region of South Australia, where bushfires are considered a major hazard.	Increased risk of bushfire leading to injury or death and/or damage to the environment.
Bushfire risk	Construction, operation and decommissioning	BF2	Lightning strikes to the BESS modules causing a bushfire.	Lightning strike.	Spread of fire originating from lightning strikes within and beyond the Project Area.	Flora, fauna, people and structures.	The final BESS model is still to be determined, and as such, exact lightning protection system is currently unknown.	External factors such as weather, vegetation restoration and regeneration, road network condition and land use may alter bushfire risk of the Project Area.	Yes – Project Area is within the York and Mid North region of South Australia, where bushfires are considered a major hazard.	Increased risk of bushfire leading to injury or death and/or damage to the environment.

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9.4 Control measures, environmental objectives, and criteria

Table 9.3 Control measures, environmental objectives, and criteria

Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Construction	NV1	Clearance of native vegetation resulting in loss of biodiversity and/or ecological value.	Detailed design will seek to further minimise impacts to native vegetation and will avoid impacts to higher quality native vegetation, specifically the identified patch of *Acacia pycnantha* over exotic herbs and grasses as well as the identified individual of *Maireana rohrlachii* (Rohrlach's Bluebush). No clearance of native vegetation will occur until the appropriate authorisations are in place. Native vegetation clearance will be appropriately offset with a SEB determined based on the final clearance area. The SEB will be delivered in accordance with *NVC's Policy for a Significant Environmental Benefit 2020.* Construction, operation and decommissioning will be undertaken in accordance with any conditions applied under native vegetation clearance approval under the NV Act. The CEMP for the Project will include standard procedures for minimising impacts to native vegetation and fauna, including (but not limited to) clearly delineating the area to be cleared to minimise the risk of clearance occurring outside of the approved disturbance footprint and ensuring appropriate dust and water management is undertaken to reduce potential native vegetation impacts.	Native vegetation clearance approval under the NV Act is yet to be received, and as such, conditions of approval are unknown.	Potential for design changes through detailed design to occur between time of ecological assessments and commencement of clearing activities. Any further design changes will aim to result in equivalent or lesser environmental impact.	No unauthorised disturbance to native vegetation and fauna.	No unauthorised clearance of native vegetation conducted. All ecological data collected by an appropriately qualified professional and reported in accordance with HRE Regulation 32(2)(c).	Native vegetation clearance will be undertaken in accordance with the NV Act. Areas of native vegetation not requiring clearance will be protected to avoid accidental disturbance (e.g., via establishment of no-go zones). Regular inspections will be undertaken throughout construction to verify no unauthorised clearance is undertaken.
Construction and decommissioning	NV2	Loss of biodiversity and/or ecological value via dust deposition.	An air quality management measures will be incorporated into the CEMP and implemented. Water sprays and wind breaks will be used, as required, to suppress dust generated by construction related activities. All disturbed areas will be stabilised as soon as is practical. Speed limits will be enforced on unsealed roads and access tracks. Vehicles transporting spoil or material to/from the Project Area will be covered immediately after loading. Land will be rehabilitated in consultation with the relevant landowner and in accordance with the EP Act, LSA Act and NV Act.	No uncertainties or assumptions apply.	Minimal sensitivity to change in assumptions.	No unauthorised disturbance to native vegetation and fauna.	No unauthorised reduction in native vegetation condition as a result of construction, operation and decommissioning activities. Avoid the killing or destruction of native vegetation via dust deposition that would be classified as native vegetation clearance under the NV Act. Rehabilitation undertaken in consultation with the relevant landowner and in accordance with the EP Act, LSA Act and NV Act.	Construction and decommissioning activities will be undertaken in a manner which minimises dust generation. Vegetation condition and dust deposition will be monitored during construction and decommissioning works in accordance with the CEMP and DRMP. To maintain compliance with the EP Act, dust management will be undertaken throughout construction and decommissioning.

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Construction, operation and decommissioning	NV3	Spread/incursion of weed species.	Weed and biosecurity measures will be documented in the CEMP and OMP and will be developed to comply with legislative requirements. This will include management measures to control the establishment and dispersal of weeds and disease throughout the Project Area. Targeted control of isolated priority weed occurrences will be undertaken, as required. The construction contractor will be required to seek a permit under the LSA Act for the transportation of Declared weeds on public roads, should plant matter or soil contaminated by plant matter (including seeds) from Declared weeds require offsite disposal.	No uncertainties or assumptions apply.	Potential for weed spread/incursion between planning and construction phases increasing likelihood of weed occurrence/spread.	No unacceptable spread of pest plants, pest animals, or plant and soil pathogens in the Project Area beyond pre-project levels.	Pest plant, pest animals or plant and soil pathogens identified onsite will be managed in accordance with biosecurity measures outlined in the CEMP and OMP, with management measures developed in consultation with the landholder and the Northern and Yorke Landscape Board. No unauthorised transport of weeds Declared under the LSA Act. Declared plants spread or introduced as a result of the Project are reported and managed in accordance with the LSA Act. Inspections undertaken (in accordance with the CEMP and OMP) show that the presence of Declared weeds, pests and plant and soil pathogens within the Project Area and adjacent road reserve has not increased in comparison to the condition during previous survey(s). Where this is not the case, observations are managed in accordance with available advice from PIRSA and/or the Northern and Yorke Landscape Board.	A permit under the LSA Act will be sought for any required transportation of Declared weeds on public roads. Biosecurity measures outlined in the CEMP and OMP will be developed in consultation with the landholder and the Northern and Yorke Landscape Board. Vehicles and equipment entering the site must be clean and free of soil and plant material. Areas of native vegetation not requiring clearance will be protected to avoid accidental disturbance (e.g., via establishment of no-go zone) and reduce the risk of weed spread. Vehicle access will be confined to designated access tracks, where practicable. Periodic inspections will be undertaken throughout construction, operation and decommissioning to monitor potential weed spread or incursion. Inspections will be undertaken as directed by the CEMP and OMP. Control measures will be implemented when an outbreak of Declared and high priority weeds, pests and/or pathogens is identified within the Project Area.

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Construction	NF1	Clearance of habitat for native fauna resulting in loss of biodiversity and/or ecological value.	Detailed design will seek to further minimise impacts to native vegetation and will avoid impacts to higher quality native vegetation, specifically the identified patch of *Acacia pycnantha* over exotic herbs and grasses as well as the identified individual of *Maireana rohrlachii* (Rohrlach's Saltbush). No clearance of native vegetation will occur until the appropriate authorisations are in place. The CEMP for the Project will include standard procedures for minimising impacts to native vegetation and fauna, including (but not limited to) clearly delineating the area to be cleared to minimise the risk of clearance occurring outside of the approved disturbance footprint. Native vegetation clearance will be appropriately offset with a SEB determined based on the final clearance area. The SEB will be delivered in accordance with *NVC's Policy for a Significant Environmental Benefit 2020*.	Approval for native vegetation clearance under the NV Act is yet to be received, and as such, conditions of approval are unknown.	Potential for design changes through detailed design to occur between time of between ecological assessments and commencement of clearing activities. Any further design changes will aim to result in equivalent or lesser environmental impact.	No unauthorised disturbance to native vegetation and fauna.	No unauthorised clearance of native vegetation. All ecological data collected by an appropriately qualified professional and reported in accordance with HRE Regulations 32(2)(c).	Native vegetation clearance will be undertaken in accordance with the NV Act. Areas of native vegetation not requiring clearance will be protected to avoid accidental disturbance (e.g., via establishment of no-go zones). Regular inspections will be undertaken throughout construction to verify no unauthorised clearance is undertaken.
Construction, operation and decommissioning	NF2	Accidental death to native fauna.	Construction, operation and rehabilitation will be undertaken in accordance with any conditions applied under native vegetation clearance approval under the NV Act. Speed limits will be enforced on access tracks within the Project Area.	No uncertainties or assumptions apply.	External impacts on fauna movements may impact which species are present on the site during the construction period.	No unauthorised disturbance to native vegetation and fauna.	Incidents relating to accidental death of native fauna are monitored and investigated in accordance with the CEMP, OMP and DRMP.	Speed limits will be enforced on access tracks within the Project Area. Vehicle access will be confined to designated access tracks, where practicable. If any native fauna species are injured on site, an appropriate organisation (such as the RSPCA or Fauna Rescue SA) will be contacted to assist where appropriate.

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Construction, operation and decommissioning	SW1	Disruption of flow paths.	Further detailed flood modelling will be undertaken to inform the detailed design of the Project. The detailed flood modelling will be informed by survey or high-resolution topographic data will be undertaken to inform detailed design of the Project. Key project components will be located away from the flow paths or alternatively, the finished level of the proposed bench area and key project components will be raised above the design flood levels with appropriate freeboard. Surface water management measures will be designed to have sufficient capacity to mitigate any potential flood impacts to the existing substation adjacent to the Project Area. This should include: consideration of cut-off drains to divert upstream surface runoff, consideration of requirements for cross drainage structures or low-level causeways across access tracks, and consideration of detention requirements to reduce flood risks and mitigate potential flood impacts. The final design will be developed such that pre-development flows of the wider catchment are not adversely impacted.	No uncertainties or assumptions apply.	Minimal sensitivity to change in assumptions.	No unacceptable disturbance, including contamination of surface water drainage or watercourses.	No damage to Project infrastructure as a result of 1% AEP flood event. The detention pond and any sediment control measures are appropriately established and maintained in accordance with the CEMP and OMP.	Detailed design to be checked to ensure that it has taken into account the recommendations of the detailed flood modelling study. The detention pond and any sediment control measures installed for the Project will be regularly inspected and appropriately maintained for their intended duration, in accordance with the CEMP and OMP. Drainage works developed for the Project will be suitable for the anticipated volume and velocity of water of the catchment, particularly during storm events.

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Construction, operation and decommissioning	SW2	Water quality impacts.	Disturbed areas not required for ongoing use will be stabilised following construction works. The detention pond and any sediment control measures will include regular monitoring and maintenance to support compliance with *Environment Protection (Water Quality) Policy 2015*.	No uncertainties or assumptions apply.	Minimal sensitivity to change in assumption.	No unacceptable disturbance, including contamination of surface water drainage or watercourses.	No impact on surface water quality due to inappropriate sediment and erosion control. No impact on surface water caused by spills or inappropriate storage of fuels and chemicals.	An SEDMP will be developed and implemented during construction, as a sub-plan of the CEMP. Appropriate hazardous material storage and fuel storage and handling procedures will be implemented on site in accordance with relevant legislation, standards and guidelines including the Stormwater Pollution Prevention codes of practice and EPA guideline *080/16 Bunding and Spill Management*. Records of all dangerous substances and chemicals on site will be maintained. Suitable spill kits will be installed on site to effectively manage spills. Spills or leaks are immediately actioned (and reported where appropriate) in line with incident procedures in the CEMP and OMP. An incident register will be maintained detailing any spills and leaks, along with the implemented corrective action(s).

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Construction	LC1	Human and/or environmental health impacts from exposure to contaminated materials	Site won material may be re-used on-site provided it is appropriately tested and classified as suitable for the proposed land use, in addition to any geotechnical considerations. Soil may be re-used at an alternate site provided the requirements of the EPA (2013) *Standard for the Production and Use of Waste Derived Fill* are met. Any soil surplus to on-site requirements and proposed for disposal off-site to a licensed waste facility shall be assessed utilising the criteria specified in the EPA (2010) *Current Criteria for the Classification of Waste including Commercial and Industrial Waste (Listed) and Waste Soil*. Acceptance shall be subject to contaminant concentrations, associated waste classification and the licence conditions of individual waste receival facilities. Procedures for the safe handling contaminated soils will be documented in the CEMP and will include contingency for the discovery of potentially contaminated soil.	Control measures reflect risk based on desktop assessment.	Risk level and subsequent control measures may change based on future investigations and/or testing.	No unacceptable exposure of humans or the environment (including groundwater) to contaminated material and hazardous substances.	Wastes (including hazardous substances) are appropriately handled, segregated and transported to an EPA licensed facility for recycling or disposal.	Any soil surplus to on-site requirements and proposed for disposal off-site to a licensed waste facility will be assessed utilising the criteria specified in the EPA (2010) *Current Criteria for the Classification of Waste including Commercial and Industrial Waste (Listed) and Waste Soil*. During excavation works, spoil will be monitored for signs of contamination (i.e., odour, colour changes etc). The CEMP will include contingency for the discovery of potentially contaminated material.
Construction, operation and decommissioning	LC2	Human and/or environmental health impacts from exposure to hazardous goods via spills/leaks.	Waste and hazardous materials will be stored and disposed of appropriately. Suitable spill kits will be installed on site to effectively manage spills. Site personnel will be required to undertaken response training. A designated refuelling area will be established, if required.	Site layout yet to be determined.	Refuelling and storage areas to be appropriately located and protected.	No unacceptable exposure of humans or the environment (including groundwater) to contaminated material and hazardous substances.	Any spill or leak is immediately contained and removed, or if required, assessed in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999* and remediated in a timely manner.	Appropriate hazardous material storage and fuel storage and handling procedures will be implemented on site in accordance with relevant legislation, standards and guidelines including the Stormwater Pollution Prevention codes of practice and EPA guideline *080/16 Bunding and Spill Management* (2016). Records of all dangerous substances and chemicals on site will be maintained. Suitable spill kits will be installed on site to effectively manage spills. Spills or leaks are immediately actioned (and reported where appropriate) in line with incident procedures in the CEMP and OMP. An incident register will be maintained detailing any spills and leaks, along with the implemented corrective action(s).

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Construction	AH1	Damage/destruction to Aboriginal heritage sites, objects, remains.	If recommended as an outcome of the survey and/or if any Aboriginal heritage sites, objects or remains are discovered on site, a cultural heritage management plan will to be developed with Traditional Owner involvement, and implemented. This management plan would consider the significance of the finds and the potential need for micrositing or amending the design to avoid particular areas. A site discovery procedure will be incorporated into the CEMP, to be implemented in the instance that a potential site or object is discovered during construction works. A suitably qualified Archaeologist will be engaged to assist in the identification of potential discoveries, if required. Heritage matters and procedures will be included in site induction, to be undertaken by all site personnel.	Potential for previously unidentified subsurface and/or obscured heritage sites and objects that may only be encountered during Project works.	Should a site, object or human remains of Aboriginal Cultural Heritage significance be identified within or in close proximity to the disturbance footprint, the likelihood of finding additional heritage items would increase and additional control measures would be required.	No unauthorised disturbance to Aboriginal cultural heritage sites and objects.	No incidents relating to the unauthorised damage of an Aboriginal Heritage site or object. All works to be undertaken in accordance with the AH Act.	A cultural heritage survey undertaken with Traditional Owner involvement to be completed prior to the commencement of construction. If recommended as an outcome of the survey and/or if any Aboriginal heritage sites, objects, or remains are discovered on site, a cultural heritage management plan is to be developed with Traditional Owner involvement, and implemented. This management plan would consider the significance of the finds and the potential need for micrositing or amending the design to avoid particular areas. A site discovery procedure will be incorporated into the CEMP, to be implemented in the instance that a potential site or object is discovered during construction works. Where avoidance of an Aboriginal heritage site, object or remain is not possible, authorisation will be sought under the AH Act.
Construction, and decommissioning	N1	Disruption to wellbeing (of sensitive receivers) through noise exceedances.	Management and monitoring measures for noise and vibration during construction will be documented in the CEMP, or suitable sub-plan. Where practicable, works will be undertaken between the hours of 7.00 am to 7.00 pm Monday to Saturday. Activities undertaken outside of the hours of 7.00 am and 7.00 pm Monday to Saturday will be restricted, where practicable, to activities that are unlikely to cause impact to amenity of the area or otherwise will not be undertaken without prior approval from the EPA.	Construction activities and required machinery yet to be determined.	Significant change in construction activity may require additional control measures.	No unacceptable construction or operational noise impacts.	In the event complaints are raised from neighbours regarding noise during construction or operation, all reasonable measures will be taken to resolve the complaint in a timely manner.	Ongoing consultation with potentially impacted neighbours to keep them informed of key activities during construction, operation and decommissioning. Management measures for noise and vibration during construction will be documented in the CEMP, or suitable sub-plan. Works expected to generate excessive noise will not be undertaken outside of 7.00 am and 7.00 pm Monday to Saturday, unless approved by the EPA.

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Operation	N2	Disruption to wellbeing (of sensitive receivers) through noise exceedances.	Management and monitoring measures for noise during operation will be documented in the OMP. Measures will include procedures for complaints management and recording.	Environmental Noise Assessment (Sonus, 2025) is based on worst-case scenario.	Noise assumptions may not materialise.	No unacceptable construction or operational noise impacts.	In the event complaints are raised, all reasonable measures will be taken to resolve the complaint in a timely manner. Operational noise from the Project does not exceed the criteria at relevant sensitive receiver locations, as established under the Noise Policy.	Ongoing consultation with potentially impacted neighbours to keep them informed of key activities during construction, operation and decommissioning. Management and monitoring measures for noise during operation will be documented in the OMP. Measures will include procedures for complaints management and recording.
Construction and decommissioning	T1	Overloading of the local road network including functionality and safety of intersections.	A TMP will be developed in consultation with DIT and the Wakefield Regional Council, to manage potential traffic and access impacts during construction. The TMP will investigate the need for school bus warning signs to be installed at the bus stops along Wokurna Road, as well as potential new hazard board sign opposite Wokurna Road on the east side of Augusta Highway. Ongoing consultation will be undertaken with local Council and nearby landowners regarding use of local road network, particularly residents located along Wokurna Road between Barunga Top Road and Augusta Highway. Prior to the commencement of construction activities along Wokurna Road, Tilt Renewables, through its delivery contractor, will arrange condition surveys to be undertaken along the key access roads that may be used during the Project. Ongoing monitoring of the road pavement condition will be undertaken along the Project transport routes, with maintenance undertaken as required. The construction contactor will be encouraged to use the same local roads to access the Project Area, to assist the local community to become familiar with the changed traffic conditions. Queuing on local roads will be minimised by coordinating deliveries/construction scheduling to avoid busy times. Where practicable, traffic-generating activities will not be scheduled at night-time, to avoid noise nuisance and travel along the unlit and unsealed sections of roads and junctions. Any tree trimming required to facilitate site distances at intersection will be undertaken in consultation with DIT and/or the relevant Council.	Expected traffic volumes and traffic schedule is estimated based on projects of a similar scale and nature.	Final traffic volumes and schedule will be determined by the construction contractor.	No unacceptable disturbance to the surrounding road network.	No vehicle collision incidents involving vehicles entering or exiting the site. In the event complaints from surrounding neighbours, road users or Council regarding road safety and/or unreasonable traffic impacts are raised, all reasonable measures will be made to resolve the complaint in a timely manner (as appropriate). Project traffic movements do not overload local traffic network during construction and do not result in unreasonable traffic delays.	Complaints management and investigation procedures for traffic impacts during construction will be documented in the CEMP. A TMP will be developed in consultation with DIT and the Wakefield Regional Council prior to the commencement of construction. Site access points will be constructed to accommodate the largest design vehicles expected to enter and exit the site.

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Construction and decommissioning	AQ1	Decrease in air quality at sensitive receivers due to dust emissions.	Air quality management measures will be incorporated into the CEMP and implemented. Water sprays and wind breaks will be used, as required, to suppress dust generated by construction related activities. All disturbed areas will be stabilised as soon as is practical. Speed limits will be enforced on unsealed roads and access tracks, and works within the Project Area will be confined to designated areas. Vehicles transporting spoil or material to/from the Project Area will be covered immediately after loading. Unnecessary idling of vehicles will be avoided.	No uncertainties or assumptions apply.	Minimal sensitivity to change in assumptions.	No unacceptable air quality impacts.	In the event complaints are raised regarding unreasonable air quality impacts, all reasonable measures will be taken to resolve the complaint in a timely manner.	To maintain compliance with the EP Act, dust management will be undertaken throughout construction, operation and decommissioning and documented in the CEMP, OMP and DRMP. Air quality management measures will be developed prior to the commencement of construction, and incorporated into the CEMP The CEMP and DRMP will include procedures for the management and recording of any complaints related to air quality. Site inspections of dust emissions will be undertaken regularly. Additional controls will be applied as required.
Operation	AQ2	Decrease in air quality at sensitive receivers due to dust emissions from vehicle movements on unsealed roads and access tracks.	Operational air quality control measures will be documented in the OMP. Speed limits will be enforced on unsealed roads and access tracks to minimise wheel generated dust.	No uncertainties or assumptions apply.	Minimal sensitivity to change in assumptions.	No unacceptable air quality impacts.	In the event complaints are raised regarding unreasonable air quality impacts, all reasonable measures will be taken to resolve the complaint in a timely manner.	To maintain compliance with the EP Act, dust management will be undertaken throughout construction, operation and decommissioning and documented in the CEMP, OMP and DRMP. Site inspections of dust emissions will be undertaken regularly. Additional controls will be applied as required.

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Construction, operation and decommissioning	SE1	Disruption of community and stakeholder well-being due to increase in activity and change in landscape during construction and operation.	Ongoing consultation and community engagement will be undertaken throughout planning, construction and operation. A workforce code of conduct will be developed and implemented to establish expectations for the construction workforce.	Final construction workforce numbers are unknown. Community consultation is ongoing.	Unforeseen events may change availability of services in the region or community profile.	No unacceptable disturbance to stakeholders.	In the event complaints are raised from stakeholders, all reasonable measures will be taken to resolve the complaint in a timely manner.	The CEMP, OMP and DRMP will include procedures for the management and recording of any complaints. Consultation regarding impacts on local services and infrastructure during the construction phase will be undertaken in accordance with the Project's Stakeholder and Community Engagement Plan, to assess the need for additional mitigation measures. Relevant Project information remains available and portals for consultation remain active throughout all stages of the Project.

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Construction, operation and decommissioning	HS1	Injury or death to member of the public or third party.	A Health and Safety Management Plan will be developed to address the *Work Health and Safety Act 2012* and will be supported by other plans including an Emergency Management Plan. Unauthorised access to the Project Area will be controlled via the use of gates and permanent and temporary fencing, as appropriate depending on the Project stage. Additional security, including CCTV and security lighting, will be utilised where appropriate. All plant and equipment will be secured to prevent unauthorised access. Appropriate directional and hazard signage will be provided around and within the Project Area, as required. All construction and operational personnel and visitors will be required to sign-in and undertake a site induction. The performance of operations and maintenance activities will be monitored through annual compliance audits supported by intermittent inspections that will consider the implementation and effectiveness of control measures for maintenance works, including but not limited to electrical safety compliance. Routine and non-routine maintenance will be undertaken throughout the life of the Project, to ensure infrastructure runs efficiently and to minimise the risk of health and safety incidents. All maintenance activities will be supported by an appropriate Job Safety and Environmental Analysis or Safe Work Method Statement (or equivalent).	Final construction methodology is unknown at this stage. Final operational requirements are unknown at this stage.	Construction methodology will be determined by construction contractor. Operational requirements will be determined by operational contractor.	Maintain the health and safety of the public and other third parties.	Construction, operation and decommissioning to be undertaken in accordance with the *Work Health and Safety Act 2012*. No injury or death of a member of the public or a third party resulting from the Project. Any death of a person, serious injury or illness or dangerous incident that occurs as a result of the Project is immediately reported to DEM and appropriately investigated. Any event resulting in the activation of emergency response and/or evacuation procedures of an area or the need for emergency service personnel is immediately reported to DEM and appropriately investigated. All construction and operational personnel and visitors will undertake a site induction, which includes requirements under the *Work Health and Safety Act 2012*.	The performance of operations and maintenance activities will be monitored through annual compliance audits supported by intermittent inspections that will consider the implementation and effectiveness of control measures for maintenance works. Records of site personnel and visitors are kept up to date and identify that required site inductions have been successfully completed. All relevant management plans for the Project, including but not limited to the Health and Safety Management Plan and Emergency Management Plan are audited annually (at a minimum) for compliance, currency and effectiveness, and updated as required.

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Phase of project	Impact event ID	Impact event	Control measures	Uncertainties and assumptions	Sensitivity to change of assumption	Proposed environmental objective	Assessment criteria	Leading performance criteria
Operation	BF1	BESS Thermal Runaway or electrical hazards causing bushfire.	Installation and maintenance of equipment to the manufacturer's specifications and relevant Australian standards. BESS modules should be certified to UL1973 (or equivalent) and BESS units tested to UL9540A system level tests, allowing for the use of UL9540A test data from similar BESS modules, where any deviations in equipment are minor and do not impact thermal runaway characteristics. Fire detection systems will be installed and secure and reliable network communications within BESS yards will be maintained. A fire safety study will be undertaken to determine the required safety clearances, radiant heat flux withstand requirement, and firefighting methodologies during detailed design. A site induction will be provided and will outline fire related risks and providing an overview of the Emergency Management Plan to new staff, visitors and contractors. 10 m (minimum) asset protection zone will be established around the perimeter of critical infrastructure.	Final BESS model is yet to be selected. Project layout will be subject to detailed design.	Bushfire requirements may differ due to final BESS model and detailed design.	No uncontrolled fires as a result of authorised operations.	No bushfire generation from on-site activities. The Emergency Management Plan will be developed in consideration of the CFA Guidelines and to the satisfaction of CFS before the commencement of operation.	The control and monitoring network communications system within the BESS yard will be maintained throughout operation of the Project. Site equipment will be operated and maintained in accordance with manufacturer's specification. Asset protection zones will be maintained throughout operation of the Project. Regular inspections will be undertaken. The Emergency Management Plan will provide clear direction on the maintenance of the various controls required to manage the fire risk.
Construction, operation and decommissioning	BF2	Lightning strikes to the BESS modules causing a bushfire.	Lightning protection rods will be installed to reduce fire risks associated with lightning strikes. Lightning protection rods will be designed in accordance with *AS 1768:2021 Lightning protection* and *IEC 62305 Protection Against Lightning*. Onsite water storage tanks with the final volume to be specified in the Emergency Management Plan developed in consultation with the CFS and in consideration of the Country Fire Authority of Victoria *Design Guidelines and Model requirements for Renewable Energy Facilities* (CFA Guidelines) and *AS 2419.1-2021 Fire hydrant installations*. Infrastructure will be serviced by a network of internal access tracks designed in consideration of the CFA Guidelines, which will be constructed of an all-weather surface and will allow movement of emergency service vehicles in a forward direction around the site. The access track network will be maintained to facilitate safe access for emergency service vehicles and site evacuation. 10 m (minimum) asset protection zone will be established around the perimeter of critical infrastructure.	Project layout will be subject to detailed design.	Bushfire requirements may differ due to final detailed design.	No uncontrolled fires as a result of authorised operations.	No bushfire generation from on-site activities. The Emergency Management Plan will be developed in consideration of the CFA Guidelines and to the satisfaction of CFS before the commencement of operation.	The control and monitoring network communications system within the BESS yard will be maintained throughout operation of the Project. Site equipment will be operated and maintained in accordance with manufacturer's specification. Asset protection zones will be maintained throughout operation of the Project. Regular inspections will be undertaken. The Emergency Management Plan will provide clear direction on the maintenance of the various controls required to manage the fire risk.

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9.5 Environmental significance assessment

The significance of each potential impact has been assessed based on consideration of the frequency, duration, extent, and severity of the potential impact, as well as consideration of potential cumulative effects and the sensitivity of the receiving environment.

Table 9.4 shows ratings assigned to each aspect.

Table 9.4 Risk ratings

Aspect	Risk rating			
	0	1	2	3
Frequency	Negligible	Low	Moderate	High
Duration	Negligible	Short	Moderate	Long
Extent	Negligible	Confined	Moderate	Broad
Severity	Negligible	Low	Moderate	High
Cumulative impact	Unlikely	Low	Moderate	High
Sensitivity of the receiving environment	Negligible	Low	Moderate	High

Determination of the risk rating differs for potential impacts, commentary presented in the significance assessment details the justification for each rating.

The average risk rating was then derived to determine the significance of the potential impact. The significance was assigned based on the average rating of the six aspects under consideration:

< or = to 0.75 = Negligible
>0.75 to 1.50 = Minor
>1.50 to 2.25 = Moderate
>2.25 to 3.00 = High

For example, an impact scored as occurring at a low frequency (1), e.g., may occur once during the Project; for a moderate duration (2), e.g., may extend across months; with a moderately confined extent (2), e.g., limited to small patches within the Project, with a severe impact (3), e.g., irreversible impact; with little to no cumulative impact (1), e.g., isolated to the Project and impacting a highly sensitive environment (3), e.g., a threatened community will attract a **Moderate** risk rating (1 + 2 + 2 + 3 + 1 + 3) / 6 = 2.

The environmental significance assessment is presented in Table 9.5.

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Table 9.5 Environmental significance assessment

Impact ID	Potential impact event	Avoidance	Frequency	Duration	Extent	Severity	Cumulative effects	Sensitivity of receiving environment	Outcome
NV1	Clearance of native vegetation resulting in loss of biodiversity and/or ecological value.	No – native vegetation clearance is necessary to establish access to the Project Area.	Low – the design has concentrated clearance in areas with lower habitat value.	Short – native vegetation clearance will occur during the construction phase only.	Confined – native vegetation will only be cleared in isolated areas in the road reserve directly adjacent the Project Area.	Low – areas comprising lower ecological value have been prioritised for removal. The Ecological Assessment (WSP Australia Pty Limited, 2025a) assessed the clearance as a Level 2.	Low – vegetation clearance will be appropriately offset in accordance with NVC's *Policy for a Significant Environmental Benefit 2020* to reduce the cumulative impacts of vegetation and habitat loss.	Low – threatened flora identified adjacent to the Project Area will be avoided (WSP Australia Pty Limited, 2025a).	Significance of potential impact is **minor** (score = 1.00). It is not expected that any threatened species will be affected by the proposed clearance and impacts will be confined. Appropriate approvals will be sought and clearance will be offset.
NV2	Loss of biodiversity and/or ecological value via dust deposition.	No – native vegetation is present in areas adjacent construction activities.	Low – dust mitigation measures to be implemented during construction and decommissioning activities.	Short – dust generating activities limited to discrete elements of construction phase. Traffic volumes on unsealed tracks during operation will be low.	Confined – dust deposition may occur on vegetation fringing unsealed access roads.	Low – native vegetation directly adjacent to the Project Area is not expected to provide important habitat for threatened flora or fauna species.	Low – it is not currently expected that construction activities will be undertaken on adjacent land in parallel to Project construction.	Low – threatened flora was identified only in an isolated patch along the adjacent road reserve.	Significance of potential impact is **minor** (score = 1.00). It is expected that vegetation condition is maintained via appropriate implementation of dust management measures.
NV3	Spread/incursion of weed species.	No – both native vegetation and weeds are known to occur in and adjacent to the Project Area.	Low – vehicle interactions with vegetation will be avoided as much as practicable.	Long – vehicles will be required to access the Project Area throughout all phases of the Project.	Moderate – risk of spread will occur along transport routes.	Low – vehicle interactions with vegetation will be avoided as much as practicable.	Low – it is expected that with appropriate mitigation measures in place, cumulative effects can be controlled.	Low – threatened flora was identified only in an isolated patch along the adjacent road reserve.	Significance of potential impact is **minor** (score = 1.50). It is expected that weed incursion/spread is maintained via appropriate implementation of weed and pathogen management measures.
NF1	Clearance of habitat for native fauna resulting in loss of biodiversity and/or ecological value.	No – native vegetation clearance is necessary to establish access to the Project Area.	Low – the design has concentrated clearance in areas with lower habitat value.	Short – native vegetation will occur only during the construction phase.	Confined – vegetation will only be removed in isolated areas in the road reserve directly adjacent the Project Area.	Low – areas comprising lower ecological value have been prioritised for removal. The proposed clearance area is not expected to provide habitat for threatened fauna species (WSP Australia Pty Limited, 2025a).	Low – vegetation clearance will be appropriately offset in accordance with NVC's *Policy for a Significant Environmental Benefit 2020* to reduce the cumulative impacts of vegetation and habitat loss.	Low – the proposed clearance area is not expected to provide habitat for threatened fauna species (WSP Australia Pty Limited, 2025a).	Significance of potential impact is **minor** (score = 1.00). It is expected that no threatened species will be impacted by the proposed clearance.

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Impact ID	Potential impact event	Avoidance	Frequency	Duration	Extent	Severity	Cumulative effects	Sensitivity of receiving environment	Outcome
NF2	Accidental death to native fauna.	No – it is not possible to entirely eliminate the risk of accidental injury or death to native fauna, however the Project will endeavour to do so where practicable.	Low – any death to native fauna would be accidental and would only occur on an isolated basis.	Long – there is a chance of accidental death of fauna throughout all phases of the Project, though the ongoing risks throughout operation would be significantly lower given low expected traffic volumes.	Confined – accidental death or injury to native fauna can occur at any time however it would likely be an isolated event.	Low – impacts would likely occur only to individuals from a particular species and would not result in widespread impacts to the species.	Unlikely – given the low level of development surrounding the Project Area, cumulative impacts are unlikely.	Low – the Project Area and adjacent road reserve is not expected to provide habitat for threatened fauna species (WSP Australia Pty Limited, 2025a).	Significance of potential impact is **minor** (score = 1.17). The Project will endeavour to avoid any accidental death of native fauna, and occurrence of impacts is likely to be rare.
SW1	Disruption of flow paths.	No – the Project Area is intersected by two flow paths and it is unlikely that the Project design will be able to entirely avoid impacts.	Low – the detailed design of the Project will aim to further reduce impacts to flow paths. Stormwater design will aim to maintain development flows.	Long – interruption of flow paths could be permanent.	Confined – desktop hydrology assessment has identified that catchment area is relatively small (~ 1 km^2) (WSP Australia Pty Limited, 2025c).	Moderate – disruption of flow paths could cause downstream impacts.	Unlikely – area surrounding the Project Area is relatively undeveloped so cumulative effects are unlikely.	Low – flow paths are not part of a significant catchment.	Significance of potential impacts is **minor** (score = 1.33). Impacts could be long-term but would be localised only. Impacts to flow paths will continue to be investigated and minimised through detailed flood modelling.
SW2	Water quality impacts.	Possible – stringent adherence to spill controls could avoid surface water contamination.	Low – there is a risk whenever refuelling takes place or machinery/vehicles are operational during any phase of the Project, but appropriate mitigations would reduce this risk.	Moderate – contamination events would either be short term or may have longer-term impacts on waterways, depending on the extent (such as the scale of a fuel spill).	Moderate – impacts would be primarily limited to the drainage lines within the Project Area, but large contamination events could lead to extended impacts.	Moderate – impacts to stormwater quality for any runoff from the site would be moderate to high risk initially but would generally not be expected to be permanent (except for extreme cases).	Low – large contamination events are less likely but could have wider downstream impacts. Smaller events are more likely and would be more localised.	Low – there are no major watercourses or waterbodies on the site or directly downstream, however contamination during heavy flow events can have wider impacts.	Significance of potential impact is **minor** (score = 1.50). There are no major watercourses on site and appropriate mitigations would be expected to significantly reduce the risk of contamination events.
LC1	Human and/or environmental health impacts from exposure to contaminated materials	Possible – the desktop review did not identify an elevated risk of encountering contaminated soil.	Low – contingency will be in place to minimise the risks of encountering contaminated soils.	Short – soil disturbance and the risk of encountering previously unidentified contaminated soils will mostly be confined to construction.	Confined – risk of encountering contaminated soils will be confined to Project Area and adjacent road reserve.	Low – with appropriate testing and contingency in place, it is unlikely that contaminated soil would pose a risk to health if encountered.	Unlikely – all soils requiring offsite disposal will be appropriately tested and managed in accordance with EPA guidelines.	Moderate – the spread of contaminated soils would require appropriate remediation.	Significance of impact is **minor** (score = 1.00). The actual contamination status of the Project Area is yet to be confirmed; however, if encountered, would be expected to be appropriately managed.

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Impact ID	Potential impact event	Avoidance	Frequency	Duration	Extent	Severity	Cumulative effects	Sensitivity of receiving environment	Outcome
LC2	Human and/or environmental health impacts from exposure to hazardous goods via spills/leaks.	Possible – spills and leaks may occur during the use and storage of hazardous goods.	Low – uncontrolled spills/leaks are incidents by exception.	Short to moderate – likelihood of occurrence is generally limited to the construction and decommissioning phases, with a reduced risk during operation.	Confined – spills and/or leaks are unlikely to be of significant volumes.	Low – with appropriate storage and spill response measures, impacts should be minimised, if not avoided.	Unlikely – with appropriate storage and spill response measures, impacts should be minimised, if not avoided.	Low – receiving environment is relatively undeveloped.	Significance of impact is **minor** (score = 0.92) on the basis that spills/leaks are rare and largely contained.
AH1	Damage/destruction to Aboriginal heritage sites, objects, remains.	Possible –Aboriginal cultural heritage surveys have been undertaken to identify any areas that present a high risk to damage of Aboriginal heritage, sites, objects and remains.	Low – any identified high risks areas will be avoided through design. Site discovery procedures will be in place to reduce the risk of damage in the instance that a previously unidentified Aboriginal heritage site, object or remain is encountered during earthworks.	Moderate – while risks to damage to Aboriginal heritage sites, objects or remains would be mostly confined to construction, impacts would be permanent.	Confined – impacts would be confined to the disturbance footprint.	High – damage or disturbance to Aboriginal heritage would be permanent.	Moderate – in the instance that impacts occur, these impacts would add to those of other development projects in the region.	High – value of Aboriginal cultural heritage has been established through consultation and desktop studies.	Significance of potential impact is **moderate** (score = 2.00). Impact may result in permanent loss of Aboriginal heritage, however, impacts will be managed through design and adherence to appropriate management and mitigation measure during construction.
N1	Disruption to wellbeing (of sensitive receivers) through noise exceedances during construction and/or decommissioning.	No – construction and decommissioning activities will generate noise.	Low – restricted to approved hours within construction and decommissioning phases.	Moderate – limited to construction and decommissioning phase.	Moderate – under certain conditions the Project may be audible to sensitive receivers surrounding the Project Area.	Low – based on the limited number of sensitive receivers, ongoing excessive construction noise is unlikely to eventuate.	Unlikely – the spatial separation from other high noise generating activities is unlikely to result in significant cumulative impact.	Low – it is expected that ongoing consultation will be undertaken with nearby residents to notify of expected construction timing and potential noise impacts.	Significance of potential impacts is **minor** (score = 1.17). The Project will undertake construction in compliance with the EP Act.
N2	Disruption to wellbeing (of sensitive receiver) through noise exceedances during operation.	No – operation of the BESS will generate noise.	Low – noise modelling has indicated that noise generated from the Project would be compliant with the criteria established under the Noise Policy (Sonus, 2025).	Long – noise impacts may occur throughout the operational lifespan of the Project.	Confined – noise contours developed as part of the Environmental Noise Assessment indicated that noise impacts will occur only in a confined area surrounding the Project (Sonus, 2025).	Low – noise modelling indicated that noise generated by the Project would be compliant with the Noise Policy at sensitive receiver locations (Sonus, 2025).	Unlikely – the spatial separation from other high noise generating activities is unlikely to result in significant cumulative impact.	Low – it is expected that ongoing consultation will be undertaken with nearby residents to discuss the outcomes of the Environmental Noise Assessment.	Significance of potential impacts is **minor** (score = 1.17). The Project will be designed to maintain compliance with the Noise Policy.

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Impact ID	Potential impact event	Avoidance	Frequency	Duration	Extent	Severity	Cumulative effects	Sensitivity of receiving environment	Outcome
T1	Overloading of the local road network including functionality and safety of intersections.	No – given the location of the Project Area and scale of the Project, Project traffic will be required to utilise the surrounding road network.	Moderate – the Project will result in high volumes of traffic during construction. Impacts will be managed through traffic management and consultation with DIT and Council.	Short – increased volumes of traffic are only expected to be generated curing the construction phase of the Project.	Moderate – traffic impacts are expected to mostly impact the nearby local road network.	Moderate – safety risks presented by traffic generation will be managed, however impacts may still case inconvenience to other road users.	Low – depending on timing of construction, other renewable energy projects in the region could be constructed in parallel and may be utilising State Maintained Roads along the transport route, however these are not expected to be significantly impacted by the Project.	High – some concerns were raised about traffic impacts during previous consultation.	Significance of potential impact is **moderate** (score = 1.83). Traffic impacts will occur, however will be appropriately managed.
AQ1	Construction and decommissioning	No – soil disturbance will be required to support construction and decommissioning.	Low – dust impacts would mostly occur during earthworks during construction and decommissioning but this can be managed through ongoing and standard dust suppression methods.	Short – dust impacts will be temporary during construction and decommissioning. Any disturbed surfaces will be stabilised to prevent ongoing impacts.	Confined – dust impacts will be confined to the disturbance footprint and nearby surrounds.	Low – dust impacts would be short term and temporary. With appropriate monitoring, dust impacts can be quickly suppressed.	Unlikely – given the surrounding land use, it is unlikely that significant earthworks would be undertaken in the immediate vicinity of the Project.	Moderate – sensitive receivers are known to exist in close proximity to the Project Area.	Significance of potential impact is **minor** (score = 1.00), given that it is expected that impacts can be appropriately managed through dust suppression activities.
AQ2	Operation	No – access to the Project Area will require vehicle movement on the surrounding unsealed road network.	Low – the Project will be remotely operated and normally not staffed.	Long – operational dust impacts may occur intermittently during the operational life of the Project.	Moderate – dust impacts may occur to sensitive receivers adjacent to the unsealed road network.	Low – dust impacts would be short term and temporary.	Unlikely – given the minimal traffic volumes expected during operation, cumulative impacts from traffic generative activities are unlikely.	Moderate – sensitive receivers are known to exist in close proximity to the Project Area.	Significance of potential impact is **minor** (score = 1.50), given that it is expected that impacts can be appropriately managed.
SE1	Disruption of community and stakeholder well-being due to increase in activity and change in landscape during construction and operation.	No – given the scale of the Project and assessment of likely impacts, some disruption to stakeholders is likely to occur.	Low – based on Project location and population density, exposure to stakeholders is limited.	Long – impacts may occur throughout all stages of the Project.	Moderate – impacts may extend to the wider region.	Low – Tilt Renewables and its contractors will continue undertake appropriate levels of engagement with potentially impacted stakeholders.	Moderate – cumulative impacts could occur depending on timing of other renewable energy or infrastructure Projects in the region.	Low – outcomes of current engagement undertaken by Tilt Renewables indicates that surrounding communities have a low sensitivity to potential impacts of the Project.	Significance of potential impacts is **moderate** (score = 1.67). While the risk is present, stakeholder engagement will continue throughout Project lifespan, and appropriate management will lessen the severity of possible impacts.

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Impact ID	Potential impact event	Avoidance	Frequency	Duration	Extent	Severity	Cumulative effects	Sensitivity of receiving environment	Outcome
HS1	Injury or death to member of the public or third party.	No – given the nature of the Project, hazards are expected to some degree.	Low – based on Project location and population density, exposure to members of the public and third parties is limited.	Long – impacts may occur throughout all stages of the Project.	Moderate – impacts will mostly be confined to the Project Area but could extend to transport routes.	High – instance of occurrence could lead to death or severe injury.	Low – given other renewable energy developments operational and proposed in the region, cumulative traffic hazards could occur. Cumulative effects of other hazards are unlikely.	High – some concerns were raised about traffic impacts during previous consultation.	Significance of potential impacts is **moderate** (score = 2.17). Appropriate identification, mitigation and management of hazards throughout the lifecycle of the Project will lessen the severity of possible impacts.
BF1	BESS Thermal Runaway or electrical hazards causing bushfire.	No – given the nature of the Project, hazards are expected to some degree.	Moderate – Preliminary Hazard Analysis has assessed that the risk of thermal runaway is moderate. However, with implementation of appropriate control measures, the risk of fire spreading can be managed.	Long – impacts may occur throughout the duration of operation.	Moderate – impacts may extend to the wider region.	High – instance of occurrence could lead to death, severe injury or significant damage to infrastructure.	Low – given the relatively low development in the surrounding area, risk of cumulative impact is low.	Moderate – it is anticipated that some stakeholders, including nearby residents and the CFS, will be interested in management measures.	Significance of potential impacts is **moderate** (score = 2.17). Appropriate design, mitigation and management measures will lessen the severity of possible impacts.
BF2	Lightning strikes to the BESS modules causing a bushfire.	No – given the nature of the Project, hazards are expected to some degree.	Low – Lightning protection rods, among other design and management measures, will reduce the risk of fires spreading as a result of lightning strikes to the BESS infrastructure.	Long – impacts may occur throughout the duration of operation.	Moderate – impacts may extend to the wider region.	High – instance of occurrence could lead to death, severe injury or significant damage to infrastructure.	Low – given the relatively low development in the surrounding area, risk of cumulative impact is low. The nearby Snowtown I Wind Farm incorporates its own lightning protection system.	Moderate – it is anticipated that some stakeholders, including nearby residents and the CFS, will be interested in management measures.	Significance of potential impacts is **moderate** (score = 2.00). Appropriate design, mitigation and management measures will lessen the severity of possible impacts.

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10 Conclusions

This Environmental Impact Report (EIR) has been developed to support Tilt Renewables' proposal to develop a BESS in Wokurna, approximately 10 km northwest of Snowtown in South Australia. The EIR is submitted to DEM in support of the AIL application for the Project, under the HRE Act.

The Project Area encompasses approximately 13 ha and is situated on agricultural land, directly adjacent to the existing Snowtown Substation.

The Project involves the construction of a BESS and ancillary infrastructure. The BESS suppliers are still being finalised; however, the maximum generating capacity of the Project would be 100 MW with up to 4 hours' duration. Ancillary infrastructure will include auxiliary supply transformers, hardstand areas; drainage and erosion control; internal roads, access tracks and parking; water management infrastructure; onsite buildings including operations and maintenance, switchroom and control room, storage; underground cabling; harmonic filter yard (if required); lightning protection rods; communications tower (if required); site fencing and security; and temporary construction facilities. The Project also includes a proposed grid connection (via underground cables) to the existing Snowtown Substation located directly east of the proposed BESS site, developed as part of the nearby Snowtown I Wind Farm.

To support the environmental impact assessment process, a series of detailed technical studies and assessments have been undertaken in order to gain a more in depth understanding of the potential issues, impacts and corresponding mitigation measures required. These assessments covered ecology, hydrology, soils and geology, site contamination, Aboriginal cultural heritage (in progress), noise, traffic, visual amenity, air quality, BESS hazard and risks, and social impacts as well as an assessment of the Project against the relevant policies of the P&D Code. Assessment of the potential environmental impacts of the Project was undertaken in accordance with the Environmental Impact Assessment Criteria established under the HRE Act and were used to inform the development of a SEO for the Project[2].

Key outcomes of the environmental impact assessment are summarised as follows:

- **Ecology (flora and fauna):** The Project Area lies within non-native cropping land, with native vegetation impacts limited to road reserves along Wokurna and Hewitt Roads. The creation of site access into the Project Area will require limited native vegetation clearance within road reserves along Wokurna and Hewitt Roads, with up to 0.0247 ha of *Austrostipa scabra* grassland requiring removal. Higher quality vegetation and rare species in proximity to the Project Area (an *Acacia pycnantha* patch and an individual *Maireana rohrlachii* (Rohrlach's Bluebush)) will be avoided. Although the clearance area is small (less than 0.05 ha), it has been classified as Level 2 due to the potential presence of listed species such as PBTL, Southern Whiteface, and Yellow-tailed Cockatoo identified in initial desktop assessment. However, further assessment indicates the habitat is poor or unsuitable for these species.

  No significant impact on threatened fauna species is expected as a result of the proposed clearance, as the Project Area and adjacent road reserves are not considered important habitat to threatened species under the NPW or EPBC Act. Minor impacts to common bird species (e.g., Australasian Pipit, Brown Songlark) may occur due to vegetation clearance and construction noise, but these are not expected to be significant as the vegetation clearance required is minimal and the vegetation is not deemed to be important habitat for these species.

  Three declared weed species were identified in and around the Project Area, presenting a heightened risk of weed spread via soil or plant material on vehicles and equipment, which could degrade habitat and affect nearby livestock or crops if not correctly managed. Weed and biosecurity measures will be documented in the CEMP and OMP and will be developed to comply with legislative requirements.

[2] Snowtown BESS Project Statement of Environmental Objectivates – PS216718-WSP-ADL-ENV-REP-002

- **Hydrogeology, erosion, and drainage assessment:** A Desktop Hydrology Assessment was undertaken for the Project and identified that the Project footprint lies within a flow path with a 1 km² catchment, with a 1% AEP design discharge of ~11 m^3/s, requiring consideration of overland flooding in design. The flow path is not identified as a Priority Watercourse under the *Northern and Yorke Water Affecting Activities Control Policy* and as such, impacts to this flow path are understood to not require a Water Affecting Activities Permit under the LSA Act. Detailed hydrology and flood risk modelling is recommended to assess flood extent, depth, and velocity, including climate change impacts.
- **Soils and geology:** The Project Area may be underlain by expansive alluvial clay soils, which are prone to softening when wet. Appropriate mitigation measures are recommended to manage potential erosion and sedimentation. Groundwater is unlikely to affect excavations for footing within the Project Area since the foundation levels are likely to be well above groundwater, however it is recommended that consideration should be given to the impact of perched groundwater and requirements for remedial measures during construction. Dewatering may be required depending on the extent of perched water encountered (if any).
- **Site contamination:** There are no recorded contaminated sites or EPA licenced facilities within or near the Project Area. The risk of encountering site contamination during ground disturbing works is considered to be low; however, preliminary site investigations are recommended to be undertaken prior to construction to confirm the absence of potentially contaminating activities. Furthermore, construction phase environmental management and mitigation measures for soil should be documented in the CEMP.
- **Aboriginal cultural heritage:** The Project Area is located on Narungga traditional lands, which extend across the Yorke Peninsula. Narungga traditional heritage interests for the Project Area are represented by the community appointed organisation the NNAC. Risks to Aboriginal heritage is expected to be low, given that the Project Area has been subject to previous disturbance for agriculture and there are no records of Aboriginal heritage sites, objects or remains within the Project Area. This will be verified through the outcomes of a cultural heritage survey that was undertaken across the Project Area and adjacent road reserves on 10 June 2025 with participation from Traditional Owners. The survey outcomes report, including a desktop assessment incorporating anthropological, archaeological, and historical research on the Project Area, is currently being developed. A key outcome of the Heritage Survey Report will be to provide a risk assessment of the Project; highlighting specific areas or activities that may present a risk of damage to Aboriginal heritage sites or objects, and to provide management and mitigation measures to avoid impacting cultural heritage.
- **Noise assessment:** An Environmental Noise Assessment was undertaken to assess compliance of Project operation against the relevant noise goals established under the Noise Policy. The assessment found that under a worst-case scenario assessment, noise generated from operation of the Project is expected to be compliant with the relevant noise goals under the Noise Policy. Construction of the Project may also result in temporary noise impacts from vehicles, plant or machinery to nearby noise sensitive receivers during the approximate 14-month construction period. All reasonable and practicable measures will be taken to minimise noise resulting from the Project during construction to minimise impacts to sensitive receivers, with management and mitigation measures to be documented in the CEMP.
- **Traffic impact assessment:** Construction-related traffic is expected to increase traffic volumes on local roads, with temporary rises of 30–60% on Wokurna Road (east) and up to 20% on Wokurna Road (west). These increases are notable however are considered manageable given the low current traffic volumes on these roads. Augusta Highway is expected to see a temporary minimal increase of 2–4%, with no significant impact expected. Key intersections expected to be utilised during construction have been assessed to be appropriate for the expected traffic volumes and vehicle types, without the need for significant upgrades. A TMP will be developed to manage construction-related traffic impacts and will address the safe movement of vehicles associated with the Project to, from, and within the Project Area. Traffic volumes generated during the operations phase of the Project are expected to be minimal, and hence no significant impacts are expected.

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- **Visual impact assessment:** A Landscape and Visual Impact Assessment was undertaken for the Project and considered a 2 km Zone of Theoretical Visual Influence surrounding the Project Area. The assessment concluded that the Project would appear inconspicuous or anonymous from key viewpoints surrounding the Project Area and is expected to result in no change to visual amenity at sensitive receptor locations. The use of vegetative screening is not considered necessary given the existing visual quality of the locality and contextual landscape and relative remoteness of the locality. However, the Landscape and Visual Impact Assessment recommended that, where practicable, Project infrastructure such as buildings should be painted in muted colours appropriate to the setting to blend in with the surrounding landscape.
- **Air quality assessment:** The main air quality impacts during construction of the Project would be associated with dust from typical construction activities including site preparation works and installation of footings and infrastructure. There are no sensitive residential receivers located within 250 m of the Project Area, and as such, air quality impacts from construction are expected to be minimal and able to be appropriately managed though implementation of air quality management measures to be documented in the CEMP. Operational air quality impacts are not expected beyond occasional dust from access track use, which is expected to be managed through limiting vehicle speeds on unsealed roads and access tracks.
- **BESS hazard and risk assessment:** A Preliminary Hazard Analysis undertaken for the Project investigated potential risks from the BESS including electrical hazards, thermal runaway, bushfire, flooding, operational noise emissions, seismic events, pollutant release, lightning strikes, vehicular impact, physical security breaches, and cybersecurity breaches to help identify management and mitigation measures for the Project. The assessment found that, prior to implementation of further management and mitigation measures, the risk of electric shock and thermal runaway events would be *moderate*, while other risks were assessed be low. To reduce the risk of electric shock, a Safety in Design workshop is to be held during detailed design to address the risk across the various components of the BESS, with controls and mitigations implemented and installed as appropriate. A number of measures will be implemented to manage the risk of thermal runaway events, including but not limited to maintaining secure control and monitoring network communication systems within the BESS yards and procuring appropriately certified and tested BESS units.
- **Social impact assessment:** Construction of the Project is expected to boost the local economy through increased business spending, short-term accommodation demand, and regional employment opportunities. Temporary traffic increases may disrupt farming activities, raise road safety concerns, and affect local amenity through noise, dust, and visual impacts; however, it is expected that these impacts can be appropriately managed through stakeholder consultation and implementation of appropriate management and mitigation measures. Furthermore, Tilt Renewables has committed to a Benefit Sharing Plan, which will be designed to enhance social and economic outcomes for both local and regional communities, supporting sustainable development and community resilience.
- **Planning assessment:** The Project is wholly located within the Rural Zone of the P&D Code, which seeks ‘a zone supporting the economic prosperity of South Australia primarily through the production, processing, storage and distribution of primary produce, forestry and the generation of energy from renewable sources’. The Project, comprising a battery storage facility, is therefore appropriately located in a planning zone where renewable energy facilities are an envisaged land use. The Project is not expected to adversely impact adjacent agricultural land users and has been designed to minimise hazard or nuisance to adjacent land users.
- **Public health and safety:** Health and safety risks during construction and operation of the Project include potential increased risk of injury or death from improper use of machinery, hazardous substances, traffic incidents, electric shock, and fire (including bushfires). Public nuisance impacts may also arise from dust, noise, and exposure to contaminated soils, as well as physical hazards like trips and falls on-site. Health and safety risks will be managed through implementation of a Health and Safety Management Plan and Emergency Management Plan.

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Environmental management measures will be applied to support the defined SEO and to help mitigate potential impacts of the Project upon the biophysical, cultural, and social environment elements. The detailed design of the Project including micro-siting will be carried out to further minimise impacts and address the findings of ongoing constructability assessments. Mitigation measures have been proposed to address the residual impacts of the Project and will be documented in the CEMP and OMP which will be prepared in consultation with relevant regulatory authorities.

Once operational, the Project will support the South Australian energy system by providing up to 100 MW/400 MWh of energy storage and discharge capacity as well as FFR. Battery storage of this nature plays an important role in South Australia's renewable energy dominant system; with the FFR provided by these systems being able to act as an alternative to inertia, which cannot be provided by a wind farm alone. The provision of FFR through development of the Project will help to support the stability and security of the State's energy system and will support the South Australian Government's target to achieve 100% renewable energy by 2027.

The assessment demonstrates that the Project is consistent with relevant assessment provisions of the HRE Act and the P&D Code, and it is considered that the Project warrants License Approval subject to reasonable conditions.

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Appendix A

Planning and land use assessment

Design
for a better
future /

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

Snowtown BESS

Planning and Land Use Assessment

July 2025

Question today
Imagine tomorrow
Create for the future

Snowtown BESS
Planning and Land Use Assessment

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

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We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Abbreviations

AIL	Associated Infrastructure Licence
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
CFA Guidelines	Country Fire Authority of Victoria *Design Guidelines and Model requirements for Renewable Energy Facilities*
dB(A)	'A' weighted decibel
DEM	Department for Energy and Mining
DHUD	Department for Housing and Urban Development
DO	Desired Outcome
DTS/DPF	Deemed-to-Satisfy Criteria / Designated Performance Feature
EIR	Environmental Impact Assessment
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
HRE Act	*Hydrogen and Renewable Energy Act 2023*
Km	Kilometres
kV	Kilovolt
LCVIA	Landscape Character and Visual Impact Assessment
L_{eq}	Equivalent continuous sound pressure level
m	Metre
MW	Megawatts
Noise Policy	*Environment Protection (Commercial & Industrial Noise) Policy 2023*
NPW Act	*National Parks and Wildlife Act 1972*
NVC	Native Vegetation Council
OMP	Operational Management Plan
OTL	Overhead transmission line
P&D Code	Planning and Design Code
PBTL	Pygmy Blue-tongue Lizard
PDI Act	*Planning, Development and Infrastructure Act 2016*
PO	Performance Outcome
Project	All proposed activities for the Snowtown BESS project
Project Area	Land on which the Project is located

SEO	Statement of Environmental Objectives
SPP	State Planning Policies
Tilt Renewables	Tilt Renewables Australia Pty Ltd as trustee for Snowtown BESS Project Trust
WSP	WSP Australia Pty Limited

1 Introduction

1.1 Project overview

Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables) is developing the Snowtown Battery Energy Storage System (BESS) project (the Project); a 100-megawatt (MW) BESS with up to 4-hour duration. The Project is located in Wokurna, approximately 10 kilometres (km) northwest of Snowtown in South Australia.

The Project proposes both permanent and temporary infrastructure. Permanent site infrastructure will comprise:

- BESS with capacity of up to 100 MW with up to 4-hour duration, including Battery Pack Containers, inverters, inverter transformers and associated control, monitoring and protection equipment
- Ancillary infrastructure including auxiliary supply transformers
- Hardstand areas
- Drainage and erosion control
- Internal roads, access tracks, and parking
- Water management infrastructure (water tanks, water supply, detention pond, water treatment)
- Onsite buildings (operations and maintenance, switchroom and control room, storage)
- Underground cabling
- Harmonic filter yard (if required)
- Lightning protection rods
- Communications tower (if required)
- Site fencing and security
- Business identification and safety signage.

Temporary site infrastructure will include:

- Construction compound
- Equipment laydown areas
- Fuelling stations.
- Washdown bay (if required).

The Project also includes a proposed grid connection (via underground cables) to an existing substation located directly east of the proposed BESS site; developed as part of the Snowtown I Wind Farm. Modification works to the existing Snowtown Substation will be required as part of the Project to facilitate the connection of the BESS to the electricity grid. Substation works are expected to include:

- Installation of a new isolator and earth switch
- Installation of a 33 kilovolts (kV) conductor between the new isolator and the existing wind farm isolator
- 33 kV cable trench from the BESS Facility into the substation
- Associated protection, control and metering equipment to be installed in the existing Snowtown I Wind Farm substation building.

The Project constitutes a *regulated activity* under the *Hydrogen and Renewable Energy Act 2023* (HRE Act) and will seek licencing under an Associated Infrastructure Licence (AIL). WSP Australia Pty Limited (WSP) has been engaged to prepare an Environmental Impact Report (EIR), Statement of Environmental Objectives (SEO) and technical studies to support the AIL application.

1.2 Project Area

The Project will be located on an approximate 13-hectare site (the Project Area) located directly west of an existing ElectraNet substation; at the junction of Wokurna Road and Hewitt Road, Wokurna.

The Project Area has two road frontages; Wokurna Road along the northern boundary and Hewitt Road along the southern boundary. The primary access point to the Project Area will be created off Wokurna Road and will be used to support the construction phase as well as the operational phase of the Project. Hewitt Road will be used as emergency and secondary access to the facility.

The Project Area has historically been cleared of native vegetation and is currently used for cropping.

The Project is bound by the following:

- North – agricultural land on both sides of Wokurna Road
- East – Snowtown Substation (located on Tilt Renewables owned land and associated with the existing Snowtown I Wind Farm)
- South – agricultural land over Hewitt Road
- West – agricultural land.

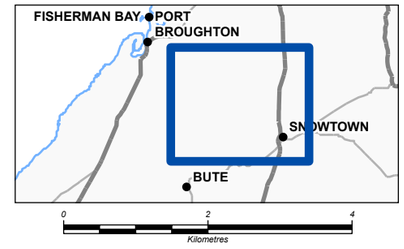
The Project Locality and Indicative Project Layout are shown in Figure 1.1 and Figure 1.2.

Snowtown BESS project

Figure 1.1
Project Locality

Legend

- Road
- Project Area
- LGA Boundary



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GDA 2020

Data sources: SA Government, Metromap

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Legend

- Project Area
- Existing 132kV Transmission Line
- Existing 33kV Transmission Line
- Indicative Underground Cable
- Indicative Underground Substation Cable
- Indicative BESS Infrastructure
- Indicative Internal Road
- Indicative Bench
- Indicative Switchroom and Control Room
- Indicative Harmonic Filter
- Indicative O&M Building
- Indicative Detention Pond
- Indicative Water Tank
- Indicative Washdown Bay
- Indicative Spare BESS Infrastructure
- Indicative Fence
- Existing Substation
- Tilt Owned Land
- Cadastre

Note: Indicative layout and subject to change

Date: 23/05/2025
Version: C
GDA2020 MGA Zone 54
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N

0 50 100 Meters

Document Path: G:\GIS\Project Data\Development\SA\SnowTown Battery Storage\Maps\mxd\STBS_13A_RL_Preliminary Layout_A3L_20250521.mxd

Snowtown BESS

Indicative Project Layout

renewables

1.3 Scope of assessment

The scope of this Planning and Land Use Assessment is primarily to provide a review of the Project against the relevant policies of the Planning and Design Code (P&D Code) to support the AIL application under the HRE Act. The Assessment also summarises other key legislative and policy requirements relating to planning and land use for the Project.

1.4 Legislative and policy requirements

The subsections below detail the relevant legislative and policy requirements relating to planning and land use for the Project.

1.4.1 Hydrogen and Renewable Energy Act 2023

The HRE Act has been developed by the South Australian government to support the growing renewable energy industry and to streamline licencing for hydrogen and renewable energy projects in South Australia. The HRE Act aims to provide a "one window to government" process for hydrogen and renewable energy projects from conception through to completion; consolidating typical processes for renewable energy projects, historically regulated under separate Acts. This consolidation process is intended to unlock hydrogen and renewable energy potential across the State and reduce costs and complexities for developers.

The HRE Act offers six types of licences and one permit type for hydrogen and renewable energy projects in South Australia:

- Renewable energy feasibility permit (on non-designated land) (REFP)
- Renewable energy feasibility licence (REFL)
- Renewable energy infrastructure licence (REIL)
- Renewable energy research licence (RERL)
- Hydrogen generation licence (HGL)
- Associated infrastructure licence (AIL)
- Special enterprise licence (SEL).

An energy storage system with a name plate capacity of greater than 5 MW that is to be connected to a transmission or distribution network within South Australian land or coastal waters is a prescribed as an associated infrastructure activity under Regulation 3(2)(b) of the *Hydrogen and Renewable Energy Regulations 2024* and is a regulated activity under the HRE Act. As such, the appropriate licence type for the Project is an AIL.

The AIL application was lodged with the Department for Energy and Mining (DEM) on 23 May 2025. Associated documentation to support the AIL application (such as the EIR and SEO) will also be submitted. The application will be assessed by the Minister responsible for the HRE Act or their delegate.

(Hydrogen and Renewable Energy Act 2023 - Version 11.7.2024)

1.4.2 Planning and Design Code

The P&D Code is developed under the *Planning, Development and Infrastructure Act 2016* (PDI Act) and aims to establish comprehensive policies for the assessment of development in South Australia.

The P&D Code structure includes Zones, Subzones, Overlays and General Development Policies; with the Zone being the principal organising layer which establishes the type of development that is envisaged within a particular location.

The P&D Code is not a statutory instrument under the HRE Act, and as such, the Project is not required to strictly comply with the planning policies applicable to the Project Area.

In assessing whether to grant an AIL for the Project, the Minister/DEM will refer the EIR and SEO to the Department for Housing and Urban Development (DHUD) as a prescribed body under Section 73 of the HRE Act, as an administrative unit of the Public Service under a Minister responsible for Administration of the PDI Act. During this referral, it is understood that DHUD will provide comment on the Project against the P&D Code for consideration in the Minister's assessment.

(State Planning Commission, 2025)

1.4.3 State Planning Policies

South Australia's State Planning Policies (SPPs) are established under the PDI Act and have been developed to provide umbrella polies that address land use planning and development across the State; aiming to enhance liveability, sustainability and prosperity. The P&D Code has been developed to align with the SPPs. Relevant SPPs include:

- State Planning Policy 4: Biodiversity
- State Planning Policy 5: Climate Change
- State Planning Policy 8: Primary Industry
- State Planning Policy 12: Energy.

(State Planning Commission, 2019)

1.5 Assessment Methodology

This Planning and Land Use Assessment has been undertaken using the following methodology:

- Review of the Project Area and determination of the applicable Zones, Subzones and Overlays under the P&D Code based on the P&D Code version 2025.6, adopted 27th March 2025
- Determination of the category of development for the proposed land use, as defined under the applicable Zones and Subzones
- Review of available Project information and existing technical studies, including:
  - Desktop Hydrology Assessment (WSP Australia Pty Limited, 2025a)
  - Ecological Assessment (WSP Australia Pty Limited, 2025b)
  - Landscape Character and Visual Impact Assessment (LCVIA) (Hemisphere Design (Aust) Pty Ltd, 2025)
  - Environmental Noise Assessment (Sonus, 2025)
  - Preliminary Hazard Analysis (WSP Australia Pty Limited, 2025c)
  - Traffic Impact Assessment (WSP Australia Pty Limited, 2025d).
- Assessment of the proposed Project against the applicable Zones, Subzones, Overlays and General Development Policies under the P&D Code
- Recommendation on whether the Project is consistent with the P&D Code.

2 Existing conditions

2.1 Broad landscape description

The Project Area is located within the Wakefield Regional Council area.

The Project is located in Wokurna, approximately 6.5 km west of the Augusta Highway, and approximately 10 km northwest of the Snowtown township. The Project Area is located directly adjacent to the existing Snowtown Substation and in close proximity to wind turbine generators (WTGs) associated with the Snowtown I Wind Farm.

The Project Area is on an agricultural property, primarily used for cropping. Native vegetation within the Project boundary has been cleared, with some remnant native vegetation existing along the road verge boundaries of the Project; primarily comprising *Austrostipa scabra* grassland with exotic grasses and herbs (WSP Australia Pty Limited, 2025b).

2.2 Issue-specific site description/baseline environmental data

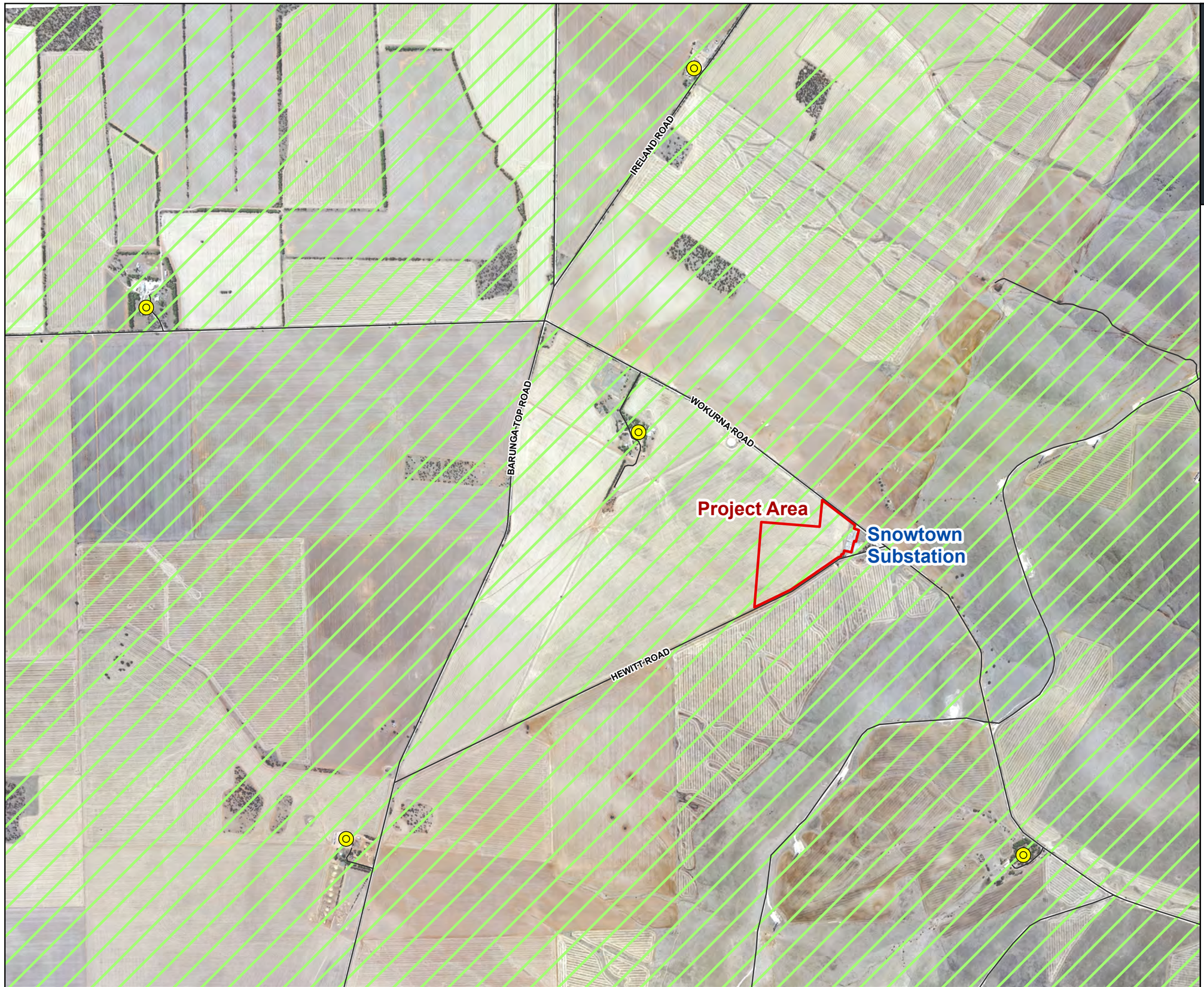
The Project is wholly located within the Rural Zone of the P&D Code. There are no Subzones applicable across the Project Area (PlanSA, n.d.).

The following Overlays also apply to all or part of the Project Area:

- Hazards (Bushfire – General Risk)
- Hazards (Flooding – Evidence Required)
- Native Vegetation
- Water Resources
- Dwelling Excision
- Limited Land Division.

The Project does not propose the alteration or creation of new allotments, and as such, the Dwelling Excision Overlay and Limited Land Division Overlay are not relevant to the Project and are not discussed further in this assessment.

Zoning for the Project is shown in Figure 2.1.



Snowtown BESS project

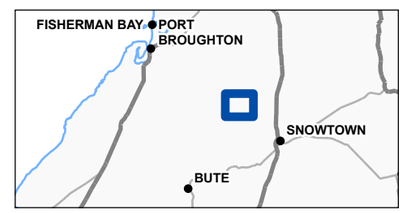
Figure 2.1
Planning and Design
Code Zones

Legend

- Sensitive Receiver
- Project Area
- Road

Planning and Design Code Zone

- Rural



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Scale ratio correct when printed at A3

1:18,000 Date: 21/05/2025

Data sources: SA Government, Metromap

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3 Planning assessment

3.1 Land use definition

Under the 'Land Use Definitions Table' in Part 7 of the P&D Code (State Planning Commission, 2025), the Project is classified as a *renewable energy facility* given that it will store electricity generated from a renewable source:

> *Renewable energy facility*:
>
> *Means land and/or water used to generate electricity from a renewable source such as wind, solar, tidal, hydropower, biomass and/or geothermal;*
>
> *This use may also include:*
>
> *a) any associated facility for the storage and/or transmission of the generated electricity;*
>
> *b) any building or structure used in connection with the generation of electricity.*

As per Column C of the Land Use Definitions Table, this definition also includes a *battery storage facility*.

3.2 Categorisation

The Rural Zone assigns a Restricted Development classification to renewable energy facilities located within the Significant Landscape Protection Overlay or Character Preservation District Overlay - neither of which apply to this Project Area.

Where a proposed renewable energy facility is not located within the Significant Landscape Protection Overlay or Character Preservation District Overlay, no classification is assigned by the Zone, and hence this Project would be considered Performance Assessed Development under Section 105(b) of the PDI Act (State Planning Commission, 2025).

3.3 Planning and Design Code Policies

3.3.1 Planning and Design Code Zoning

The Desired Outcome (DO) for development within the Rural Zone is seeks:

> *DO 1: A zone supporting the economic prosperity of South Australia primarily through the production, processing, storage and distribution of primary produce, forestry and the generation of energy from renewable sources.*
>
> *DO 2: A zone supporting diversification of existing businesses that promote value-adding such as industry, storage and warehousing activities, the sale and consumption of primary produce, tourist development and accommodation.*
>
> (State Planning Commission, 2022)

The Project, comprising a renewable energy facility (battery storage facility), directly supports DO 1 of the Rural Zone by supporting facilities that generate energy from renewable sources.

The Assessment Provisions of the Rural Zone applicable to this type of development provide guidance on land use and intensity within the Zone and the interaction of renewable energy facilities with primary production. An assessment of the Project against the relevant Assessment Provisions of the Rural Zone is provided in Table 3.1.

Table 3.1 Assessment of the Project against the relevant Assessment Provisions of the Rural Zone

PO[1] or DTS/DPF[2]	Comment
Land Use and Intensity DTS/DPF 1.1: *Development comprises one or more of the following:* *(s) Renewable energy facility.*	The Project comprises a renewable energy facility as defined under Part 7 of the P&D Code, which is a form of development envisaged under DTS/DPF 1.1 of the Zone.
Siting and Design DTS/DPF 2.1: *Development is serviced by an all-weather trafficable public road.*	A new access point will be created off Wokurna Road to facilitate construction. Once completed, this will be the primary access point to the Project Area for the construction bulk traffic and ongoing operational traffic. A secondary access point to the Project area will be located on Hewitt Road (emergency and secondary access). Both Hewitt Road and Wokurna Road are public roads of a compacted rubble construction which provides an all-weather trafficable surface (DTS/DPF 2.1) (WSP Australia Pty Limited, 2025d).
Renewable Energy Facilities PO 9.1: *Renewable energy facilities and ancillary development minimises significant fragmentation or displacement of existing primary production.*	The Project Area is bordered by Wokurna Road along the northeast and east, the existing Snowtown Substation to the east, Hewitt Road to the south, and agricultural land use to the west. Mixed use agricultural and renewable energy facilities extend beyond to the south and southeast; with the Snowtown I Wind Farm sited on the Hummock Range that borders the Project Area. The siting of the Project directly adjacent the Snowtown Substation will limit the fragmentation of primary production activities (PO 9.1). It is expected that existing land uses will be able to continue directly adjacent to the fenced BESS area during the operational stage of the Project.
Built Form and Character PO 10.1: *Large buildings are designed and sited to reduce impacts on scenic and rural vistas by:* a) *having substantial setbacks from boundaries and adjacent public roads* b) *using low-reflective materials and finishes that blend with the surrounding landscape* c) *being located below ridgelines.*	Buildings and BESS containers onsite are expected to be no greater than 6 metres (m) in height and will maintain a minimum 20 metre (m) setback from property boundaries. To minimise potential impacts to visual amenity and glare, after hours lighting will be directed downward where practicable. Furthermore, as recommended in the LCVIA, where practicable Project infrastructure such as buildings should be painted in muted colours appropriate to the setting to blend in with the surrounding landscape Project (Hemisphere Design (Aust) Pty Ltd, 2025). Visual impacts will be further reduced through natural shielding provided by the nearby Hummock Range, with the Project being located on a slope below the ridgeline of this range (PO 10.1).
Concept Plans DTS/DPF 14.1: *The site of the development is wholly located outside any relevant Concept Plan boundary.*	The Project Area is wholly located outside of the boundary of any Concept Plan (DTS/DPF 14.1).

1 Performance Outcome (PO)

2 Deemed-to-Satisfy Criteria / Designated Performance Feature (DTS/DPF)

3.3.2 P&D Code Overlays

Table 3.2 assesses the Project against the DO, PO and DTS/DPF Criteria of the appliable P&D Code Overlays across the Project Area.

Table 3.2 Assessment of the Project against the relevant Assessment Provisions of the applicable P&D Code Overlays

PO or DTS/DPF	Comment
Hazards (Bushfire – General Risk) Overlay	
DO 1: *Development, including land division responds to the general level of bushfire risk by siting and designing buildings in a manner that mitigates the threat and impact of bushfires on life and property taking into account the increased frequency and intensity of bushfires as a result of climate change.* DO 2: *To facilitate access for emergency service vehicles to aid the protection of lives and assets from bushfire danger.*	As the Project is located in an area identified as general bushfire risk under the P&D Code, it should be designed in consideration off the Ministerial Building Standard 008: Designated bushfire prone areas – additional requirements. It is noted that this standard applies to Class 1, 2 and 3 buildings only. As the Project does not propose any of these classes of buildings, the standard will be referred to for guidance only and is not required to be strictly complied with. Furthermore, in the absence of applicable South Australian based Guidelines for renewable energy facilities, the Project will be designed with consideration of the Country Fire Authority (CFA) of Victoria *Design Guidelines and Model requirements for Renewable Energy Facilities* (CFA Guidelines) (2023). A Preliminary Hazard Analysis has been undertaken for the Project (WSP Australia Pty Limited, 2025c) to identify potential design and operational risks of the Project, including bushfire risks, and to provide mitigation measures to be considered during the Project's detailed design.
PO 1.1: *Buildings and structures are located away from areas that pose an unacceptable bushfire risk as a result of vegetation cover and type, and terrain.*	The Project will be accessible from all-weather public roads, and suitable site access will be maintained throughout construction and operation. The Project Area is located in an agricultural area and is not located in close proximity to large areas native or uncontrolled vegetation that may post an elevated bushfire risk (PO 1.1).
PO 2.1: *Buildings and structures are designed and configured to reduce the impact of bushfire through using designs that reduce the potential for trapping burning debris against or underneath the building or structure, or between the ground and building floor level in the case of transportable buildings and buildings on stilts.*	A number of buildings and structures to support construction and operation of the Project; including Battery Pack Containers, control and switch rooms, and operation and maintenance facilities. The Preliminary Hazard Analysis has concluded that the likelihood of embers falling in the BESS yard and subsequently triggering a BESS fire is unlikely, given the standard design of BESS containers from suppliers under consideration. All buildings will be designed to reduce the risk of trapping embers against or under buildings (PO 2.1). Lightning masts will also be used to reduce fire risks associated with lightning strikes. As a part of maintenance activities, all debris will be cleared from around buildings and structures and site vegetation (fuel load) will be controlled.

PO or DTS/DPF	Comment
PO 5.1: *Roads are designed and constructed to facilitate the safe and effective:* *a) access, operation and evacuation of fire-fighting vehicles and emergency personnel* *b) evacuation of residents, occupants and visitors.*	Infrastructure will be serviced by a network of internal access tracks which will be constructed of an all-weather surface and will allow movement of emergency service vehicles in a forward direction around the site. The access track network will be maintained to facilitate safe access for emergency service vehicles and site evacuation. The access track network will be designed with consideration of the CFA Guidelines (2023). In line with the guidelines, as a minimum, the access tracks will achieve the following: — site access roads will have a minimum formed road width of 6 m — a minimum of two access points to each section of the site where BESS are located — the Project layout will ensure that the site entrance and fire water tanks are not aligned with predominant wind direction of battery cells.
Hazards (Flooding – Evidence Required) Overlay	
DO 1: *Development adopts a precautionary approach to mitigate potential impacts on people, property, infrastructure and the environment from potential flood risk through the appropriate siting and design of development.*	The Project design has sought to avoid the placement of infrastructure in areas susceptible to flooding. Detailed design will be further informed by the outcomes of flood modelling (DO 1).
PO 1.1: *Development is sited, designed and constructed to minimise the risk of entry of potential floodwaters where the entry of flood waters is likely to result in undue damage to or compromise ongoing activities within buildings.*	A Desktop Hydrology Assessment was undertaken for the Project (WSP Australia Pty Limited, 2025a) to understand the hydrology setting for the Project; including flow paths and high-level flood conditions. The assessment identified that the proposed Project infrastructure is located at the end of an approximately 1 km^2 catchment draining toward the Project. The final Project layout and design will be required to consider the potential overland flooding from that upstream catchment and its flow path. Based on the current conceptual layout of the Project, the Project Area will be required to fill above the design flood levels with appropriate freeboard and additionally cut-off drains may be required to divert the upstream runoff. Further hydrology and hydraulic assessment and modelling will be undertaken to support the detailed design to inform design levels, potential micro-siting away from flood prone areas, drainage requirements to minimise interruption to flood and flow regimes (PO 1.1).
PO 2.1: *Buildings and structures used either partly or wholly to contain or store hazardous materials are designed to prevent spills or leaks leaving the confines of the building.*	Small volumes of hazardous materials may be kept onsite during construction and operation to support construction and maintenance of the Project. Storage areas for these materials should be designed to prevent leaks or spills via bunding or other containment control measures (PO 2.1). The battery cells themselves will have design features to prevent leaks of hazardous substances in the event of an enclosure failure. Any leaks would be contained within the battery container.

PO or DTS/DPF	Comment
Native Vegetation Overlay	
DO 1: *Areas of native vegetation are protected, retained and restored in order to sustain biodiversity, threatened species and vegetation communities, fauna habitat, ecosystem services, carbon storage and amenity values.* PO 1.1: *Development avoids, or where it cannot be practically avoided, minimises the clearance of native vegetation taking into account the siting of buildings, access points, bushfire protection measures and building maintenance.*	Native vegetation impacts from the Project have been minimised by the following: — Siting the Project on an agricultural property that has previously been cleared of native vegetation — Siting the Project directly adjacent to the Snowtown Substation, which helps avoid the need for development of a long overhead transmission line (OTL) and associated vegetation clearance — Undertaking ecological surveys early in the design process to identify areas of higher quality vegetation within and around the site; and avoiding impacts to these areas where practicable through progression of the design. In particular, the design will seek to avoid patches of native grasslands along the road reserve of Wokurna Road, native scattered Acacia on the eastern end of Hewitt Road and a single *Maireana rohrlachii* (Rohrlach's Bluebush) surveyed on Hewitt Road toward the southernmost end of the Project Area (PO 1.1). Regardless, native vegetation clearance for the Project cannot be completely avoided given that some native grassland within the road reserve of Hewitt Road will need to be cleared along the Project boundary to establish the secondary site access point during the early stages of construction. Some native vegetation clearance along the Project boundary on Wokurna Road may also be required to support construction of the primary site access point (DO 1). An Ecological Assessment has been undertaken for the Project by a Native Vegetation Council (NVC) Accredited Consultant (WSP Australia Pty Limited, 2025b). The assessment determined that the Project will result in clearance of up to 247 m^2 of *Austrostipa scabra* grassland with exotic grasses and herbs. The total area of native vegetation clearance is less than 0.05 ha, commensurate to a Level 1 clearance. However, the potential for the site to contain listed species including PBTL, Southern Whiteface and Yellow-tailed Cockatoo was identified in background searches, which escalates the works to a Level 2 clearance. Based on the outcomes of the ecological surveys undertaken, the Project Area was considered to provide limited suitability and/or poor-quality habitat for these species, and as such, the Ecological Assessment recommends that consultation be undertaken with NVC to revise the clearance level to Level 1, which would require a Significant Environmental Benefit (SEB) offset of $500. A Native Vegetation Clearance Data Report will be prepared and lodged with NVC to see native vegetation clearance approval for the Project. All clearance required for the Project will be undertaken in accordance with any conditions attached to the clearance certificate issued by NVC. During construction, areas of native vegetation not requiring clearance will be protected to avoid accidental disturbance (e.g., via establishment of no-go zones). Other measures to help avoid impacts on existing native vegetation will include implementation of weed and biosecurity measures in the Construction Environmental Management Plan (CEMP) and Operational Management Plan (OMP) to control potential the establishment and dispersal of weeds and disease.

PO or DTS/DPF	Comment
PO 1.2: *Native vegetation clearance in association with development avoids the following:* *a) significant wildlife habitat and movement corridors* *b) rare, vulnerable or endangered plants species* *c) native vegetation that is significant because it is located in an area which has been extensively cleared* *d) native vegetation that is growing in, or in association with, a wetland environment.*	An Ecological Assessment has been undertaken for the Project (WSP Australia Pty Limited, 2025b) to identify native vegetation, habitat areas or threatened species that occur in the area. The assessment was informed by ecological surveys undertaken across the Project Area, including a vegetation survey and a targeted survey to identify the potential presence of the Pygmy Blue-tongue Lizard (PBTL) (*Tiliqua adelaidensis*). The initial phase of the assessment identified that the Southern Whiteface (*Aphelocephala leucopsis*) (*Environment Protection and Biodiversity Conservation Act 1999*-EPBC Act: Vulnerable); Yellow-tailed Black Cockatoo (*Zanda funerea whiteae*) (*National Parks and Wildlife Act 1972*-NPW Act: Vulnerable) and PBTL (EPBC Act: Vulnerable, NPW Act: Vulnerable) could potentially occur within the Project Area. The current expected clearance area was considered likely to impact on the grassland which may provide habitat for the PBTL; however, targeted survey undertaken for this species did not identify the species in any of the spider holes surveyed, and further noted that the habitat in and around the Project Area is considered poor for this species. Furthermore, it is considered that the grassland in the area does not provide adequate or important habitat for Southern Whiteface or Yellow-tailed Black Cockatoo. The vegetation survey identified one threatened plant in proximity to the Project Area, a single *Maireana rohrlachii* (Rohrlach's Bluebush) surveyed on Hewitt Road toward the southernmost end of the Project Area, located just outside the Project boundary. Impacts to this plant will be avoided. No further threatened, vulnerable or endangered plant species were identified within the Project Area or within the proposed disturbance footprint of the Project. The preliminary design of the Project layout has also sought to avoid impacts on native vegetation in the road reserve on Wokurna Road. The primary site entrance is proposed to be located to the west of existing native vegetation identified in the road reserve at this location. The Project will not result in impacts to significant native vegetation or native vegetation growing in, or in association with a wetland environment (PO 1.2).
Water Resources Overlay	
DO 1: *Protection of the quality of surface waters considering adverse water quality impacts associated with projected reductions in rainfall and warmer air temperatures as a result of climate change.* DO 2: *Maintain the conveyance function and natural flow paths of watercourses to assist in the management of flood waters and stormwater runoff.*	The design of the Project has sought to avoid the interruption of natural flow paths of watercourses (DO 1 and DO 2). The CEMP and OMP for the Project will include management and mitigation measures minimise and control the risk of water quality impacts.
PO 1.1: *Watercourses and their beds, banks, wetlands and floodplains (1% AEP flood extent) are not damaged or modified and are retained in their natural state, except where modification is required for essential access or maintenance purposes.*	The Project is not situated in the area of a watercourse, wetland or floodplain. As identified by the Desktop Hydrology Assessment (WSP Australia Pty Limited, 2025a) undertaken for the Project, the Project is located at the end of an approximately 1 km^2 catchment draining toward the site and an ephemeral drainage line passes through the Project Area. The detailed design of the Project will need to take this flow path into consideration to both minimise impacts to surface water and minimise risks posed to Project infrastructure (PO 1.1).
PO 1.7: *Watercourses, floodplains (1% AEP flood extent) and wetlands protected and enhanced by retaining and protecting existing native vegetation.*	The Project does not propose any clearance of native vegetation within a watercourse, floodplain or wetland (PO 1.7).

3.3.3 General Development Policies

Table 3.3 assesses the Project against the DO, PO and DTS/DPF Criteria of the appliable General Development Policies for the Project.

Table 3.3 Assessment of the Project against the relevant Assessment Provisions of the General Development Policies of the P&D Code

PO or DTS/DPF	Comment
Clearance from Overhead Powerlines	
DO 1: *Protection of human health and safety when undertaking development in the vicinity of overhead transmission powerlines.* PO 1.1*: Buildings are adequately separated from aboveground powerlines to minimise potential hazard to people and property.*	The Project Area is intersected by several existing OTLs that tie into the adjacent Snowtown Substation (see Figure 1.2), including: — a 132 kV OTL that intersects the northern portion of the site diagonally from the west — a pair of 33 kV OTL that intersect the eastern end of the site, broadly running parallel to the eastern boundary of the site. The location of these OTLs and associated easements were identified early in the design process. While some construction will need to take place beneath the OTLs, including the development of access tracks and the underground connection cable, the design will maintain the separation distances for buildings and structures required under the *Electricity Act 1996* (PO 1.1). Management and mitigation measures for working safely in the vicinity of powerlines will be documented in the CEMP and OMP (DO 1).
Infrastructure and Renewable Energy Facilities	
DO 1: *Efficient provision of infrastructure networks and services, renewable energy facilities and ancillary development in a manner that minimises hazard, is environmentally and culturally sensitive and manages adverse visual impacts on natural and rural landscapes and residential amenity.* PO 1.1: *Development is located and designed to minimise hazard or nuisance to adjacent development and land uses.*	The proposed Project is appropriately located within the Rural Zone, where renewable energy facilities are an envisaged land use. The Project is not expected to adversely impact adjacent agricultural land uses and has been designed to minimise hazard or nuisance to adjacent land users (DO 1 and PO 1.1).

PO or DTS/DPF	Comment
PO 2.1: *The visual impact of above-ground infrastructure networks and services (excluding high voltage transmission lines), renewable energy facilities (excluding wind farms), energy storage facilities and ancillary development is minimised from townships, scenic routes and public roads.* *a) utilising features of the natural landscape to obscure views where practicable* *b) siting development below ridgelines where practicable* *c) avoiding visually sensitive and significant landscapes* *d) using materials and finishes with low-reflectivity and colours that complement the surroundings* *e) using existing vegetation to screen buildings* *f) incorporating landscaping or landscaped mounding around the perimeter of a site and between adjacent allotments accommodating or zoned to primarily accommodate sensitive receivers.*	Visual impacts of the Project have been minimised through the following: — The siting of the Project on the western side of the Hummock Range will shield the Project of view from the east. — The siting of the Project directly adjacent to the existing Snowtown Substation will remove the need for construction of a long OTL and associated visual impacts (as no new OTL will be required for the Project) and also will also minimise disruption of the wider agricultural landscape by grouping the Project with similar infrastructure (i.e., the Snowtown Substation and the Snowtown I Wind Farm). — Established patches of native trees and shrubs located to the southeast of the Project will be retained, where practicable. — Where practicable, Project infrastructure such as buildings will be painted in muted colours appropriate to the setting to blend in with the surrounding landscape. The LCVIA undertaken for the Project assessed the locality of the Project Area as one characterised by the presence of highly visible renewable energy infrastructure and more utilitarian services infrastructure. Furthermore, it was assessed that the Project would be indiscernible or anonymous within the landscape when viewed from identified viewpoints (Hemisphere Design (Aust) Pty Ltd, 2025). As such, the Project is not expected to result in significant visual impacts to the locality.
PO 2.2: *Pumping stations, battery storage facilities, maintenance sheds and other ancillary structures incorporate vegetation buffers to reduce adverse visual impacts on adjacent land.*	The Project will be located directly adjacent to the existing Snowtown Substation and Snowtown I Wind Farm, reducing its visual impact on the wider landscape. To further reduce visual impacts, infrastructure will maintain a setback of at least 20 m from property boundaries. A landscaping plan will be developed during detailed design, if required (PO 2.2).
PO 2.3: *Surfaces exposed by earthworks associated with the installation of storage facilities, pipework, penstock, substations and other ancillary plant are reinstated and revegetated to reduce adverse visual impacts on adjacent land.*	During construction, all exposed surfaces will be reinstated as soon as reasonably practical, to reduce impacts to visual amenity, stormwater runoff, and air quality. The CEMP will include measures for reinstatement and revegetation of disturbed areas (PO 2.3).
PO 4.1: *Infrastructure and renewable energy facilities and ancillary development located and operated to not adversely impact maritime or air transport safety, including the operation of ports, airfields and landing strips.*	Building and structures on site will generally range in height between 2 m and 7.5 m; with the exception of lightning rod and communications towers which will likely be 25 m and 15 m in height, respectively. The Project does not propose the installation of tall obstacles (as classified by the Civil Aviation Safety Authority (2021)) , OTL or plant that will generate plumes that may cause hazard to aviation operations (PO 4.1).

PO or DTS/DPF	Comment
PO 4.3: *Bushfire hazard risk is minimised for renewable energy facilities by providing appropriate access tracks, safety equipment and water tanks and establishing cleared areas around substations, battery storage and operations compounds.*	See Hazards (Bushfire – General Risk) Overlay under Table 3.2.
PO 5.3: *Battery storage facilities are co-located with substation infrastructure where practicable to minimise the development footprint and reduce environmental impacts.*	The Project will be located directly adjacent to the existing Snowtown Substation on land that has previously been cleared for agriculture. The Project has been designed to reduce its overall environmental impacts, including impacts to native vegetation and surface hydrology (PO 5.3).
PO 7.1: *Renewable energy facilities are located as close as practicable to existing transmission infrastructure to facilitate connections and minimise environmental impacts as a result of extending transmission infrastructure.*	A major factor in selection of the site was the proximity to the existing substation. This feature allows the BESS to be connected into the national electricity network from the substation with few upgrades to the existing infrastructure and can be connected to the transmission network by a cable approximately 135 m in length (PO 7.1). The connection cable will be placed underground to maintain compliance with separation distances required under the *Electricity Act 1996* and reduce visual impacts from the Project.
PO 13.1: *In rural and remote locations, development that is likely to generate significant waste material during construction, including packaging waste, makes provision for a temporary on-site waste storage enclosure to minimise the incidence of wind-blown litter.*	Waste management during construction will be appropriately designed and enclosed to minimise the incidence of wind-blown litter (PO 13.1).
PO 13.2: *Temporary facilities to support the establishment of renewable energy facilities (including borrow pits, concrete batching plants, laydown, storage, access roads and worker amenity areas) are sited and operated to minimise environmental impact.*	Temporary construction facilities, including laydown areas will be required to support construction of the Project. The siting of these facilities will be contained within the lease area and will be informed by the outcomes of preliminary site assessments, to minimise environmental impacts and nuisance caused by the Project (PO 13.2). Concrete required for construction will be sourced from a commercial facility, rather than batched on-site. The operator of the commercial facility will be required to hold an appropriate licence under the *Environment Protection Act 1993* for Concrete Batching Works.

PO or DTS/DPF	Comment
Interface Between Land Uses	
DO 1: *Development is located and designed to mitigate adverse effects on or from neighbouring and proximate land uses.*	The Project Area is 800 m to the nearest dwelling at the closest point, being an involved landholder located to the northwest; with the infrastructure footprint itself if approximately 1 km from this dwelling. The next nearest sensitive receivers are located over 1.5 km away from the Project Area. The separation distances will help mitigate adverse effects from the Project on nearby dwellings; particularly noise and visual impacts. It is not expected that the Project will impact neighbouring agricultural land uses. Potential impacts of traffic, dust and pests will be managed and monitored throughout construction and operation (DO 1).
DTS/DPF 4.1: *Noise that affects sensitive receivers achieves the relevant Environment Protection (Commercial and Industrial Noise) Policy criteria.*	An Environmental Noise Assessment has been undertaken for the Project (Sonus, 2025) to review compliance with the noise goals established in the *Environment Protection (Commercial & Industrial Noise) Policy 2023* (Nosie Policy). The assessment was undertaken the CONCAWE noise propagation model in SoundPLAN noise modelling software. All surrounding sensitive receivers are located under the Rural Zone. The Noise policy provides the following goal noise levels for BESS and the closest receivers when located under this Zone: — An average noise level (L_{eq}) of no more than 57 dB(A) during the day (7:00 am to 10:00 pm) — An average noise level (L_{eq}) of no more than 50 dB(A) during the night (10:00 pm to 7:00 am). Based upon the potential 24-hour operation of the BESS, the night time (10:00pm to 7:00am) goal noise level, being the lowest of the two assigned under the Noise policy, was considered to be the most relevant assessment criterion for the assessment. The assessment considered a worst-case-scenario noise model, which considered the noisiest BESS model under consideration and units located at the closest part of the site boundary to the nearest sensitive receiver; which is along the western boundary and it nearest to an involved stakeholder. The assessment concluded that predicted noise from the proposed BESS will be compliant with the goal noise levels from the Noise Policy. As such, the Snowtown BESS can satisfy the general environmental duty under Section 25 of the *Environment Protection Act 1993,* and therefore the noise-related requirements for approvals sought under the HRE Act.

PO or DTS/DPF	Comment
PO 5.1: *Development with the potential to emit harmful or nuisance-generating air pollution incorporates air pollution control measures to prevent harm to human health or unreasonably impact the amenity of sensitive receivers (or lawfully approved sensitive receivers) within the locality and zones primarily intended to accommodate sensitive receivers.*	An Air Quality Assessment has been undertaken for the Project (refer to Section 8.9 of the EIR) (WSP Australia Pty Limited, 2025e). Air quality impacts from the Project are likely to be mainly from construction works; limited largely to dust impacts from earthworks and vehicle movements on unsealed roads. As there are no residential sensitive receivers with 800 m of the proposed works, the assessment considered that the consequence of air quality impacts to nearby dwellings will be insignificant. Minor dust impacts are expected to occur on roads due to the intermittent nature of proposed construction traffic (PO 5.1). Emissions during construction will be managed through a Air Quality Management Plan developed as part of the CEMP.
PO 6.1: *External lighting is positioned and designed to not cause unreasonable light spill impact on adjacent sensitive receivers (or lawfully approved sensitive receivers).*	All external lighting will be designed in accordance *AS4282 Control of the Obtrusive Effects of Outdoor Lighting to* ensure there are no unreasonable light spill impacts to nearby sensitive receivers (PO 6.1) Outdoor lighting installed for the Project will be of efficient design and use kept to a minimum where practicable, to support operational activities and site security.
PO 7.1: *Development is designed and comprised of materials and finishes that do not unreasonably cause a distraction to adjacent road users and pedestrian areas or unreasonably cause heat loading and micro-climatic impacts on adjacent buildings and land uses as a result of reflective solar glare.*	To minimise potential impacts to visual amenity and glare, after hours lighting will be directed downward where practicable. Furthermore, as recommended in the LCVIA, where practicable Project infrastructure such as buildings should be painted in muted colours appropriate to the setting to blend in with the surrounding landscape (PO 7.1) (Hemisphere Design (Aust) Pty Ltd, 2025). Visual impacts will be further reduced through natural shielding provided by the nearby Hummock Range and retaining established patches of native trees and shrubs located to the southeast of the Project, where practicable. Generally, BESS facilities and ancillary infrastructure are finished in light, neutral finishes (e.g., white or cream), which generally reduce heat loading.
Site Contamination	
DO 1: *Ensure land is suitable for the proposed use in circumstances where it is, or may have been, subject to site contamination.*	See DTS/DPF 1.1.
DTS/DPF 1.1: *Development satisfies (a), (b), (c) or (d):* *b) involves a change in the use of land that does not constitute a change to a more sensitive use*	The Project proposes a change in the use of the land to a renewable energy facility that does not constitute a change to a more sensitive use, as per Table 1 of *Practice Direction 14: Site Contamination Assessment 2021.* A desktop review of site contamination risk was undertaken for the Project Area (refer to Section 8.4 of the EIR) (WSP Australia Pty Limited, 2025e) and identified that the site does not appear to present an elevated site contamination risk. Appropriate management and mitigation measures will be implemented during construction, including classification of any surplus soil to be removed from site, to ensure the appropriate handling, storage and disposal of soils.

4 Summary and recommendations

The P&D Code is not a statutory instrument under the HRE Act, and as such, the Project is not required to strictly comply with the planning policies applicable to the Project Area. However, in assessing whether to grant an AIL for the Project, the Minister responsible for the HRE Act or DEM will refer the relevant EIR and SEO to DHUD for comment, whereby DHUD will consider the Project against the P&D Code.

This Planning and Land Use Assessment has been developed to review the Project against the P&D Code policies applicable to the Project Area, to support the DHUD's response to the referral.

On review of the Project against the relevant policies of the P&D Code, it is recommended that the Project is suitably located within the Rural Zone, where renewable energy facilities (including battery storage facilities) are an envisaged land use. The siting of the Project adjacent the existing Snowtown Substation and Snowtown I Wind Farm removes the need for a new OTL and will help to reduce visual impacts in the landscape.

Environmental and interface issues have been minimised, where practicable, through appropriate siting and design; and will continue to be mitigated through the progression to detailed design and through development and implementation of an appropriate CEMP and OMP.

5 Limitations

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Appendix B

Certificates of Title

REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

Certificate of Title - Volume 6210 Folio 929

Parent Title(s)	CT 6118/647				
Creating Dealing(s)	RTC 12890662				
Title Issued	27/07/2018	**Edition**	1	**Edition Issued**	27/07/2018
Diagram Reference					

Estate Type

FEE SIMPLE

Registered Proprietor

MICHAEL STUART JAMIESON
REBECCA JANE JAMIESON
OF PO BOX 21 BLYTH SA 5462
AS JOINT TENANTS

Description of Land

ALLOTMENT COMPRISING PIECES 101, 102 AND 103 DEPOSITED PLAN 117950
IN THE AREA NAMED WOKURNA
HUNDRED OF BARUNGA

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED C ON D117950 (TG 10847718)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED D ON D117950 TO THE MINISTER FOR INFRASTRUCTURE (T 2024644)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED H ON D117950 (TG 11989296)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED J ON D117950 (TG 11989295)

Schedule of Dealings

Dealing Number	Description
11573558	MORTGAGE TO NATIONAL AUSTRALIA BANK LTD.

Notations

Dealings Affecting Title	NIL
Priority Notices	NIL
Notations on Plan	NIL
Registrar-General's Notes	NIL
Administrative Interests	NIL

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REAL PROPERTY ACT, 1886
South Australia

The Registrar-General certifies that this Title Register Search displays the records maintained in the Register Book and other notations at the time of searching.

REGISTRAR-GENERAL SOUTH AUSTRALIA

Certificate of Title - Volume 6232 Folio 117

Parent Title(s) CT 6210/928

Creating Dealing(s) TG 13202239

Title Issued 04/12/2019 **Edition** 1 **Edition Issued** 04/12/2019

Estate Type

FEE SIMPLE

Registered Proprietor

SNOWTOWN WIND FARM PTY. LTD. (ACN: 109 468 804)
OF L 23 535 BOURKE STREET MELBOURNE VIC 3000

Description of Land

ALLOTMENT 100 DEPOSITED PLAN 117950
IN THE AREA NAMED WOKURNA
HUNDRED OF BARUNGA

Easements

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED C ON F255263 (TG 10847718)

SUBJECT TO EASEMENT(S) OVER THE LAND MARKED E ON F255263 (TG 13202239)

Schedule of Dealings

Dealing Number	Description
11001688	LEASE TO ELECTRANET TRANSMISSION INVESTMENTS PTY. LTD. COMMENCING ON 28/3/2008 AND EXPIRING ON 2/7/2032 OF PORTION (A IN F49989)

Notations

Dealings Affecting Title NIL

Priority Notices NIL

Notations on Plan NIL

Registrar-General's Notes

APPROVED FX49989

Administrative Interests NIL

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Certificate of Title

Title Reference: CT 6232/117

Status: CURRENT

Parent Title(s): CT 6210/928

Dealing(s) Creating Title: TG 13202239

Title Issued: 04/12/2019

Edition: 1

Dealings

Lodgement Date	Completion Date	Dealing Number	Dealing Type	Dealing Status	Details
18/07/2008	23/09/2008	11001688	LEASE	REGISTERED	ELECTRANET TRANSMISSION INVESTMENTS PTY. LTD.

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PURPOSE: DIVISION

AREA NAME: WOKURNA

MAP REF: 6530/22/G, 6530/22/B, 6530/22/A, 6530/22/H

COUNCIL: WAKEFIELD REGIONAL COUNCIL

LAST PLAN:

DEVELOPMENT NO: 373/D008/17/001/51192

APPROVED:
ALEX
ANDRADE-FIGUEROA
05/03/2018

DEPOSITED:
ORAZIO DEANGELIS
24/07/2018

D117950

SHEET 1 OF 2

61552_text_01_v06_Version_6

AGENT DETAILS: ALEXANDER & SYMONDS PTY LTD
1ST FLOOR 11 KING WILLIAM ST
KENT TOWN SA 5067
PH: 81301666
FAX: 83620099

AGENT CODE: ALSY

REFERENCE: A117917LTO(B)

SURVEYORS CERTIFICATION:

SUBJECT TITLE DETAILS:

PREFIX	VOLUME	FOLIO	OTHER	PARCEL	NUMBER	PLAN	NUMBER	HUNDRED / IA / DIVISION	TOWN	REFERENCE	NUMBER
CT	6118	647		ALLOTMENT(S) COMPRISING PIECES	(60*,62*,63*)	D	74588	BARUNGA		SECTION	251
CT	5990	693		ALLOTMENT(S)	61	D	74588	BARUNGA		SECTION	251

OTHER TITLES AFFECTED: CT 6024/316

EASEMENT DETAILS:

STATUS	LAND BURDENED	FORM	CATEGORY	IDENTIFIER	PURPOSE	IN FAVOUR OF	CREATION
EXTINGUISH	60* IN D74588	LONG	EASEMENT(S)	AA IN CT 6118/647			TG 10918775
EXISTING	101*	LONG	EASEMENT(S)	D		THE MINISTER FOR INFRASTRUCTURE	T 2024644
EXISTING	100. 101*	LONG	EASEMENT(S)	C			TG 10847718
EXISTING	101*	LONG	EASEMENT(S)	J			TG 11989295
EXISTING	101*	LONG	EASEMENT(S)	H			TG 11989296

ANNOTATIONS:

D117950

SHEET 2 OF 2

61552_pland_1_V03_Version_6

BEARING DATUM: (1) – (2) 127°18'
DERIVATION: D74588 ADOPTED

TOTAL AREA:

0 75 150 225 300 375
SCALE METRES

N

ROAD TOP

WOKURNA

BARUNGA

HEWITT ROAD

102* VIDE ENLGT A2

103*

104 160.93 208°22'

F10976

181.05 118°22'

160.93 208°22'

160.93 28°22'

82.30 118°22'

43.43 160.93 28°22' 118°22'

118°22'30" 189.10 (1)

211.63

80.47

217°18' 80.47

(4.93) (11.16) 127°22'50"

37°18' 80.47

F10976

127°18' 597.46

D 577.65 63°06' 582.58 63°06'

101* (106.9 ha)

D/C

(234.71) (63.73)

C

D VIDE ENLGT C2

(170.18)

1297.13 302°45'

SEC 250

(11.74)

291.69 64°16'50"

x

H

55°22' 229.04

284.68 235°22'

218.20

(35.06) (140.79)

34°40' 10.41

J

C

VIDE ENLGT B2

260.57 14°21'

100

(4.48) (41.89)

J C/J C

63.72 94°36'40"

C C

(25.48) (30.43)

(0.49)

30.43 14°21'

101*

260.57 14°21'

ENLARGEMENT D2
NOT TO SCALE

ENLARGEMENT A2
NOT TO SCALE

F10976

118°22'30" 103* (6890m² APPROX)

42°35' 110.44

120°03' 45.36

102* (1.56 ha APPROX)

132°34' 148.46

132°34' 159.53 242.01

A 310.40 TP

T 299.74

A 408.57

TP A 53.91 45.87

154.70

R 236.17

T 287.07

R 230.94 TP 33.80

T 28.36

A 10.26

R 226.11

F10976

101*

104 11.06 160.93 208°22'

F10976

68.40

TP 15°04' 228.12

181.05 118°22'

127°18' 597.46 (140.79)

J

C/J

C

VIDE ENLGT D2

(141.89)

C

256.70

260.57 14°21'

100 2.837 ha

101*

222.09 254°34'

(15.24)

66.48

H 55°22' 229.04

284.68 235°22'

218.20

0 40 80 120 160 200
SCALE METRES

ENLARGEMENT B2

63°06' 577.65

43°48'30" 40.13ALL 56°40' 40.03

D 582.58 63°06'

56°40' 37.82

C C/D C

30°57' 40.13ALL 30°57' 37.82ALL 37.82ALL 43°48'30"

101*

D

(170.18)

(10.16) 1297.13 302°45'

ENLARGEMENT C2
NOT TO SCALE

PIECES SCHEDULE

ONE LOT COMPRISES	TOTAL AREA
101*, 102* and 103*	109ha APPROX

* Asterisk denotes PIECE identifier only.

Alexander & Symonds Pty.Ltd.
11 KING WILLIAM STREET, KENT TOWN
P.O. BOX 1000 KENT TOWN 5071
Tel (08) 8130 1666 Fax (08) 8362 0099 A.B.N. 93 007 753 988

REFERENCE A117917LTO(B)
PAP 18/12/2017

Appendix C

Ecological assessment

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

Snowtown BESS

Ecological Assessment

July 2025

Question today
Imagine tomorrow
Create for the future

Snowtown BESS
Ecological Assessment

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

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Rev	Date	Details
0	29/05/2025	Draft
A	27/06/2025	Final draft
B	04/07/2025	Final

	Name	Date	Signature
Prepared by:	Hayley Merigot	04/07/2025	
Reviewed by:	Dylan Burford	04/07/2025	
Approved by:	Dylan Burford	04/07/2025	

WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Appendix A Pygmy Blue-tongue Lizard Survey Briefing Note

Appendix B Flora observed in the Project Area

Appendix C PMST report

Abbreviations

BAM	Bushland assessment method
BDBSA	Biological database of South Australia
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
cm	Centimetres
CT	Certificate of Title
DCCEEW	Commonwealth Department of Climate Change, Energy, the Environment and Water
DEW	South Australian Department for Environment and Water
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ha	hectare(s)
IBRA	Interim Biogeographical Regionalisation of Australia
km	Kilometre(s)
kV	Kilovolts
LSA Act	*Landscape South Australia Act 2019*
m	Metre(s)
mm	Millimetre(s)
MNES	Matters of National Environmental Significance
MW	Megawatts
NPW Act	*National Parks and Wildlife Act 1972*
NV Act	*Native Vegetation Act 1991*
NV Regulations	*Native Vegetation Regulations 2017*
NVC	Native Vegetation Council
PBTL	Pygmy Blue-tongue Lizard
PMST	Protected Matters Search Tool
Project	The Snowtown BESS
RAM	Rangeland Assessment Method
SA	South Australia
SEB	Significant Environmental Benefit
sp.	Species
ssp.	Sub-species

STAM	Scattered Tree Assessment Method
TEC	Threatened Ecological Community
Tilt Renewables	Tilt Renewables Australia Pty Limited as trustee for the Snowtown BESS Project Trust
var.	Variety
VA	Vegetation Association
WSP	WSP Australia Pty Limited

Executive summary

WSP was engaged by Tilt Renewables Australia Pty Ltd as trustee for the Snowtown Project Trust (Tilt Renewables) to complete an Ecological Assessment Report for the proposed Snowtown Battery Energy Storage System (BESS). The objective of this scope of works was to identify any ecological constraints associated with the proposed development of the Snowtown BESS project (the Project).

No Threatened Ecological Communities (TECs) were identified as occurring within the Project Area. One nationally listed and one State listed threatened flora species were identified as potentially occurring in the Project Area, of which one individual of the State Rare *Maireana rohrlachii* (Rorhlach's Bluebush) was observed within the road reserve.

Two nationally listed threatened fauna species – Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis)* and Southern Whiteface (*Aphelocephala leucopsis*); and one state listed threatened species – Yellow-tailed Black Cockatoo (*Zanda funerea whiteae*) were identified in the desktop assessment as possibly occurring in the Project Area. Suitable spider burrows that could provide burrows for the Pygmy Blue-tongue Lizard were observed in the road reserve, and as such a targeted survey was undertaken. The targeted assessment did not identify the presence of any Pygmy Blue-tongue Lizards and concluded that the Project Area is unlikely to support the species, nor provide suitable habitat. The Southern Whiteface and Yellow-tailed Black Cockatoo were deemed unlikely use the habitat if present in the area, and any impacts to the vegetation is unlikely to constitute a significant impact for these species.

One migratory species was assessed as possibly occurring in the Project Area, the Fork-tailed Swift (*Apus pacificus*) but was considered unlikely to use the vegetation and only be present in the area as a flyover.

Three Declared weed species were identified in the Project Area.

The following actions are recommended to be applied during the detailed design and construction phases of works:

- Apply the mitigation hierarchy to avoid and minimise impacts to vegetation at all stages of design and construction.
- Locate access road entrances and exits in the road reserve to:
  - Avoid impact on the identified location of the observed *Maireana rohrlachii* (Rorhlach's Bluebush).
  - Minimise impacts on other native vegetation present in the road reserve, where possible.
- Avoid clearance/disturbance to the existing patch of treed vegetation located outside the Project Area to the northeast (VA A2).
- A Native Vegetation Data report is required to be submitted to Native Vegetation branch for approval prior to any on site clearance works being undertaken. A Significant Environmental Benefit offset is required to be paid to offset native vegetation as part of this Project.
- Ensure laydown areas are contained to previously cleared areas or within the proposed construction footprint.
- Ensure all reasonable actions are undertaken to reduce the impacts of construction works to flora and fauna, which should include, but not be limited to:
  - Clearly mark all native vegetation that is to be cleared or retained to prevent accidental clearance outside of the approval conditions.
  - Ensure appropriate dust and water management is undertaken to reduce potential negative impacts to flora and fauna.
  - Dispose of waste materials, including food, plastics and general rubbish, appropriately to protect wildlife.
  - Ensure, appropriate, safe, and effective removal and disposal of weeds.

Measures to appropriately manage native vegetation should be further developed in the Construction Environmental Management Plan (CEMP) to be prepared for the Project.

1 Project background

1.1 Introduction and scope

WSP Australia Pty Limited (WSP) was engaged by Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables) to complete an Ecological Assessment Report for the proposed Snowtown BESS project (the Project).

The objective was to undertake a flora and fauna assessment for the Snowtown BESS project. This assessment included the following elements:

- Complete a desktop study to assess the potential presence and status of threatened flora and fauna protected under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and *State National Parks and Wildlife Act 1972* (NPW Act) in the Project Area;
- application of the Native Vegetation Council (NVC) endorsed Bushland Assessment Method (BAM) to assess native vegetation within the Project Area during a site visit; and
- calculation of the Significant Environmental Benefit (SEB) offset requirements based on the impact footprint.

1.2 Project context

The Project Area is located on private property currently used for cropping. The property is surrounded by farmland and the nearby Snowtown I Wind Farm (Figure 1.1).

The Project Area is within the Wakefield Regional Council and the Northern and Yorke Landscape Management Region. The Project Area is situated across two Certificates of Title (CT) – CT 6210/929 and CT 6232/117.

The area receives a mean annual rainfall of 442 millimetres (mm). The Interim Biogeographical Regionalisation of Australia (IBRA) identifies geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. The bioregions are further refined into subregions and environmental associations. The Project Area is located in the Eyre Yorke Block IBRA Bioregion, St Vincent IBRA Subregion and Barunga IBRA Environmental Association.

Approximately 33% (1,990,963 hectares-ha) of the Eyre Yorke Block IBRA Bioregion and approximately 8% (87,402 ha) of the St Vincent IBRA Subregion is mapped as remnant vegetation. Of this, 43% (846,588 ha) and 5% (4,732 ha) is formerly conserved and protected, respectively (Department for Environment and Water, 2025a).

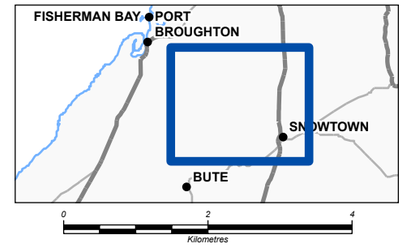
The location of the site is presented in Figure 1.1.

Snowtown BESS project

Figure 1.1
Project Locality

Legend

- Road
- Project Area
- LGA Boundary



Coordinate system: GDA2020 MGA Zone 54

Scale ratio correct when printed at A3

1:85,000 Date: 22/05/2025

Data sources: SA Government, Metromap

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1.3 Details of the proposal

Tilt Renewables proposes to develop the Project near Snowtown, approximately 160 kilometres (km) north of Adelaide, South Australia. The proposed Project comprises a Battery Energy Storage System (BESS) with a generating capacity of up to approximately 100 megawatts (MW) with up to 4-hour duration.

The Project proposes both permanent and temporary infrastructure. Permanent site infrastructure will comprise:

- BESS with capacity of 100 MW with up to 4-hour duration, including Battery Pack Containers, inverters, inverter transformers, and associated control, monitoring,and protection equipment
- Ancillary infrastructure including auxiliary supply transformers
- Hardstand areas
- Drainage and erosion control
- Internal roads, access tracks and parking
- Water management infrastructure (water tanks, water supply, detention pond, water treatment)
- Onsite buildings (operations and maintenance, switchroom and control room, storage)
- Underground cabling
- Harmonic filter yard (if required)
- Lightning protection rods
- Communications tower (if required)
- Site fencing and security
- Business identification and safety signage.

Temporary site infrastructure will include:

- Construction compound
- Equipment laydown areas
- Fuelling stations
- Washdown bay (if required).

Modification works to the existing Snowtown Substation will be required as part of the Project to facilitate the connection of the BESS to the electricity grid. Substation works are expected to include:

- Installation of a new isolator and earth switch
- Installation of a 33 kilovolts (kV) conductor between the new isolator and the existing wind farm isolator
- 33kV cable trench from the BESS Facility into the substation
- Associated protection, control, and metering equipment to be installed in the existing Snowtown Wind Farm substation building.

2 Compliance and legislative summary

All projects in South Australia are subject to approvals under multiple state and federal (Commonwealth) legislation, to ensure proper management of environmental, social and cultural impacts. The regulatory approvals that are required for this Project in relation to flora and fauna are listed in Table 2.1. Other legislation may apply.

Table 2.1 Legislative and regulatory requirements

Description	Permit required	Permit type (if required)
Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)		
The Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) and the Environment Protection and Biodiversity Conservation Regulations 2000 provides a legal framework to protect and managing flora, fauna, ecological communities, and heritage sites of national and international importance. These are collectively referred to as Matters of National Environmental Significance (MNES) under the Act. Any action that has, will have, or is likely to have a significant impact on MNES requires referral under the EPBC Act. Substantial penalties apply for undertaking an action that has, will have, or is likely to have a significant impact on a MNES without approval. The EPBC Act Significant Impact Guidelines provide overarching guidance on determining whether an action is likely to have a significant impact on a matter of national environmental significance. The nine MNES are: **1** Listed threatened species and ecological communities; **2** Migratory species protected under international agreements; **3** Wetlands of international importance (listed under the Ramsar Convention); **4** Commonwealth marine environment; **5** World Heritage properties; **6** National Heritage places; **7** Nuclear actions (including uranium mines); **8** The Great Barrier Reef Marine Park; and **9** Protection of water resources from coal seam gas development and large coal mining development. Two of the nine MNES were identified in background searches as potentially occurring within 5 km of the Project Area: — Listed threatened species and ecological communities — Migratory species protected under international agreements.	No	N/A
***Hydrogen and Renewable Energy Act 2016* (HRE Act)**		
Licencing pathways under the *Hydrogen and Renewable Energy Act 2016* (HRE Act) became operational in July 2024. Activation of these pathways made the HRE Act the relevant legislation approval and regulation for most renewable energy projects in South Australia; including green hydrogen plants, renewable energy generators (such as wind farms and solar farms), large-scale BESS facilities connected to the State's energy system and supporting infrastructure such as meteorological monitoring masts and transmission lines. The Project, being a large-scale BESS facility connected to the state's grid, is considered a regulated activity under the HRE Act, and hence must obtain an appropriate licence under the Act.	Yes	Associated Infrastructure Licence

Description	Permit required	Permit type (if required)
***Planning, Development and Infrastructure Act 2016* (HRE Act)**		
The *Planning Development and Infrastructure Act 2016* (PDI Act) covers the use, development and management of land and buildings and includes a planning system to regulate developments within South Australia. No development can be undertaken without an appropriate Development Approval being obtained from the relevant authority after an application and assessment process, unless exempted. As the Project requires licencing under the HRE Act, it is exempt from requiring approval under the PDI Act. **Regulated and significant trees** The *Planning and Design Code* includes a new Regulated and Significant Tree Overlay, which requires conservation of regulated and significant trees to provide aesthetic and environmental benefits and mitigate tree loss (Desired Outcome 1 of the Assessment Provisions within the Regulated and Significant Tree Overlay). The Project falls outside of the Regulated and Significant tree Overlay and as such consideration of Regulated and Significant trees are not required as part of this Project.	No	N/A
***Native Vegetation Act 1991* (NV Act)**		
Any proposed clearance of native vegetation in South Australia (unless exempt under the *Native Vegetation Regulations 2017* – NV Regulations) is to be assessed against the NV Act Principles of Clearance and requires approval from the Native Vegetation Council (NVC). A net environmental benefit, either through contribution to the Native Vegetation Fund or via implementation of an on-ground Significant Environmental Benefit (SEB), is generally conditional on an approval being granted. Native vegetation refers to any naturally occurring local plant species that are indigenous to South Australia, from small ground covers and native grasses to large trees and water plants. "Clearance", in relation to native vegetation, means: — the killing or destruction of native vegetation. — the removal of native vegetation. — the severing of branches, limbs, stems, or trunks of native vegetation. — the burning of native vegetation. Any other substantial damage to native vegetation, and includes the draining or flooding of land, or any other act or activity, that causes the killing or destruction of native vegetation, the severing of branches, limbs, stems or trunks of native vegetation or any other substantial damage to native vegetation. Approval must be obtained before performing any activity that could cause substantial damage to native plants. This also applies to dead trees that may provide habitat for animals. These activities include but are not limited to: — the cutting down, destruction or removal of whole plants — the removal of branches, limbs, stems, or trunks (including brush cutting and woodcutting) — burning — poisoning — slashing of understorey — drainage and reclamation of wetlands — grazing by animals (in some circumstances) — change of land use.	Yes	Native Vegetation Council approval

Description	Permit required	Permit type (if required)
Under the NV Act, the NVC considers applications to clear native vegetation under ten principles. Native vegetation should not be cleared if it is significantly at odds with these principles: — it contains a high level of diversity of plant species — it is an important wildlife habitat — it includes rare, vulnerable, or endangered plant species — the vegetation comprises a plant community that is rare, vulnerable, or endangered — it is a remnant of vegetation in an area which has been extensively cleared — it is growing in, or association with, a wetland environment — it contributes to the amenity of the area — the clearance of vegetation is likely to contribute to soil erosion, salinity, or flooding — the clearance of vegetation is likely to cause deterioration in the quality of surface or underground water — after clearance, the land is to be used for a purpose which is unsustainable. The principles apply in all cases, except where the clearance of native vegetation fits an exemption set out in the NV Regulations or can be classified as an 'intact stratum'. 'Intact stratum' means that applications will usually be denied when the vegetation has not been seriously degraded by human activity within the last 20 years. All approved vegetation clearance must also be conditional on achieving a SEB to offset the clearance. The requirement for a SEB also applies to several of the exemptions. Potential SEB offsets include: — The establishment and management of a set-aside area to encourage the natural regeneration of native vegetation — The protection and management of an established area of native vegetation — Entering into a Heritage Agreement on land where native vegetation is already established to further preserve or enhance the area in perpetuity — A payment to the Native Vegetation Fund.		
Landscape South Australia Act 2019 (LSA Act)		
The *Landscape South Australia Act 2019* (LSA Act) was established to protect the state's natural resources. This includes terrestrial landscapes and aquatic environments. It aims to manage the natural South Australian landscape to ensure it is not negatively impacted by anthropogenic actions. Under the LSA Act, landholders have a legal responsibility to manage declared pest plants and animals and prevent land and water degradation. A permit is required if the Project plans to transport Declared Weeds and/or soil material containing Declared weed material (seed and plant material) on public roads.	Permit may be required	To be confirmed following progression of detailed design

Description	Permit required	Permit type (if required)
National Parks and Wildlife Act 1972		
The *National Parks and Wildlife Act 1972* (NPW Act) is to provide for the establishment and management of reserves for public benefit and enjoyment and to provide for the conservation of wildlife in a natural environment. This Project is not located within any national park or reserves therefore the NPW Act will only apply to the conservation of native plants and wildlife within the Project Area. Threatened plant and animal species are listed in Schedules 7 (Endangered species), 8 (Vulnerable species) and 9 (Rare species) of the Act. Persons must not: — Take a native plant on a reserve, wilderness protection area, wilderness protection zone, land reserved for public purposes, a forest reserve or any other Crown land. — Take a native plant of a prescribed species on private land. Take a native plant on private land without the consent of the owner (such plants may also be covered by the *Native Vegetation Act 1991*). — Take a protected animal or the eggs of a protected animal without approval. — Keep protected animals unless authorised to do so. — Use poison to kill a protected animal without approval. Conservation rated flora and fauna species listed on Schedules 7, 8, or 9 of the NPW Act may occur within the Project Area. Persons must comply with the conditions imposed upon permits and approvals. *Part 4* and *Part 5* of the Act outline the penalties associated with the removal, disposal, or illegal possession of native plants and wildlife without a permit. Penalties that may be issued include fines up to $10,000 or maximum two-year imprisonment. If wildlife and/or their associated nests are required to be moved off the project site, a permit will need to be obtained.	No	-

3 Methodology

3.1 Overview

The key activities undertaken for the assessment were:

- a desktop assessment including review of relevant database records
- site assessment including flora and fauna survey
- Targeted surveys for PBTL.

The methodology for each of these components is further described in the sections below.

3.2 Desktop assessment

To determine the potential for any Nationally or State threatened fauna or flora species and Threatened Ecological Communities (TECs) within the Project Area, a desktop study was undertaken using the following:

- Protected Matters Search Tool (PMST);
- Department for Environment and Water Biological Database of South Australia (BDBSA);
- NatureMaps (Department for Environment and Water, 2025a);
- Atlas of Living Australia (Atlas of Living Australia, 2024);
- Aerial imagery; and
- BatMap (Australasian Bat Society, 2021).

3.2.1 PMST report

To identify the nationally threatened flora and fauna, migratory fauna and TECs protected under the EPBC Act a search of a Study Area comprising a 5 km buffer surrounding the Project Area, using the PMST was conducted on 10 February 2025 (Department of Climate Change, the Environment, Energy and Water, 2025) provided in Appendix C). Only the species and TECs that are likely or known to occur within the Study Area were assessed for their likelihood of occurrence (Table 3.1).

The PMST report is provided in Appendix C.

3.2.2 BDBSA extract

To identify flora and fauna species that have been previously recorded within the Study Area, data was extracted from the BDBSA on 4 February 2025 (Department for Environment and Water, 2025), record set number DEWNRBDBSA250204-2. The data on the BDBSA is an amalgamation of species records from the South Australian Museum, conservation organisations, private consultancies, Birds SA, Birdlife Australia and the Australasian Water Study Group, which meet the Department for Environment and Water's (DEW) standards for data quality, integrity and maintenance. A species likelihood of occurrence was only assessed if they were recorded after 1995 and a had a spatial reliability of less than 1 km.

3.2.3 *Likelihood of occurrence*

Table 3.1 Criteria for the likelihood of occurrence of species within the Study Area

Likelihood	Criteria
Known	— Recorded on site in the last 10 years.
Highly likely	— Recorded on site in the last 11–20 years; or — Nearby records in the last 10 years and the species does not have highly specific niche requirements, the habitat is present and falls within the known range of the species distribution; or — Nearby records in the last 10 years and the species does have highly specific niche requirements, the habitat is present and falls within the known range of the species distribution.
Likely	— Recorded on site in the last 21–40 years; or — Nearby records in the previous 11–20 years, the species has specific habitat requirements, the habitat is present and falls within the known range of the species distribution; or — Nearby records in the previous 11–20 years, the species does not have specific habitat requirements, and the area falls within the known distribution of the species and the area provides habitat or feeding resources for the species; or — Nearby records in the previous 11–20 years, the species has specific habitat requirements, the area falls within the known distribution of the species and that habitat occurs.
Possible	— Nearby records within the previous 20 years, the area falls inside the known distribution of the species, but the area provides limited habitat or feeding resources for the species; or — Nearby records within 21–40 years, survey effort is considered adequate, suitable habitat present, and species of similar habitat needs have been recorded in the area; or — Nearby records within the previous 20 years, the species has specific habitat requirements, but that habitat does not occur in the Project Area; or — Nearby records within the previous 20 years, the species does not have specific habitat requirements, and there is no intact native vegetation in the Project Area.
Unlikely	— Nearby records within the previous 20 years, but the area provides no habitat or feeding resources for the species, including perching, roosting or nesting opportunities, corridor for movement or shelter; or — Nearby records within 20–40 years; however, suitable habitat does not occur, and species of similar habitat requirements have not been recorded in the area. No records despite adequate survey effort; or — Nearby records are more than 40 years old and survey effort is adequate to detect the species; or — There are no previous records of the species within the Study Area, suitable habitat does occur or may occur, but the species is not difficult to detect and no species that require similar habitat needs have been recorded.

3.3 Flora assessment

The onsite vegetation assessment was undertaken on 3 December 2024 by NVC Accredited Consultant H. Merigot in accordance with the Bushland Assessment Method (BAM) (Native Vegetation Council, 2024). The Survey Area for the onsite flora and fauna assessments included the Project Area and adjacent road reserves (see Figure 3.1).

3.3.1 Bushland Assessment Method

The BAM is used to assess areas of native vegetation for the purpose of clearance and calculating the Significant Environmental Benefit (SEB) offset. The BAM is derived from the Nature Conservation Society of South Australia's Bushland Condition Monitoring methodology (Croft et al. 2007, 2008a, 2008b, 2009; Milne and Croft 2012; Milne and McCallum 2012).

The *Bushland Assessment Manual* (Native Vegetation Council, 2024) details the requirements of site selection / stratification and assessment protocols, the biodiversity value components assessed and the factors that influence these components.

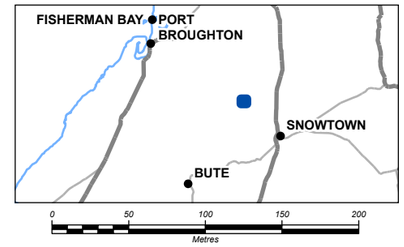
Conservation Significance Scores were calculated from direct observations of flora and direct and historical observations of fauna species of conservation significance. All fauna identified as known to occur in the PMST, occurring in BDBSA records since 1995 and having a spatial reliability of less than 1 km, within 5 km of the Project Area, were included in the BAM scoresheets. Species determined as unlikely to occur within the Project Area and marine and/or wetland species were omitted from the scoresheets given the terrestrial nature of the site and distance to the coast (~40 km).

Snowtown BESS project

Figure 3.1
Ecological Survey Area

Legend

Survey Area



Coordinate system: GDA2020 MGA Zone 54

Scale ratio correct when printed at A3

1:4,000 Date: 26/05/2025

Data sources: SA Government, Metromap

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3.4 Fauna assessment

3.4.1 Field assessment

A field assessment for fauna was undertaken in the Survey Area on 3 December 2024. During the ecological assessment all opportunistic fauna encounters were recorded. These encounters include direct encounter, observed, tracks, scats, burrows, nests and other signs of presence. Once observed the species, number of individuals, GPS location, detection methodology (sight, sound, or sign) and habitat were recorded.

Areas that contain potential habitat for fauna species, especially threatened species, were recorded and marked using a GPS. Habitat areas containing refuge sites (e.g. spider burrows, tree hollows etc) were also noted.

3.4.1.1 Targeted Pygmy Blue-tongue Lizard assessment

Following the observation of spider burrows along the road reserves, a targeted Pygmy Blue-tongue Lizard (PBTL) was undertaken by Umwelt in March 2025 (Umwelt, 2025). The whole Project Area was surveyed for spider burrows and where located, spider burrows were inspected via video endoscope.

A briefing note discussing the outcomes of the PBTL survey is provided in Appendix A.

4 Assessment outcomes

4.1 Vegetation assessment

4.1.1 Vegetation description

The vegetation within the Survey Area consists of cropping land with some remaining native grassland and regenerating *Acacia* sp. along the road reserves. At the time of the survey, no native vegetation was identified within the Project Area, but native vegetation was identified in the road reserve adjacent to the Project Area, which is part of the proposed Clearance Area.

Three species observed within the road reserves are declared weeds:

- *Xanthium spinosum* (Bathurst Burr);
- *Cynara cardunculus* (Wild Artichoke); and
- *Solanum elaeagnifolium* (Silver-leaf Nightshade).

The road reserves also contained spider burrows which could provide habitat for PBTL; however, a targeted assessment in March 2025 by Umwelt (2025) determined that the area was poor quality and no PBTL were found.

The vegetation associations within the Project Area and adjacent road reserves are described in Section 4.1.2 and illustrated in Figure 4.1.

4.1.2 Vegetation associations

Details of the vegetation associations (VA) present in the Survey Area are provided below. Vegetation association mapping is presented in Figure 4.1.

Table 4.1 Summary of VA A1

Vegetation Association	***Austrostipa scabra* grassland with exotic grasses and herbs**				
General description	Vegetation consisted of grasses with occasional shrubs throughout the road reserve. The area has a high incursion of weed species. This VA will be partially impacted by the proposed Clearance Area.				
Threatened species or community	No Threatened Ecological Communities are present within the Survey Area. The area may provide habitat for Pygmy Blue-tongue Lizard and Southern Whiteface. *Maireana rohrlachii* occurs in VA A1.				
Landscape context score	1.13	**Vegetation Condition Score**	19.87	**Conservation significance score**	1.14
Unit biodiversity Score	25.60	**Area (ha)**	0.0247	**Total biodiversity Score**	0.63

Table 4.2 Summary of VA A2

Vegetation Association	***Acacia pycnantha* over exotic herbs and grasses**				
General description	Vegetation consisted of *Acacia pycnantha* and small shrub species. The area has a high incursion of weed species. This VA occurs outside the proposed Clearance Area and is not expected to be impacted as a result of the Project.				
Threatened species or community	No Threatened Ecological Communities are present within the Project Area. The area may provide habitat for Pygmy Blue-tongue Lizard and Southern Whiteface.				
Landscape context score	**1.13**	**Vegetation Condition Score**	8.29	**Conservation significance score**	1.10
Unit biodiversity Score	**10.30**	**Area (ha)**	0.00	**Total biodiversity Score**	0.00

Table 4.3 Exotic vegetation

Vegetation Assessment	Cropping
General description	Vegetation consisted of agricultural crops. The area has weed species present. This VA will be partially impacted by the proposed Clearance Area.
Threatened species or community	No Threatened Ecological Communities are present within the Survey Area. The area is unlikely to provide habitat for nearby threatened species.
Area (ha)	13.589

Snowtown BESS project

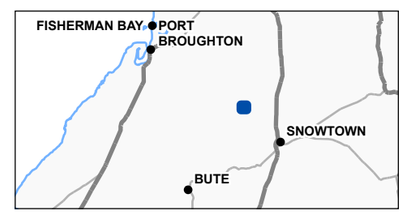
Figure 4.1
Vegetation associations within the Survey Area and proposed Clearance Area

Legend

- Clearance Area
- Survey Area

Vegetation Associations

- A1: *Austrostipa scabra* grassland with exotic grasses and herbs
- A2: *Acacia pycnantha* over exotic herbs and grasses
- Exotic - Non-native grasses and herbs
- Exotic - Cropping land



Coordinate system: GDA2020 MGA Zone 54

Scale ratio correct when printed at A3

1:4,000 Date: 27/05/2025

GDA 2020

Data sources: SA Government, Metromap

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4.2 Threatened species assessment

The results of the desktop database searches are discussed in Sections 4.2.1 to 4.2.5.

4.2.1 Matters of National Environmental Significance

The PMST identified three MNES relevant to the Project Area (Appendix C). This included:

- Two Threatened Ecological Communities;
- Eight listed threatened species; and
- Two migratory species.

Each MNES that is likely or known to occur within the Study Area is discussed below.

4.2.2 Threatened Ecological Communities

Two TECs were identified as potentially occurring within the Project Area. Of these, the Iron-grass Natural Temperate Grassland of South Australia was identified as possibly occurring in the area; however, the proportion of *Lomandra* sp. in the grassland was less than 10% and as such does not qualify as the Iron-grass Natural Temperate Grassland TEC. Habitat information and justification is provided in Table 4.4.

Table 4.4 Threatened Ecological Communities listed as potentially occurring within 5 km of the Project Area and likelihood of presence within the Project Area

Threatened Ecological Community identified as potentially occuring within 5 km of the Project Area	**Threatened Category**	**Habitat information**	**Likelihood of presence within the Project Area**
Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia	Critically Endangered	Consists of *Eucalyptus odorata* in its woodland tree form. Overstorey canopy can also consist of *E. microcarpa*, *E. leucocxylon*, *E. cladocalyx*, *E. porosa*, *Allocasuarina verticillata*, *Callitris glaucophylla* and *C. preissii*. Open to dense woodland with a tree canopy of low trees (~5–10 m tall). The understorey mainly comprises of grasses and herbs (Department of the Environment, Water, Heritage and the Arts, 2008a).	Unlikely – no overstorey species.

Threatened Ecological Community identified as potentially occuring within 5 km of the Project Area	Threatened Category	Habitat information	Likelihood of presence within the Project Area
Iron-grass Natural Temperate Grassland of South Australia	Critically Endangered	This community consists of tussock forming perennial grasses and Iron-grasses (*Lomandra multiflora* subsp. *dura* and *L. effusa*) dominate the ground layer. Trees and tall shrubs are absent. Broad-leaved herbaceous species occur in the inter-tussock spaces (Department of the Environment, Water, Heritage and the Arts, 2008b).	Unlikely – there is suitable habitat along the roadside in VA A1 as there is Lomandra within the grassland, however the abundance of Lomandra is less than 10% within the Study Area and as such is not considered Lomandra grassland or this TEC.

Source: Protected Matters Search Tool (Department of Climate Change, the Environment, Energy and Water, 2025)

4.2.3 Threatened flora

4.2.3.1 EPBC Act listed species

One EPBC Act listed threatened species was identified as potentially occurring within 5 km of the Project Area:

- *Caladenia tensa* (Greencomb Spider-orchid) (EPBC Act: Endangered).

Due to the absence of suitable habitat and lack of nearby records this species was assessed as unlikely to occur in the Project Area. All other species were identified as "may occur" in the Project Area and as such, have not been assessed further.

4.2.3.2 NPW Act listed species

No State listed flora species were identified in the BDBSA extract; however, one state listed flora species was identified in the Survey Area (in the road reserve adjacent to the Project Area) during the field assessment:

- *Maireana rohrlachii* (Rohrlach's Bluebush) (NPW Act: Rare).

The above EPBC Act and NPW Act listed species are explored in further detail in Table 4.5.

4.2.4 Threatened fauna

4.2.4.1 EPBC Act listed species

Eight nationally listed species identified during the PMST search were listed as 'likely' to occur within 5 km of the Project Area. Based on the known distributions, records, and suitability of habitat, two of these species are deemed possible to occur within the Project Area:

- Southern Whiteface (*Aphelocephala leucopsis*) (EPBC Act: Vulnerable)
- Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*) (EPBC Act and NPW Act: Endangered).

All other species were identified as "may occur" in the Project Area and as such, have not been assessed further.

4.2.4.2 NPW Act listed species

One state listed species was identified during the desktop search as recorded within 5 km of the Project Area:

- Yellow-tailed Black Cockatoo (*Zanda funerea whiteae*) (NPW Act: Vulnerable).

The EPBC Act and NPW Act listed species are explored in further detail in Table 4.5.

4.2.5 Migratory species

One migratory species (no conservation threat rating) was identified during the PMST search as potentially occurring within 5 km of the Project Area:

- Fork-tailed Swift (*Apus pacificus*).

This species is almost exclusively aerial. It mostly occurs over inland plains and occasionally above foothills or in coastal areas, which is not located within the Project Area. There is no known breeding habitat for this species in the area. As such this species has been assessed as unlikely to occur in the Project Area as detailed in Table 4.5.

Table 4.5 Likelihood of occurrence assessment of threatened species for the proposed Clearance Area

Scientific name	Common name	EPBC Act	NPW Act	Data source	PMST likelihood	Date of last record	Species known habitat preferences	Likelihood of use for habitat within the proposed Clearance Area
Fauna								
Aphelocephala leucopsis	Southern Whiteface	VU		1	Likely	-	This species commonly inhabits arid open woodlands that contain a shrubby or grassy understory, as well as grassy plains. They prefer acacia woodlands, particularly those dominated by mulga and drought-resistant chenopod shrub species, including saltbush and bluebush (Atlas of Living Australia, 2024).	Possible – some woodland habitat nearby, likely to use area as thoroughfare only.
Aprasia pseudopulchella	Flinders Ranges Worm-lizard	VU		1	Likely	-	The Flinders Ranges Worm-lizard is known from the Flinders Ranges of South Australia, extending south to the western slopes and northern and central Mt Lofty Ranges. Eight individuals have also been recorded at Cobblers Creek Recreational Reserve in Salisbury. Occur in open woodland, native tussock grassland, riparian habitats and rocky isolates (Department of the Environment, Water, Heritage and the Arts, 2008).	Unlikely – no suitable habitat present.
Apus pacificus	Fork-tailed Swift	Mi		1	Likely	-	Widespread but almost exclusively aerial. Mostly occurs over inland plains, over cliffs and beaches and sometimes well out to sea or in dry or open habitats (Department of Climate Change, Energy, the Environment and Water, 2024).	Unlikely – no suitable habitat and no records within 10 km.
Falco hypoleucos	Grey Falcon	VU	R	1	Likely		Species occurs in arid and semi-arid Australia, including the Murray-Darling Basin, Eyre Basin, central Australia and Western Australia. Frequents timbered lowland plains, particularly acacia shrublands that are crossed by tree-lined water courses. The species has been observed hunting in treeless areas and frequents tussock grassland and open woodland, especially in winter (Threatened Species Scientific Committee, 2020).	Unlikely – no suitable habitat in the proposed Clearance Area no records within 10 km.

Scientific name	Common name	EPBC Act	NPW Act	Data source	PMST likelihood	Date of last record	Species known habitat preferences	Likelihood of use for habitat within the proposed Clearance Area
Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin	EN	R	1	Likely	-	This species prefers dry eucalypt and acacia woodlands and shrublands with an open understorey, some grassy areas and a complex ground layer. They avoid woodlands with tall trees or dense tree cover but sometimes occur in tall, dense heaths with scattered open areas (Department of Climate Change, Energy, the Environment and Water, 2024).	Unlikely – no suitable habitat in the proposed Clearance Area and no records within 10 km.
Neophema chrysostoma	Blue-winged Parrot	VU	V	1	Likely	-	Blue-winged parrots inhabit a range of habitats from coastal, sub-coastal and inland areas, through to semi-arid zones. They tend to favour grasslands and grassy woodlands and are often found near wetlands both near the coast and in semi-arid zones. Birds are known to feed in semi-arid chenopod shrubland and sparse grassland during winter (Department of Climate Change, Energy, the Environment and Water, 2023).	Unlikely – no suitable habitat in the proposed Clearance Area and no records within 10 km.
Rostratula australis	Australian Painted Snipe	EN	E	1	Likely	-	Occurs in shallow freshwater (occasionally brackish) wetlands, both ephemeral and permanent, such as lakes, swamps, claypans, inundated or waterlogged grassland/saltmarsh, dams, rice crops, sewage farms and bore drains, rushes and reeds, low scrub, *Muehlenbeckia spp*. (lignum), open timber or samphire (Department of Climate Change, Energy, the Environment and Water, 2024).	Unlikely – no suitable habitat in the proposed Clearance Area and no records within 10 km.
Stagonopleura guttata	Diamond Firetail	EN	E	1	Likely	-	Diamond firetails occur in eucalypt, acacia or casuarina woodlands, open forests and other lightly timbered habitats, including farmland and grassland with scattered trees (Department of Climate Change, Energy, the Environment and Water, 2023a).	Unlikely – no suitable habitat in the proposed Clearance Area and no records within 10 km.

Scientific name	Common name	EPBC Act	NPW Act	Data source	PMST likelihood	Date of last record	Species known habitat preferences	Likelihood of use for habitat within the proposed Clearance Area
Tiliqua adelaidensis	Pygmy Blue-tongue Lizard	EN	E	1	Likely	-	Habitat consists of remnant native grassland or grassy woodland with a sparse treed over-storey. This species utilises empty spider burrows constructed by trapdoor and wolf spiders. They are found at sites with a range of soils, but are found in greater abundance at sites with more free-draining grey-brown or red calcareous soils as well as at sites with lithosol soils (Duffy, 2012).	Possible – suitable habitat within the proposed Clearance Area (particularly road reserve adjacent to Project Area).
Tringa nebularia	Common Greenshank, Greenshank	EN, Mi		1	Likely	-	Forages at the edge of wetlands, in soft mud on mudflats, in channels, or within shallows around the edge of waterbodies. These locations are often situated near or among mangroves or other sparse, emergent or fringing vegetation such as sedges or saltmarsh. The bird occasionally feeds amongst seagrass beds. Common greenshanks roost both on the coast and inland, in estuaries and mudflats, mangrove swamps and lagoons, and in billabongs, swamps, sewage farms, and flooded crops (Department of Climate Change, Energy, the Environment and Water, 2024b).	Unlikely – no suitable habitat in the proposed Clearance Area and no records within 10 km.
Zanda funerea whiteae	Yellow-tailed Black Cockatoo	-	V	1	-	2008	Eucalyptus forests and woodlands. Plantations of Eucalyptus and introduced *Pinus* sp. (Pizzey & Knight, 2021).	Possible – records <20 years but no suitable habitat in the proposed Clearance Area.
Flora								
Caladenia tensa	Greencomb Spider-orchid, Rigid Spider-orchid	EN		1		Likely	This species grows in the dry woodlands of western Victoria and southeast South Australia mostly on Quaternary sand deposits (Todd, 2000).	Unlikely – no recent records and no suitable habitat within the proposed Clearance Area.

Scientific name	Common name	EPBC Act	NPW Act	Data source	PMST likelihood	Date of last record	Species known habitat preferences	Likelihood of use for habitat within the proposed Clearance Area
Maireana rohrlachii	Rohrlach's Bluebush	-	R	2		2024	Often on slightly saline and/or gypseous, sandy loam soils, often fringing lakes or in seasonally wet areas (VicFlora, 2024).	Known – one individual observed within the Survey Area but is located in the road reserve outside of the proposed Clearance Area.

Source; 1 – Protected matters search tool, 2 – Observed/recorded in the field

NP&W Act; E= Endangered, V = Vulnerable, R= Rare

EPBC Act; Ex = Extinct, CR = Critically endangered, EN = Endangered; VU = Vulnerable

5 Potential impacts

5.1 Flora and fauna impacts

The location of the proposed BESS and ancillary buildings and structures is within non-native cropping land, with the only impacts to native vegetation likely to be within limited sections of the adjacent road reserves for the establishment of site access road entrances/exists.

Pygmy Blue-tongue Lizard (PBTL) (*Tiliqua adelaidensis*) was identified in the PMST report and likelihood of occurrence assessment as potentially occurring in the Project Area; and suitable spiders burrows that could support PBTL were observed in the road reserve during the field assessment. However, during a subsequent targeted PBTL assessment no PBTL were observed and as such the area is considered unlikely to provide important habitat for these species.

5.2 Cumulative impacts

The direct impact of the Project will be clearance of native vegetation along the road reserve for the site entrances and exits.

This Project will be located close to the existing Snowtown I Wind Farm and associated substation. The Project also forms part of the broader expansion of wind farms and other renewable energy developments in the Northern and Yorke area. The proposed clearance for this Project occurs predominantly on land that has already been historically cleared for farming purposes and the native vegetation that is proposed to be cleared is of low habitat quality given the high incursion of weeds. Given the Project's minimal impact on native vegetation, it is unlikely to contribute to cumulative impacts of land clearance within the broader area.

Potential indirect impacts of the Project on flora and fauna include:

- dust generation during construction, which may impact surrounding vegetation;
- altered hydrology, which may impact surrounding vegetation; and
- noise generation, which may impact fauna in the area.

The potential indirect impacts of the Project will be addressed within a CEMP and OEMP.

5.3 Principles of Clearance

Principles 1(b), 1(c), 1(d) are considered by the NVC when assigning this Project a risk as outlined under Regulation 16 of the NV Regulations. All Principles of Clearance within the NV Act will be considered by NVC when considering an application referred under the PDI Act.

Table 5.1 overleaf presents the assessment against the Principles of Clearance.

Table 5.1 Assessment against the Principles of Clearance

Principle of Clearance	Discussion
Principle 1a – *it comprises a high level of diversity of plant species*	**Relevant information:** Twenty-nine species were observed within VA A1, of which 12 were native and 17 were introduced. Seven species were observed within VA A2, of which four were native and three were introduced. **Scores:** Bushland Plant Diversity Scores — A1: 18.0 — A2: 6.0 **Assessment:** VA A2 is **not at variance** with Principle 1(a), whilst VA A1 is **at variance**. The proposed clearance footprint for VA A1 is limited to 0.0247 ha from two patches along Hewitt Road and Wokurna Road. VA A1 is represented by 0.396 ha of vegetation located along the road reserve. The proposed clearance represents 6.2% of the VA adjacent to the site. Whilst the extent of this VA within the broad vicinity of the proposed clearance has not been assessed, given the nature and condition of the VA it is likely to be represented along road reserves in the locality.
Principle 1b – *significance as a habitat for wildlife*	**Relevant information:** Three fauna species were assessed as potentially occurring in the Project Area: — Southern Whiteface (*Aphelocephala leucopsis*) (EPBC Act: Vulnerable); — Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*) (EPBC Act: Endangered); and — Yellow-tailed Black Cockatoo (*Zanda funerea whiteae*) (NPW Act: Vulnerable). The current expected clearance area is likely to impact on the grassland which would be considered poor habitat for the PBTL and targeted surveys undertaken in March (Umwelt, 2025) found no individuals in the present spider burrows. The grassland does not provide important habitat for Southern Whiteface or Yellow-tailed Black Cockatoo, although the area would support common species, such as bird species that forage within grasslands such as Australasian Pipit and Brown Songlark. **Scores:** Threatened Fauna Scores — A1 = 0.1 — A2 = 0.1 Unit biodiversity Scores — A1 = 25.60 — A2 = 10.30 **Assessment:** Given the potential for PBTLs to occur in the road reserves, the potential clearance is currently **seriously at variance** with Principle 1(b). **Moderating Factors to be considered by the NVC:** Given the lack suitable habitat for the PBTL and absence of records or observations, the portion of VA A1 proposed to be cleared is considered non-essential habitat. This may therefore reduce the potential clearance to **at variance** with Principle 1(b).

<table>
<tr><th>Principle of Clearance</th><th>Discussion</th></tr>
<tr><td>Principle 1c – plants of a rare, vulnerable or endangered species</td><td>Relevant information:
One EPBC Act listed threatened species flora was identified as potentially occurring within 5 km of the Project Area:
— Caladenia tensa (Greencomb Spider-orchid) (EPBC Act: Endangered).
One state listed flora species was identified adjacent to the Project Area:
— Maireana rohrlachii (Rohrlach’s Bluebush) (NPW Act: Rare).
Although surveyed outside of the period of emergence for Caladenia tensa, the highly degraded and fragmented nature of the area suggests this species is unlikely to be present.
The single Maireana rohrlachii was recorded outside of the clearance area.
Scores:
Threatened Flora Scores
— A1 = 0.04
— A2 = 0.00
Assessment:
The Project is not at variance with Principle 1(c).
Moderating Factors to be considered by the NVC:
Not required.</td></tr>
<tr><td>Principle 1d – the vegetation comprises the whole or part of a plant community that is Rare, Vulnerable or endangered</td><td>Relevant information:
The area was deemed to have inadequate Lomandra sp. to be considered the Iron-grass Natural Temperate Grassland TEC, as such the vegetation does not comprise a TEC.
Scores:
Threatened Community Scores
— A1 = 1
— A2 = 1
Assessment:
The Project is not at variance with Principle 1(d).
Moderating Factors to be considered by the NVC:
Not required.</td></tr>
<tr><td>Principle 1e – it is significant as a remnant of vegetation in an area which has been extensively cleared</td><td>Relevant information:
<table><tr><th>IBRA</th><th>Vegetation remnancy</th></tr><tr><td>St Vincent</td><td>5%</td></tr><tr><td>Barung</td><td>4%</td></tr></table>Scores:
Total Biodiversity Scores
— A1 = 0.63
— A2 = 0.00
Assessment:
The Project is at variance with Principle 1(e).</td></tr>
</table>

Principle of Clearance	Discussion
Principle 1(f) – *it is growing in, or in association with, a wetland environment*	**Relevant information**: The vegetation is not associated with a wetland. **Assessment:** The Project is **not at variance** with Principle 1(f).
Principle 1(g) – *it contributes significantly to the amenity of the area in which it is growing or is situated*	**Relevant information:** The grassland vegetation, despite being native, blends in with the surrounding roadside reserves with exotic grasses. As such it does not contribute significantly to the amenity of the area. **Assessment:** The Project is **not at variance** with Principle 1(g).

6 Risk assessment

Based on current designs (provided 30 April 2025) the total area of native vegetation clearance is less than 0.05 ha, commensurate to a Level 1 clearance. However, the potential for the site to contain listed species including PBTL, Southern Whiteface and Yellow-tailed Cockatoo escalates the works to a Level 2 clearance being seriously at variance with Principle 1(b).

The field survey determined that the grassland is considered to be of limited suitability and/or poor quality for these threatened species. A targeted survey for the PBTL was undertaken in March (Umwelt, 2025) during which no individuals were observed in spider burrows assessed, supporting the conclusion that the area is unlikely to support the threatened species.

Table 6.1 Summary of the level of risk associated with the application

Total clearance	No. of trees	0
	Area (ha)	0.0247 (Native Vegetation) and 13.589 (Cropping)
	Total biodiversity Score	0.63
Seriously at variance with principle 1(b), 1(c) or 1 (d)?		1(b)

7 Recommendations

The following actions are recommended to be applied at the detailed design and construction phases of works:

- Apply the mitigation hierarchy to avoid and minimise impacts to vegetation at all stages of design and construction.
- Locate access road entrances and exits in the road reserve to:
  - Avoid impact on the identified location of the observed *Maireana rohrlachii* (Rorhlach's Bluebush).
  - Minimise impacts to other native vegetation present within the road reserve.
- Avoid clearance/disturbance to existing patch of treed vegetation located to the northeast of the Project Area (VA A2).
- A Native Vegetation Data Report is required to be submitted to Native Vegetation Branch for approval prior to any on site clearance works being undertaken. A Significant Environmental Benefit offset is required to be paid to offset native vegetation as part of this Project.
- Ensure laydown areas are contained to previously cleared areas or within the proposed construction footprint.
- Ensure all reasonable actions are undertaken to reduce the impacts of construction works to flora and fauna, which should include, but not be limited to:
  - Clearly mark all vegetation that is to be cleared or retained to prevent accidental clearance outside of the approval conditions.
  - Ensure appropriate dust and water management is undertaken to reduce potential negative impacts to flora and fauna.
  - Dispose of waste materials, including food, plastics and general rubbish, appropriately to protect wildlife.
  - Ensure safe and effective removal and disposal of weeds. If weeds are to be disposed of off-site, a permit to transport declared weeds may be required for this Project.

8 Limitations

This Report is provided by WSP Australia Pty Limited (WSP) for Tilt Renewables as trustee for the Snowtown BESS Project Trust (Client) in response to specific instructions from the Client and in accordance with WSP's proposal and agreement with the Client (Agreement).

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Appendix A

Pygmy Blue-tongue Lizard Survey Briefing Note

Briefing Note

To	Tenille Anderson
E	Tenille.Anderson@wsp.com
Cc	Bronte Nixon
E	Bronte.Nixon@wsp.com
From	Dr Travis How
Date	23/05/2025
Subject	**Pygmy Blue-tongue Lizard Survey for the Snowtown BESS**

Umwelt undertook a Pygmy Blue-tongue Lizard (PBTL) survey of the proposed Snowtown BESS project site on the 25th March 2025. Dr Travis How (Regional Manager SA) and Dante Bryson (Ecologist) undertook the survey across the Project Area. The Project Area is located adjacent to the Snowtown Wind Farm Substation on the corner of Wokurna Rd and Hewitt Rd, approximately 10km northwest of Snowtown.

The Project Area (Figure 1) is dominated by cereal cropping with exotic grasslands along the roadsides. The cropping areas have been utilised in recent seasons which means that there is no habitat present for PBTL which rely on spider holes for refuges. Cultivating the land destroys spider holes and therefore, PBTL won't occur in recently cropped areas. Photos 1 and 2 are representative of the Project Area.

The field survey focused on the roadside areas containing exotic grasslands as well as the narrow strip of un-cultivated land (30-60cm wide) within the paddock adjacent to the fenceline. The potential habitat areas were surveyed on foot with two observers walking 3-5m apart searching for spider burrows. Each burrow was checked using a scope to determine if it was occupied by a spider, PBTL, other invertebrate or if it was empty.

A total of 41 spider burrows were searched (Figure 1) with approximately half of the burrows empty and the remaining burrows occupied by spiders or other invertebrates (eg centipedes). No PBTL were recorded during the survey. No trap door spider burrows (preferred burrow by PBTL) were found across the Project Area with only wolf spider burrows (PBTL will utilise wolf spider holes, but are less preferred) found.

The Project Area is not considered to provide suitable habitat for PBTL. This is due to the disturbed nature of the majority of the Project Area (including the roadsides), the low number of quality spider burrows and the lack of any suitable habitat nearby (Project Area is totally surrounded by cropping land). It is considered that the Project will not impact on PBTL or PBTL habitat.

This briefing note and any attachments are confidential and are intended to provide information for use by the named recipient(s) only.

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Photo 1 – General photo looking north along Hewitt Road towards existing substation

Photo 2 – General photo looking east along Wokurna Road towards intersection with Hewwitt Road

umwelt

FIGURE 1

Burrows assessed within Survey Area

Legend

- Survey Area
- Indicative site layout
- Searched burrow

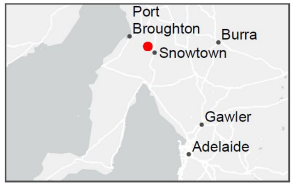

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Image Source: Location SA (2025) | **Data Source:** WSP, SA DIT (2025)

If there are any queries or clarifications regarding the Briefing Note, please contact the undersigned.

Dr Travis How

Regional Manager SA

Umwelt (Australia) Pty Ltd

Appendix B

Flora observed in the Project Area

Scientific name	Common name	NPW Act status	EPBC Act status	Introduced
Acacia oswaldii	Umbrella Wattle			
Acacia pycnantha	Golden Wattle			
Acacia retinodes	Wirilda			
Aristida sp.	Three-awn/Wire-grass			
Austrostipa scabra group	Falcate-awn Spear-grass			
Avena barbata	Bearded Oat			Y
Boerhavia dominii				Y
Brassica sp.				Y
Bromus sp.	Brome			Y
Centaurea calcitrapa	Star Thistle			Y
Cynara cardunculus ssp. *flavescens*	Artichoke Thistle			Declared weed
Enchylaena tomentosa var.	Ruby Saltbush			
Enneapogon nigricans	Black-head Grass			
Euphorbia drummondii				
Heliotropium europaeum	Common Heliotrope			Y
Hordeum marinum	Sea Barley-grass			Y
Limonium sp.	Sea-lavender			Y
Lolium perenne	Perennial Ryegrass			Y
Lomandra effusa	Scented Mat-rush			
Lomandra multiflora ssp.	Many-flower Mat-rush			
Maireana enchylaenoides	Wingless Fissure-plant			
Maireana rohrlachii	Rohrlach’s Bluebush	R		
Malva parviflora	Small-flower Marshmallow			
Marrubium vulgare	Horehound			Y
Medicago polymorpha	Burr-medic			Y
Medicago scutellata	Snail Medic			Y
Salsola australis	Buckbush			
Salvia verbenaca var.	Wild Sage			Y
Scaevola albida	Pale Fanflower			
Sida sp.	Sida			
Solanum elaeagnifolium	Silver-leaf Nightshade			Declared weed
Tribulus sp.	Caltrop			Y
Vittadinia cuneata var.	Fuzzy New Holland Daisy			
Xanthium spinosum	Bathurst Burr			Declared weed

Appendix C

PMST report

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 28-Nov-2024

Summary
Details
- Matters of NES
- Other Matters Protected by the EPBC Act
- Extra Information

Caveat
Acknowledgements

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	2
Listed Threatened Species:	24
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	7
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Iron-grass Natural Temperate Grassland of South Australia	Critically Endangered	Community likely to occur within area	In feature area
Peppermint Box (Eucalyptus odorata) Grassy Woodland of South Australia	Critically Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Aphelocephala leucopsis			
Southern Whiteface [529]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Falco hypoleucos			
Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Grantiella picta](#)			
Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area	In feature area
[Melanodryas cucullata cucullata](#)			
South-eastern Hooded Robin, Hooded Robin (south-eastern) [67093]	Endangered	Species or species habitat likely to occur within area	In feature area
[Neophema chrysostoma](#)			
Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Numenius madagascariensis](#)			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Pedionomus torquatus](#)			
Plains-wanderer [906]	Critically Endangered	Species or species habitat may occur within area	In feature area
[Rostratula australis](#)			
Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
[Stagonopleura guttata](#)			
Diamond Firetail [59398]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Tringa nebularia](#)			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area
MAMMAL			
[Petrogale xanthopus xanthopus](#)			
Yellow-footed Rock-wallaby (SA and NSW) [66646]	Vulnerable	Species or species habitat may occur within area	In feature area
PLANT			
[Caladenia tensa](#)			
Greencomb Spider-orchid, Rigid Spider-orchid [24390]	Endangered	Species or species habitat likely to occur within area	In feature area
[Dodonaea subglandulifera](#)			
Peep Hill Hop-bush [11956]	Endangered	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
Olearia pannosa subsp. pannosa			
Silver Daisy-bush, Silver-leaved Daisy, Velvet Daisy-bush [12348]	Vulnerable	Species or species habitat may occur within area	In feature area
Prasophyllum validum			
Sturdy Leek-orchid, Mount Remarkable Leek-orchid [10268]	Vulnerable	Species or species habitat may occur within area	In feature area
Pterostylis xerophila			
Desert Greenhood [7997]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Senecio macrocarpus			
Large-fruit Fireweed, Large-fruit Groundsel [16333]	Vulnerable	Species or species habitat may occur within area	In feature area
Swainsona pyrophila			
Yellow Swainson-pea [56344]	Vulnerable	Species or species habitat may occur within area	In buffer area only
Tecticornia flabelliformis			
Bead Glasswort, Bead Samphire [82664]	Vulnerable	Species or species habitat may occur within area	In buffer area only
REPTILE			
Aprasia pseudopulchella			
Flinders Ranges Worm-lizard [1666]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Tiliqua adelaidensis			
Pygmy Blue-tongue Lizard, Adelaide Blue-tongue Lizard [1270]	Endangered	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Motacilla cinerea			
Grey Wagtail [642]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava			
Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area
Calidris acuminata			
Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea			
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Numenius madagascariensis			
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Tringa nebularia			
Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Listed Marine Species			[Resource Information]
Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat may occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat may occur within area	In feature area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat may occur within area overfly marine area	In feature area
Neophema chrysostoma Blue-winged Parrot [726]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Sterna striata White-fronted Tern [799]		Migration route may occur within area	In feature area
Tringa nebularia Common Greenshank, Greenshank [832]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area

Extra Information

EPBC Act Referrals			[Resource Information]	
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Barunga Wind Farm	2004/1357	Not Controlled Action	Completed	In feature area
Construction and operation of electrical connection line for Barunga Wind Farm	2004/1803	Not Controlled Action	Completed	In feature area
Development of a wind energy facility and supporting	2009/5073	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
infrastructure, Snowtown, SA				
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area
INDIGO Central Submarine Telecommunications Cable	2017/8127	Not Controlled Action	Completed	In feature area
Walk the Yorke Leisure Trail Project, Yorke Peninsula, SA	2013/7059	Not Controlled Action	Completed	In feature area
Not controlled action (particular manner)				
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval	In feature area

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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

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

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

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

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Department of Climate Change, Energy, the Environment and Water
GPO Box 3090
Canberra ACT 2601 Australia
+61 2 6274 1111

Appendix D

Location SA Viewer and Before You Dig Australia search results

Job No 50178381

byda.com.au

Zero damage - Zero harm - Zero disruption

Contact Details

Contact	Contact number	Company	Enquirer ID
Kingsley Wong	(03) 9861 2380	WSP	3180352

Email
kingsley.wong@wsp.com

Address
Level 15, 28 Freshwater Place
Southbank VIC 3006

Job Site and Enquiry Details

WARNING: The map below only displays the location of the proposed job site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.

Enquiry date	Start date	End date	On behalf of	Job purpose	Locations	Onsite activities
14/05/2025	14/05/2025	14/05/2025	Other WSP	Design	Both Road, Nature Strip, Footpath	Planning & Design

Check that the location of the job site is correct. If not, you must submit a new enquiry.

If the scope of works change or plan validity dates expire, you must submit a new enquiry.

Do NOT dig without plans. Safe excavation is your responsibility. If you don't understand the plans or how to proceed safely, please contact the relevant asset owners.

User Reference	Address	Notes/description
Snowtown	Lot 101 Hewitt Road Wokurna SA 5520	Preliminary Desktop Assessment

Your Responsibility and Duty of Care

- **Lodging an enquiry does not authorise project commencement.** Before starting work, you must obtain all necessary information from all affected asset owners.
- If you don't receive plans within 2 business days, contact the asset owner & quote their sequence number.
- Always follow the 5Ps of Safe Excavation (page 2), and locate assets before commencing work.
- Ensure you comply with State legislative requirements for Duty of Care and safe digging.
- If you damage an underground asset, you MUST advise the asset owner immediately.
- By using the BYDA service, you agree to the Privacy Policy and Term of Use.
- For more information on safe digging practices, visit www.byda.com.au

Asset Owner Details

Below is a list of asset owners with underground infrastructure in and around your job site. It is your responsibility to identify the presence of these assets. Plans issued by Members are indicative only unless specified otherwise. Note: not all asset owners are registered with BYDA. You must contact asset owners not listed here directly.

Referral ID (Seq. no)	Authority Name	Phone	Status
254995863	SA Power Networks	(08) 8292 0218	NOTIFIED
254995860	SA Water	(08) 7424 1117	NOTIFIED
254995862	Telstra SANT	1800 653 935	NOTIFIED
254995861	Wakefield Regional Council	(08) 8862 0800	NOTIFIED

END OF UTILITIES LIST

The 5Ps of Safe Excavation

Plan

Plan your job. Use the BYDA service at least one day before your job is due to begin, and ensure you have the correct plans and information required to carry out a safe project.

Prepare

Prepare by communicating with asset owners if you need assistance. Look for clues onsite. Engage a skilled Locator.

Pothole

Potholing is physically sighting the asset by hand digging or hydro vacuum extraction.

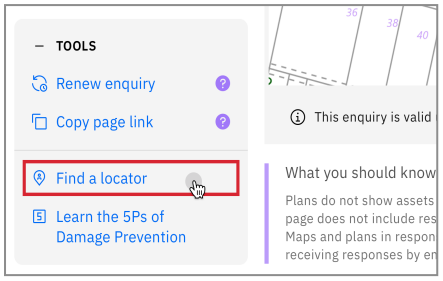
Protect

Protecting and supporting the exposed infrastructure is the responsibility of the excavator. Always erect safety barriers in areas of risk and enforce exclusion zones.

Proceed

Only proceed with your excavation work after planning, preparing, potholing (unless prohibited), and having protective measures in place.

Engage a skilled Locator



When you lodge an enquiry you will see skilled Locators to contact

Visit the Certified Locator website directly and search for a locator near you

certloc.com.au/locators

Get FREE Quotes for Contractors & Equipment Fast

GET QUOTE

Use iseekplant's FREE marketplace to get quotes for the equipment or services you need on your project. Compare quotes from trusted local contractors and get your project done on time and in budget.

1. Fill out your job details in our FREE quick quote form.
2. We send the request to trusted local contractors.
3. The local contractors will contact you directly with quotes

Use iseekplant to find trusted contractors near you today, visit:
blog.iseekplant.com.au/byda-isp-get-quotes

Book a FREE BYDA Session

BOOK NOW

BYDA offers free training sessions to suit you and your organisation's needs covering safe work practices when working near essential infrastructure assets. The free sessions are offered in two different formats - online and face-to-face.

To book a session, visit:
byda.com.au/contact/education-awareness-enquiry-form

Lodge your FREE enquiry online any time at byda.com.au

Job ID 50178381

Snowtown

Review responses online

Received 3 of 4 responses

Waiting for more

Lot 101 Hewitt Road, Wokurna SA 5520

Job dates
14/05/2025 → 14/05/2025

These plans expire on
11 Jun 2025

Lodged by
Kingsley Wong

Authority	Status	Page
BYDA Confirmation		2
SA Power Networks	Received	4
SA Water	Received	45
Telstra SANT	Waiting	-
Wakefield Regional Council	Received	52

Job No 50178381

byda.com.au

Zero damage - Zero harm - Zero disruption

Contact Details

Contact	Contact number	Company	Enquirer ID
Kingsley Wong	(03) 9861 2380	WSP	3180352

Email
kingsley.wong@wsp.com

Address
Level 15, 28 Freshwater Place
Southbank VIC 3006

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END OF UTILITIES LIST

The 5Ps of Safe Excavation

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Proceed

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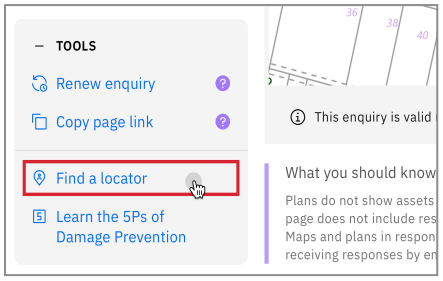

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1. Fill out your job details in our FREE quick quote form.
2. We send the request to trusted local contractors.
3. The local contractors will contact you directly with quotes

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blog.iseekplant.com.au/byda-isp-get-quotes

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BOOK NOW

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To book a session, visit:
byda.com.au/contact/education-awareness-enquiry-form

Lodge your FREE enquiry online any time at byda.com.au

SA Power Networks

Referral
254995863

Member Phone
(08) 8292 0218

Responses from this member

Response received Wed 14 May 2025 11.59am

File name	Page
Response Body	5
254995863.pdf	6

To: Kingsley Wong

RE: Before You Dig (BYDA) REFERRAL NOTIFICATION FROM SA POWER NETWORKS

Thank you for your enquiry. Please find attached the "254995863.pdf" which provides an overview of your proposed work area in association with SAPN's assets.

DO NOT REPLY to this email. Contact DBYDAssetLocatorGroup@sapowernetworks.com.au for any further enquiries.

Please note that this communication, including any attachments, is confidential. If you are not the intended recipient, you should not read it please contact us immediately, destroy it, and do not copy or use any part of this communication.

Sequence No: 254995863
Job No: 50178381
Enquiry Date: 14/05/2025 11:27
Commencement Date: 14/05/2025
Completion Date: 14/05/2025
Activity: Planning and Design
Address: Lot 101 Hewitt Road Wokurna
Postcode: 5520

****
This email and any file attachments are highly confidential. If you have received this email in error please notify the sender and delete the email. You should note the contents of the email do not necessarily represent the views of SA Power Networks, nor can we guarantee that the email is free of any malicious code. If you have any doubts about the source or authenticity of the email, please contact us on 13 12 61.
****

Before You Dig (BYDA)
Location Information

To:
WSP - Kingsley Wong
Level 15, 28 Freshwater Place
Southbank VIC 3006

Enquiry Details	
Utility ID	50800
Sequence Number	254995863
Enquiry Date	14/05/2025 11:27
Response	**NOT AFFECTED**
Address	Lot 101 Hewitt Road Wokurna
Location in Road	Road,Nature Strip,Footpath
Activity	Planning and Design

Enquirer Details	
Customer ID	3180352
Contact	Kingsley Wong
Company	WSP
Email	kingsley.wong@wsp.com
Phone	+61398612380

Underground cable locations
ASSETS NOT FOUND

The process:

1. You made an enquiry with Before You Dig (1100).
2. Before You Dig referred your enquiry to SA Power Networks (South Australia's Distribution Network).
3. SA Power Networks has checked their records and have not found underground assets in your request area.
4. Please review the attached Asset Map(s) in regard to your excavation, as there may be some restrictions that apply if your excavation is greater than 300mm below ground level and less than 3.0m from an SA Power Networks Asset. Further explanation of restricted and exclusion zones can be found at *http://www.sapowernetworks.com.au/public/download.jsp?id=1775* OR search sapowernetworks.com.au for NICC 404 and by referring to the figure on page 5, 6, 7, 8 or 9.
5. An on-site assessment and/or technical drawings may also be necessary to ascertain the exact cable/asset location. This service can be provided by SA Power Networks and may incur a cost.
6. If you believe this to be incorrect, please contact SA Power Networks on (08) 8292 0218 to discuss.

Please note: Underground services in the vicinity of any proposed earthworks must be located by hand digging (pot-holing) prior to the commencement of works. Persons conducting works will be held responsible for any resulting loss or damage to the services associated with infrastructure

Important information and conditions of use for users of underground services information supplied by SA Power Networks

Indicative information only

The accompanying information is intended only to indicate the presence of SA Power Networks' underground services and/or to convey general indicative information in respect of the location marked on the plans. **The information does not necessarily provide current, comprehensive or accurate description or location of the underground services or associated infrastructure.**

The information may also describe or indicate the presence of underground services or infrastructure not owned by SA Power Networks, for example, electrical services connected to an SA Power Networks' service point. SA Power Networks takes no responsibility for services or infrastructure that is not owned or operated by SA Power Networks or the accuracy or completeness of their description or location in the accompanying information.

Additional technical information may be requested from SA Power Networks for planning or engineering design (non-digging) purposes. Such requests are to be directed to SA Power Networks Builders and Contractors Electrical Service Line (1300 650 014).

Identifying the location of underground services
Working near or around live electrical cables can be hazardous. **An on-site assessment is strongly recommended prior to undertaking ANY works and is necessary to determine the location of the underground services.** This can be undertaken by SA Power Networks or an alternative professional locating service provider. Enquiries can be made about SA Power Networks' cable location service by telephoning (08) 8292 0218.

Restrictions may apply in regard to your excavation particularly if your excavation is greater than 300mm below ground level and less than 3.0m from an SA Power Networks asset. Further explanation regarding restricted exclusion zones can be found at *http://www.sapowernetworks.com.au/public/download.jsp?id=1775* OR search sapowernetworks.com.au for NICC 404 and by referring to the figures on pages 5, 6, 7, 8 or 9.

Underground services in the vicinity of any proposed earthworks must be located by hand digging (pot-holing) prior to the commencement of the works. Persons conducting works will be held responsible for any resulting loss or damage to the services or associated infrastructure.

Working near high voltage 66kV underground cables
Persons intending to conduct earthworks in the vicinity of an SA Power Networks high voltage 66kV underground cable MUST first obtain a site-specific clearance by contacting the SA Power Networks Connections Central Team on 8404 5409.

Basis of information supply
The accompanying information is supplied at the request of, and is only provided for use by, the requestor. The information is valid for 30 days from the date of issue.

SA Power Networks, its employees, agents and contractors shall accept no responsibility for any inaccuracy or incompleteness in the information provided or liability in respect of any personal injury, death, loss or damage to any real or personal property or otherwise that arises out of or in connection with, directly or indirectly, the provision of or reliance upon the information.

It is the requestor's responsibility to ensure that the information provided accords with the area depicted on the requestor's Before You Dig request. The information provided should not be used in respect of any area outside of the area depicted on the Before You Dig request. SA Power Networks does not warrant that the information is suitable for the requestor’s intended purposes.

Any use of the accompanying information is subject to the requestor's agreement to the conditions contained in this document. Upon acceptance of these conditions, SA Power Networks grants the requestor permission to use the information. The information must be returned to SA Power Networks if the conditions are not accepted.

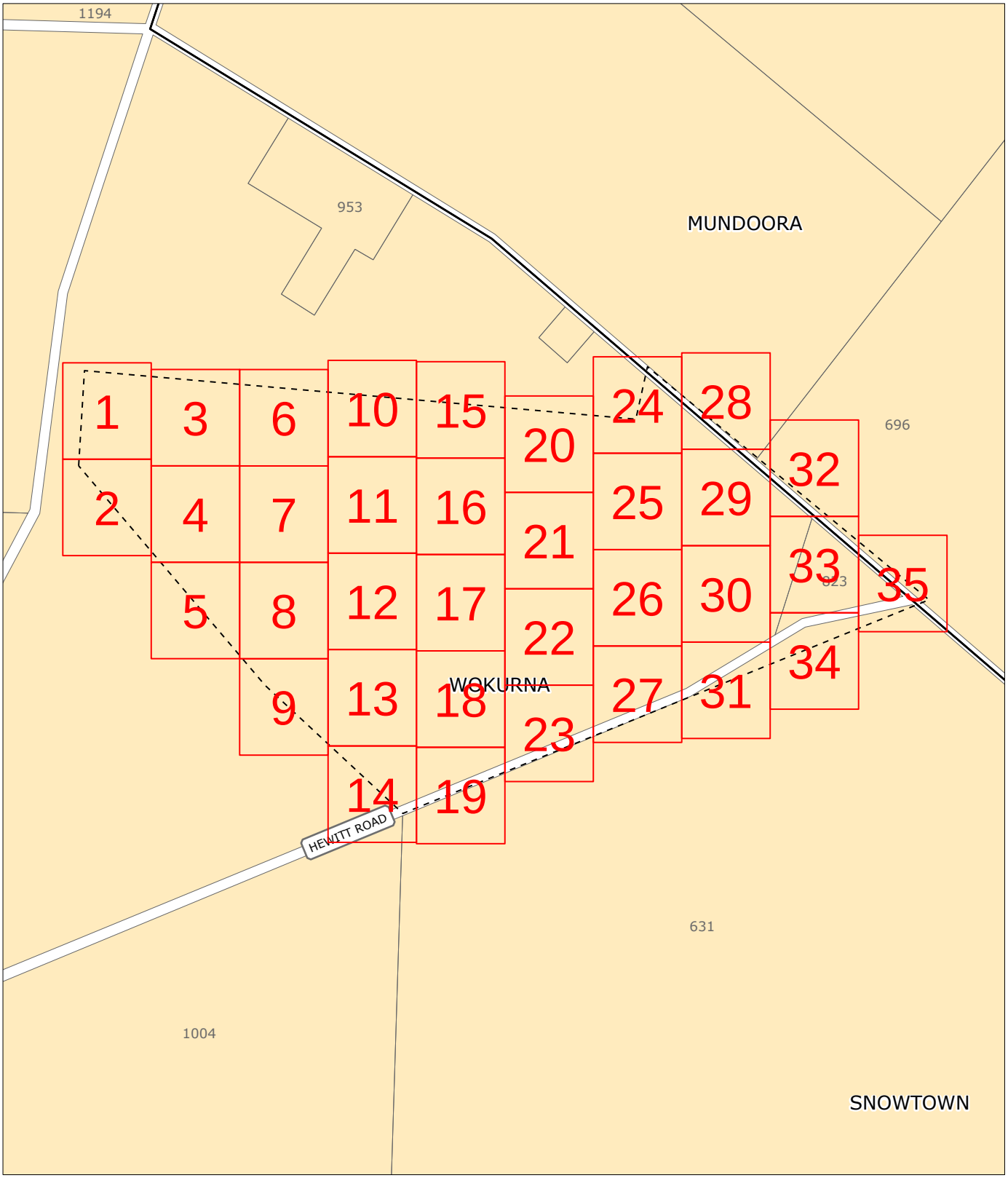
Important note: It is an offence under the Electricity Act 1996 (SA) to cause damage to or interfere with electrical infrastructure

Date: 14/05/2025

Overview Map

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Disclaimer: The Plan/Sketch is supplied at your request and is subject to your agreement that SA Power Networks shall not be liable or responsible for the correctness or otherwise of any such information supplied pursuant to this request. Upon acceptance of this condition SA Power Networks grants you permission to use the Plan/Sketch as a guide to the location of SA Power Networks assets. The Plan/Sketch must be returned to SA Power Networks if you fail to accept the conditions of use.

N

0 0.1km

LEGEND:

1 Detail Map

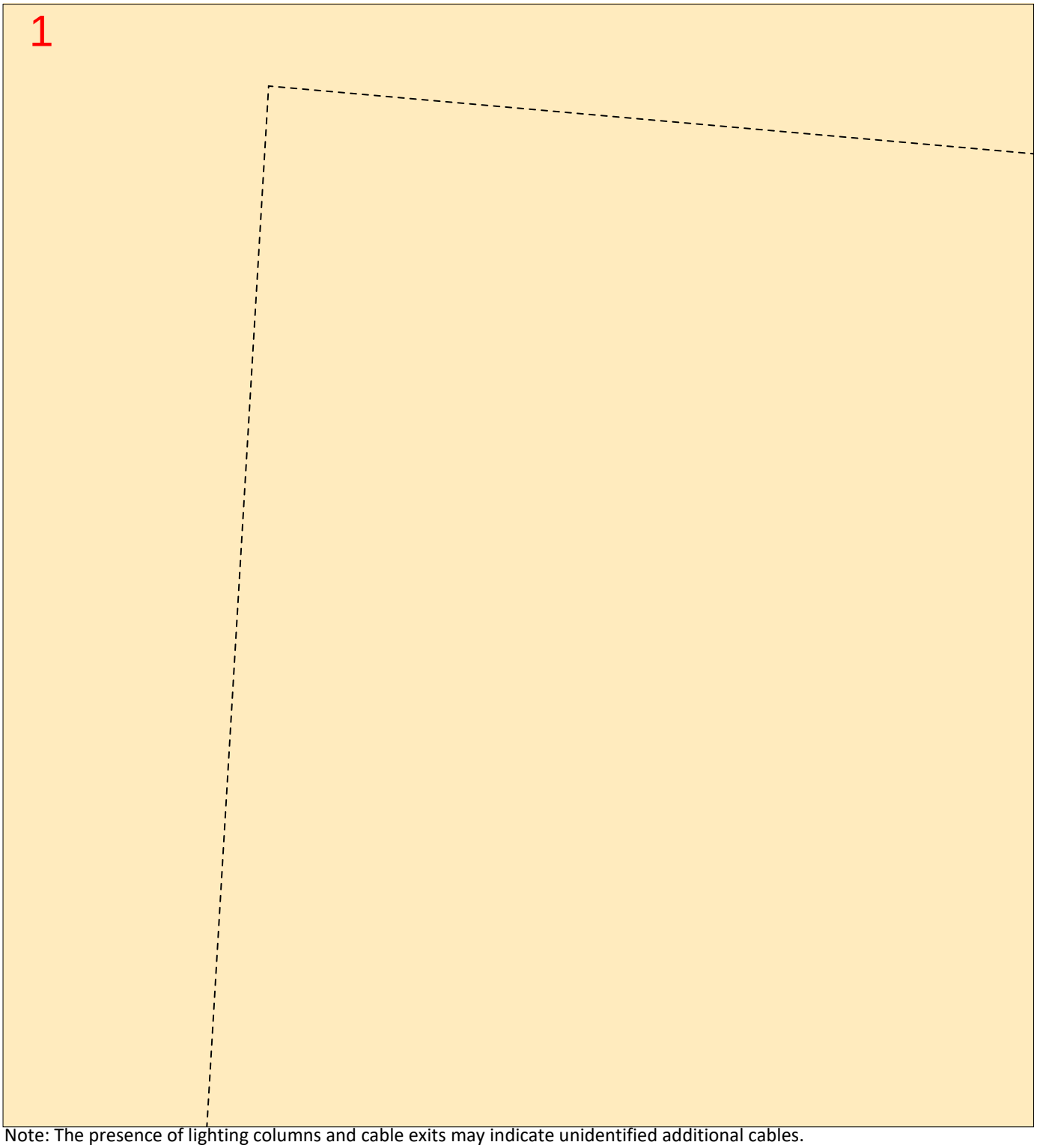
BYD Requested Area

Date: 14/05/2025

Map 1

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

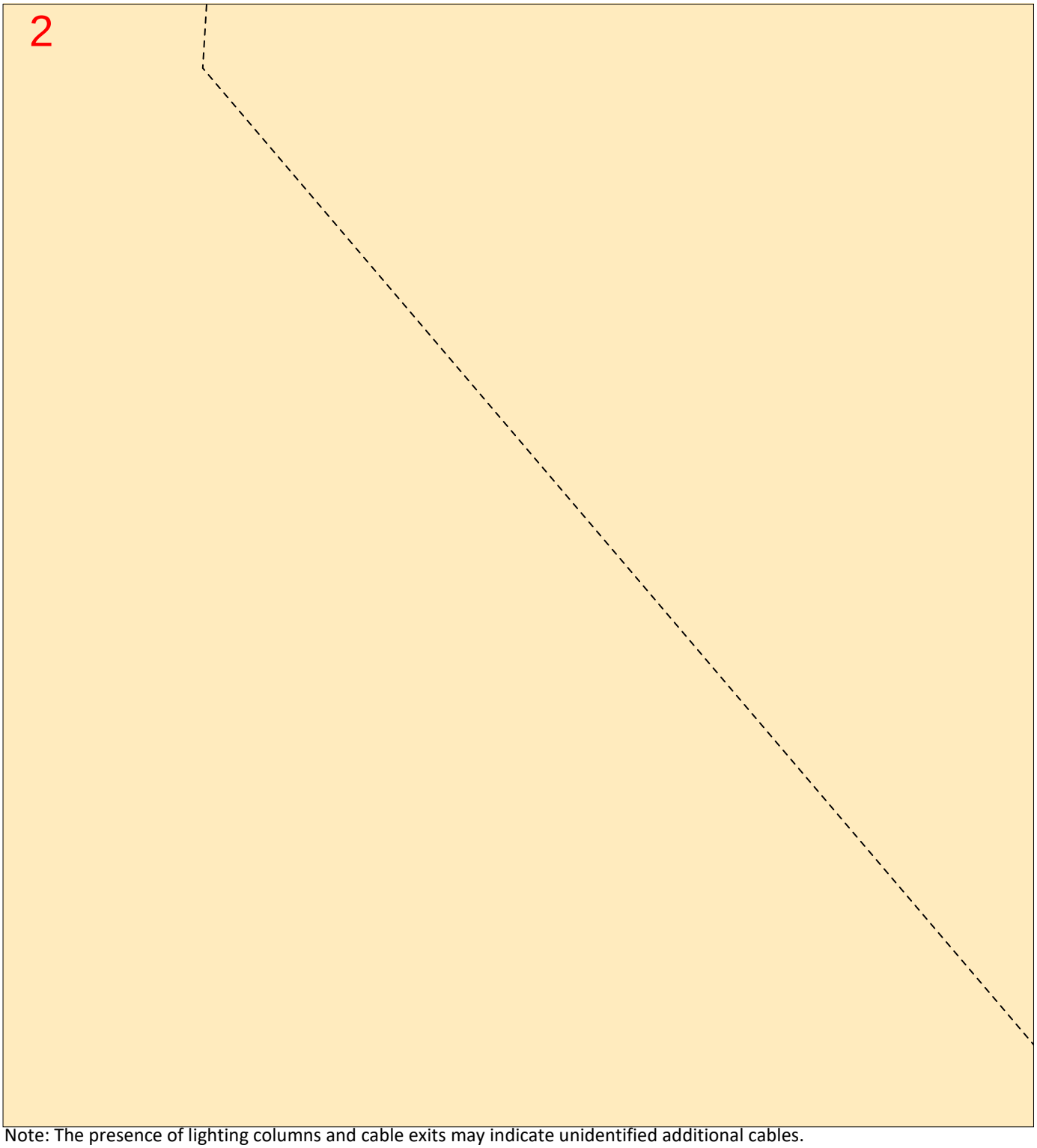
Date: 14/05/2025

SA Power Networks

Map 2

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

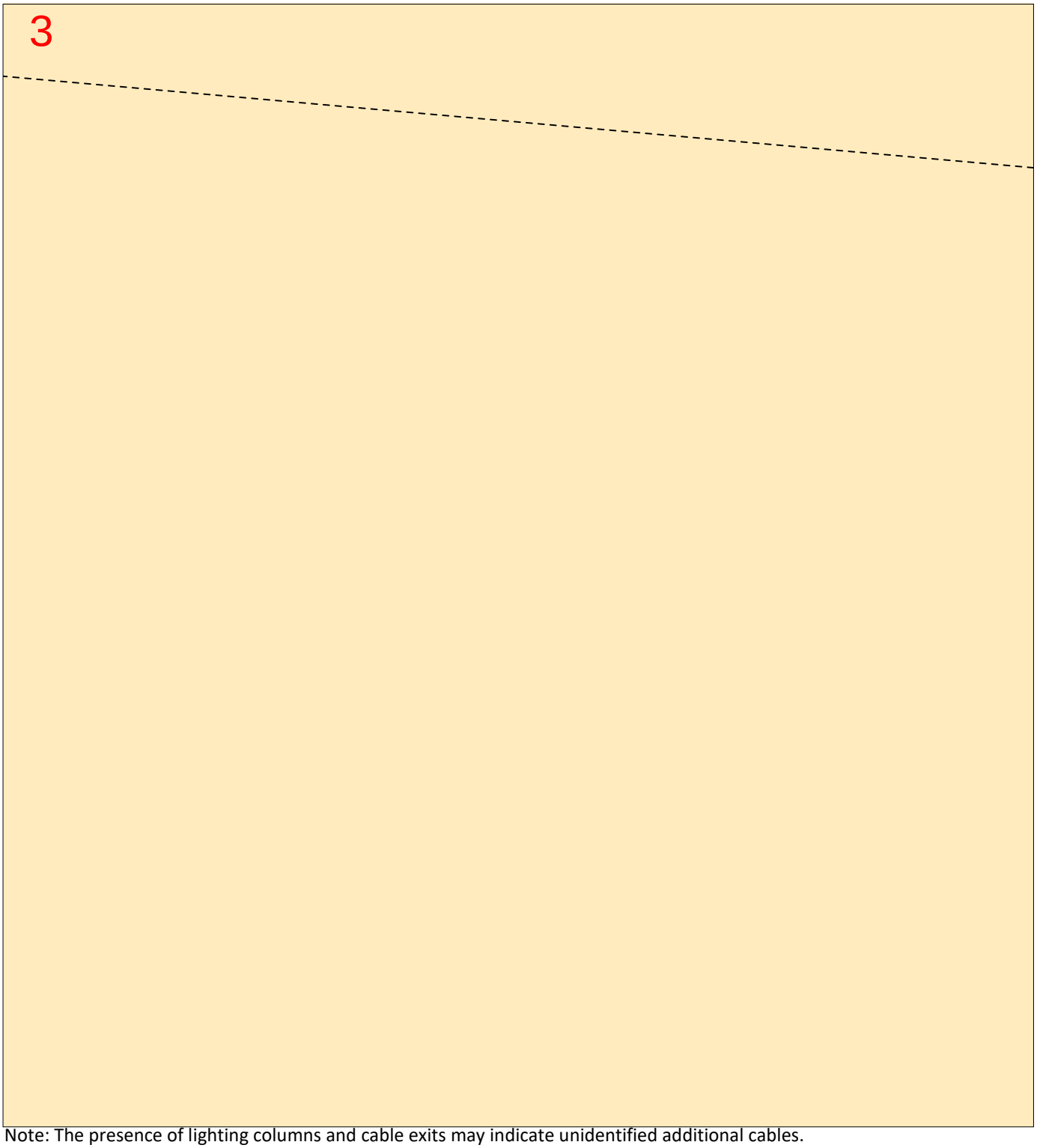
0 0.009km

Date: 14/05/2025

Map 3

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

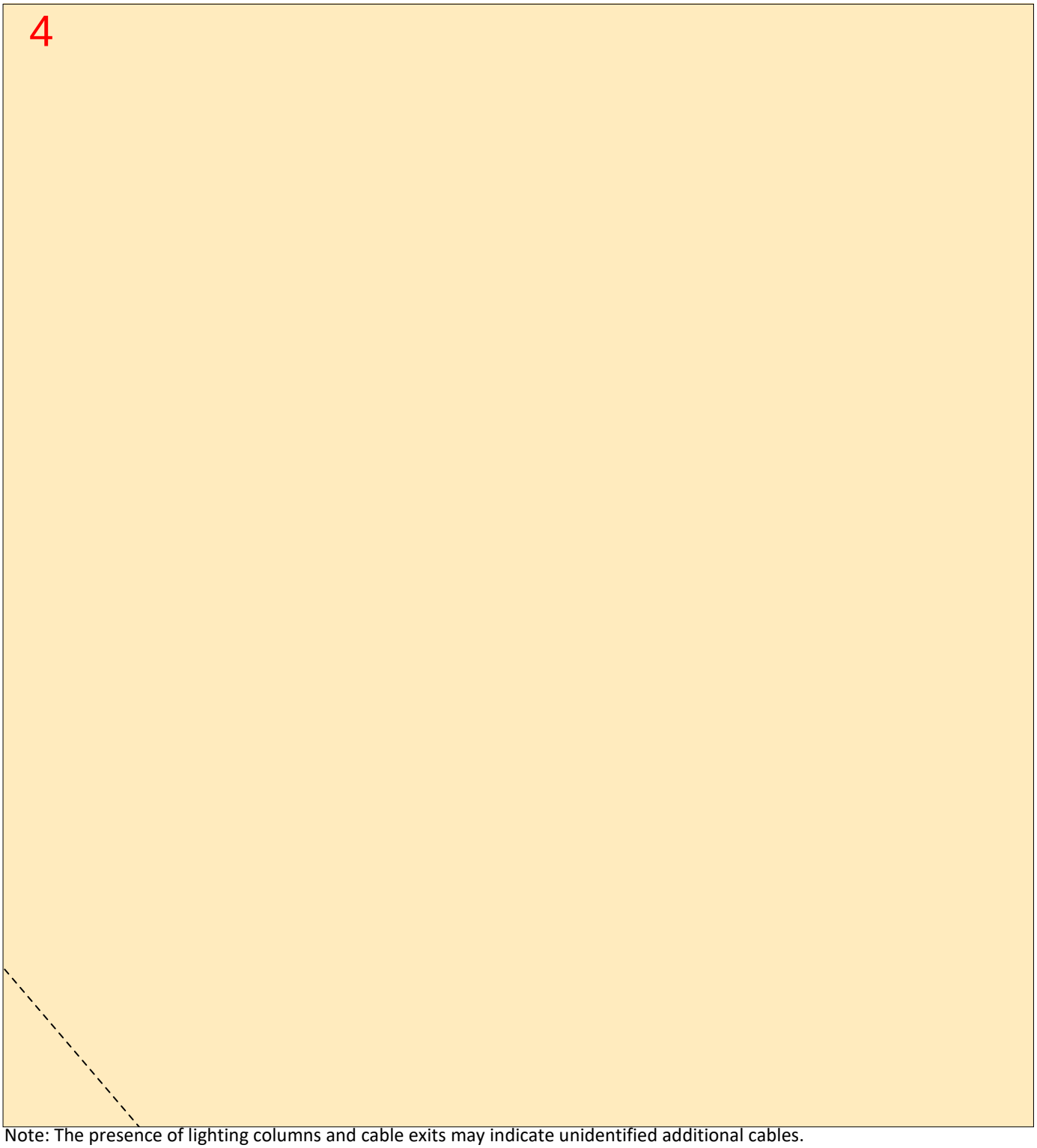
0 0.009km

Date: 14/05/2025

Map 4

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

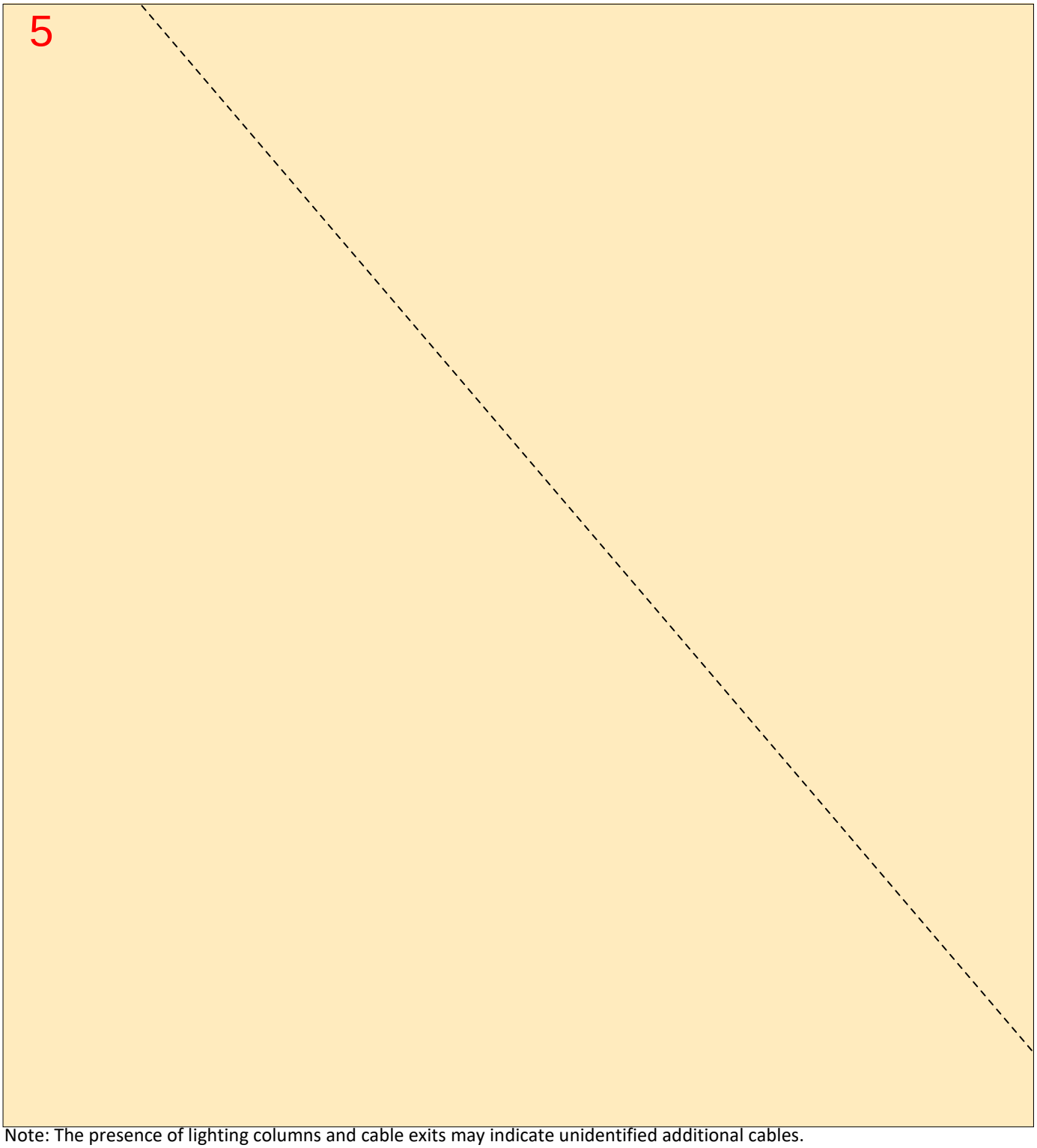
Date: 14/05/2025

SA Power Networks

Map 5

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
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Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

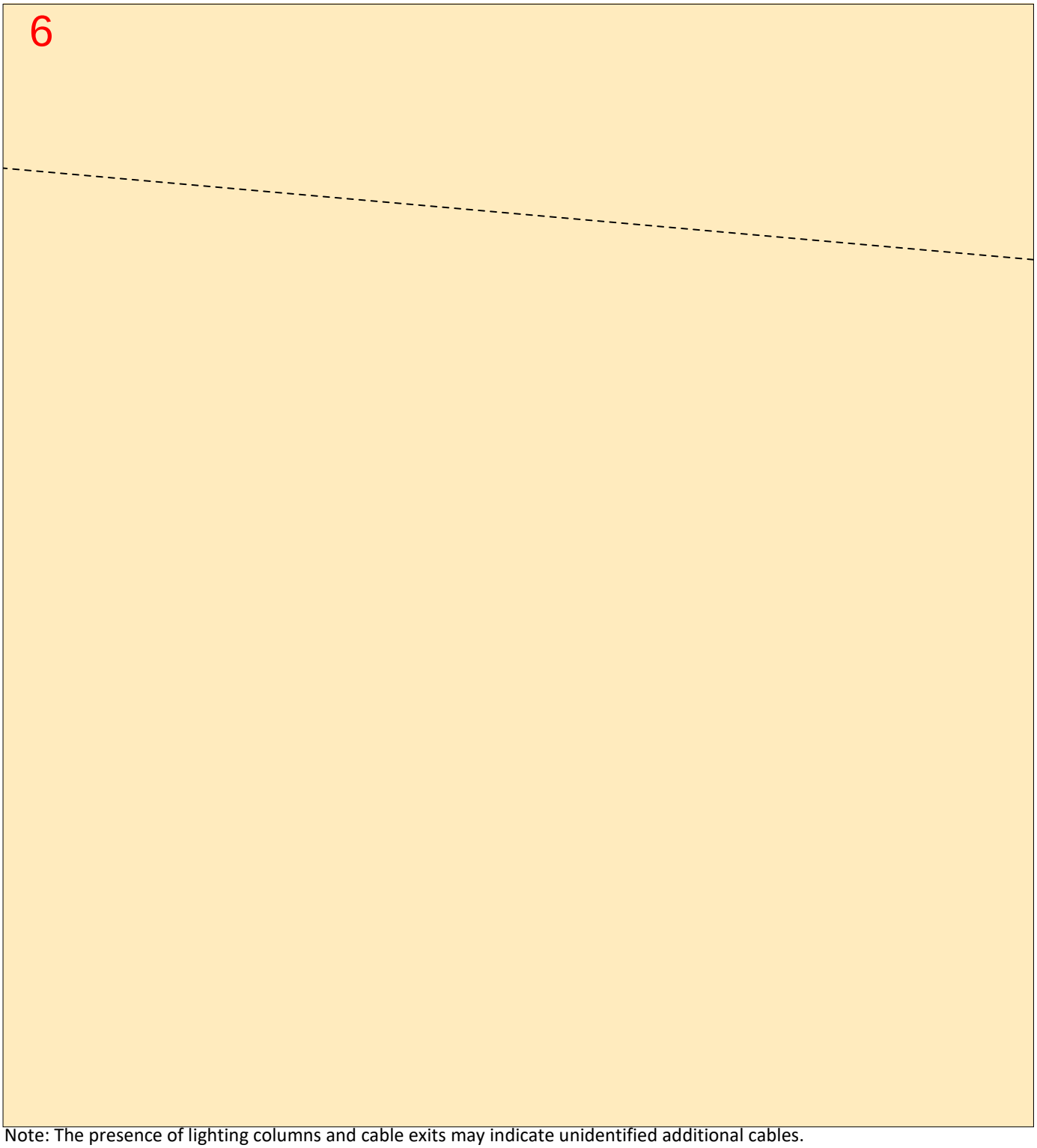
Date: 14/05/2025

SA Power Networks

Map 6

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

Date: 14/05/2025

Map 7

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna

Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

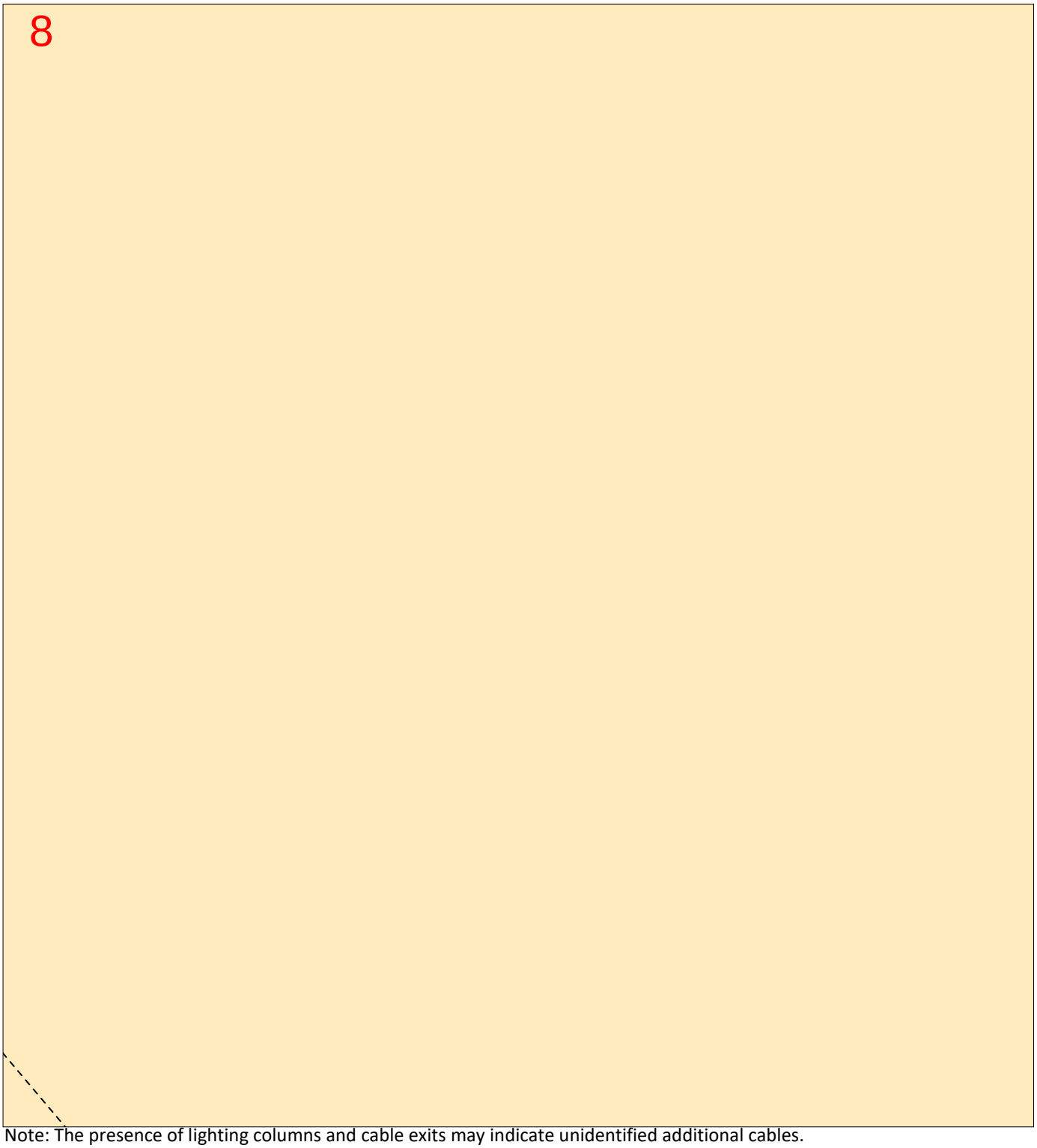
0 0.009km

Date: 14/05/2025

Map 8

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

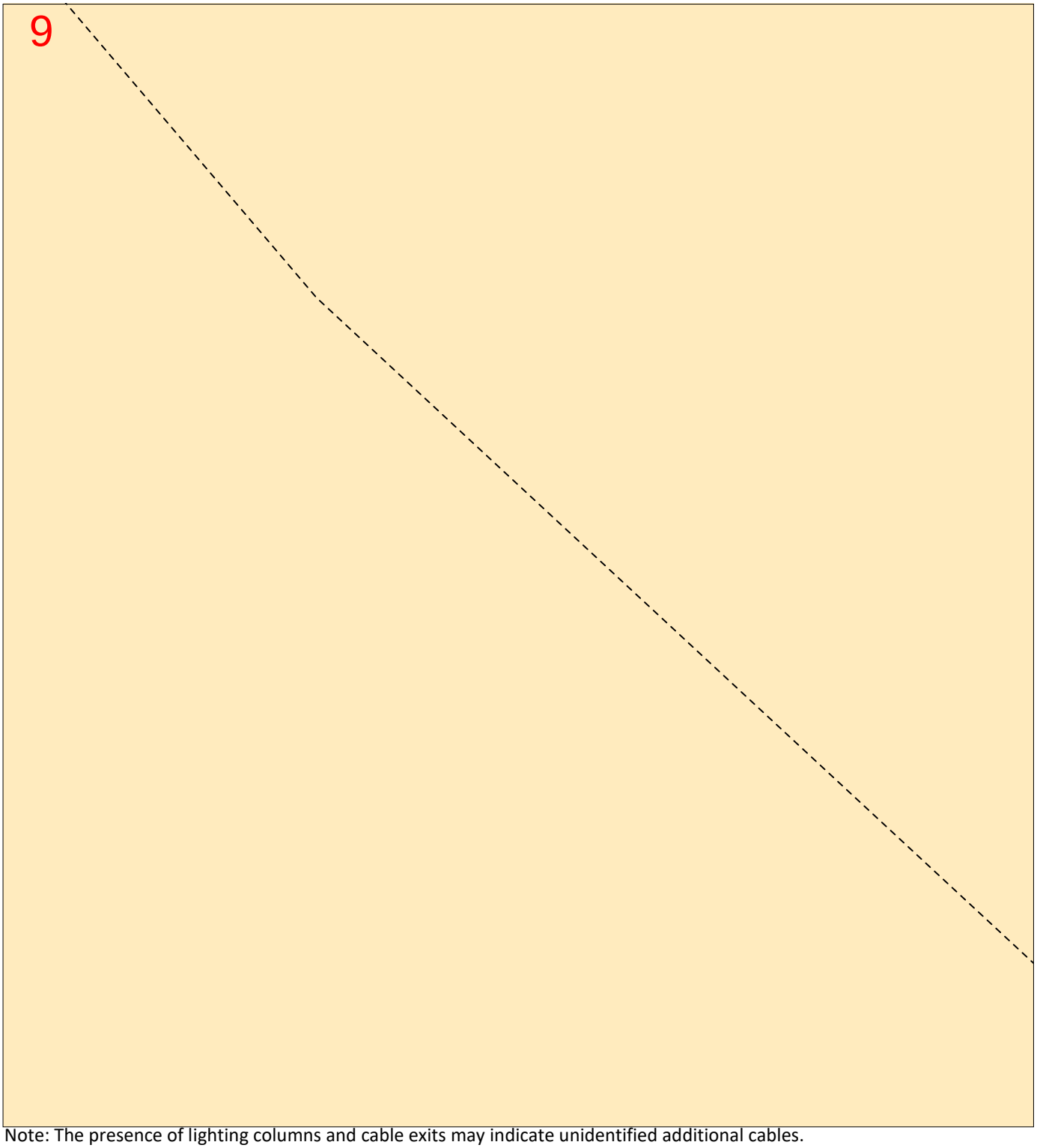
Date: 14/05/2025

SA Power Networks

Map 9

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

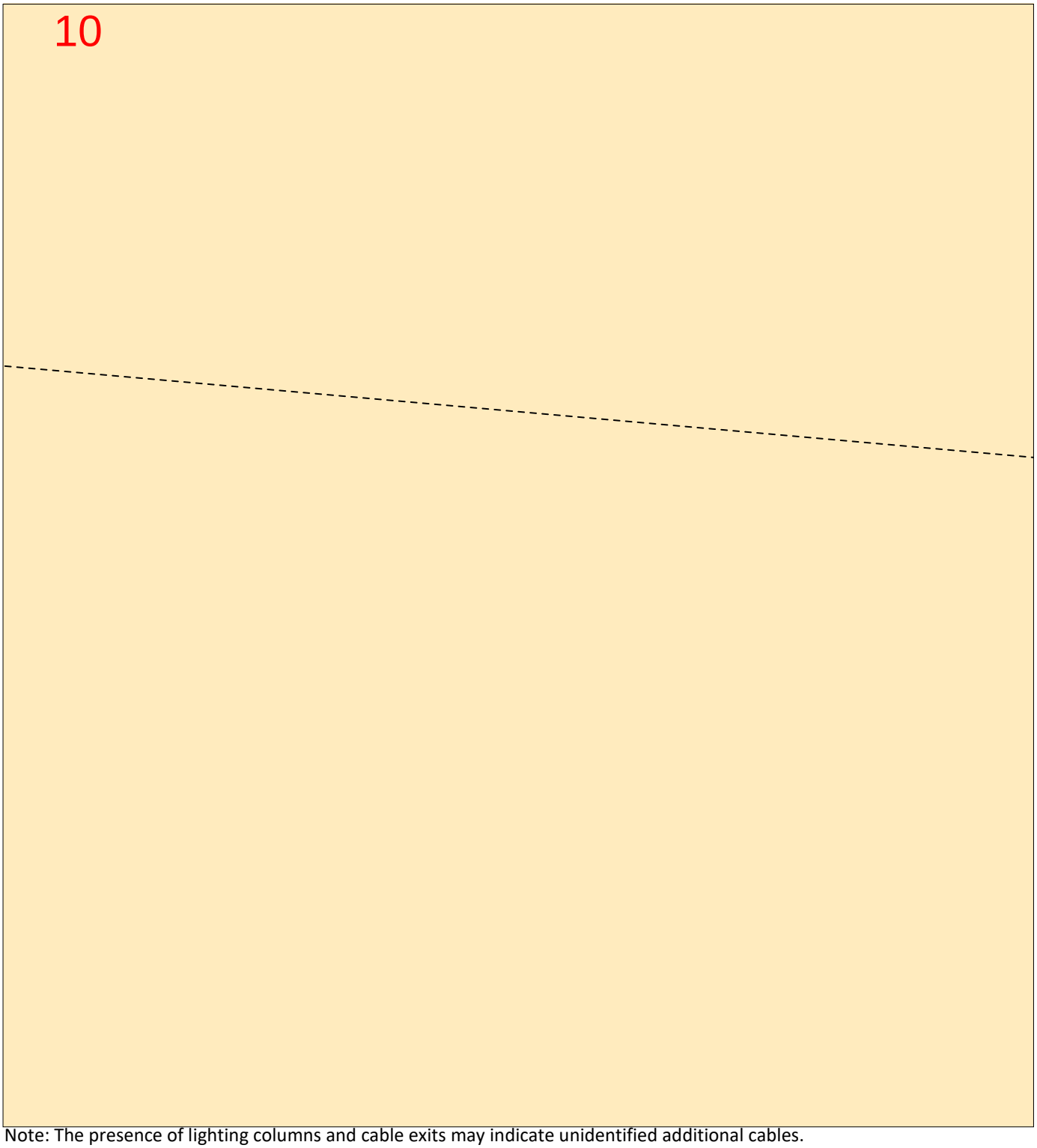
0 0.009km

Date: 14/05/2025

Map 10

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

Date: 14/05/2025

Map 11

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna

Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

Date: 14/05/2025

Map 12

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna

Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

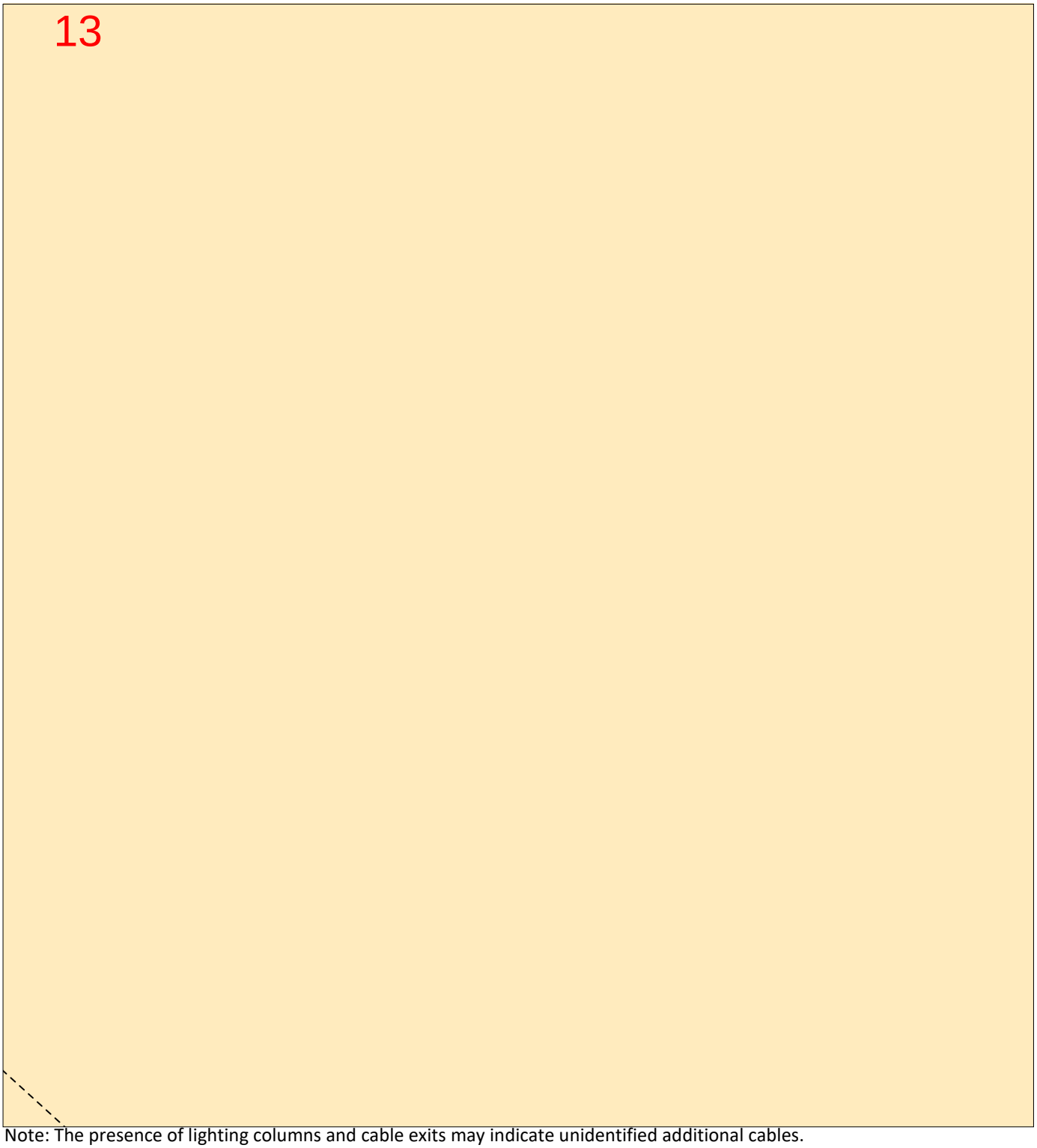
Date: 14/05/2025

SA Power Networks

Map 13

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

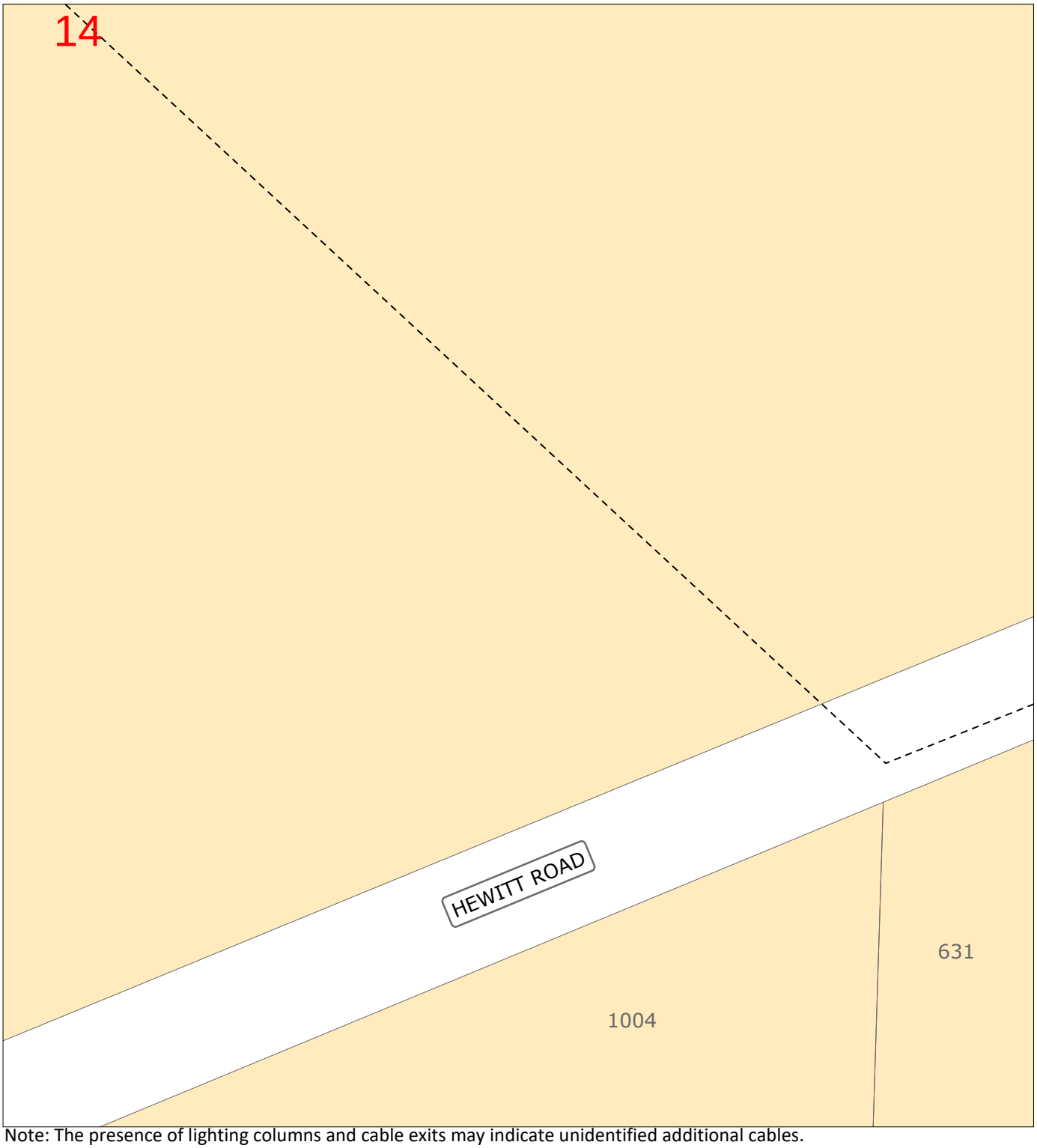
Date: 14/05/2025

SA Power Networks

Map 14

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

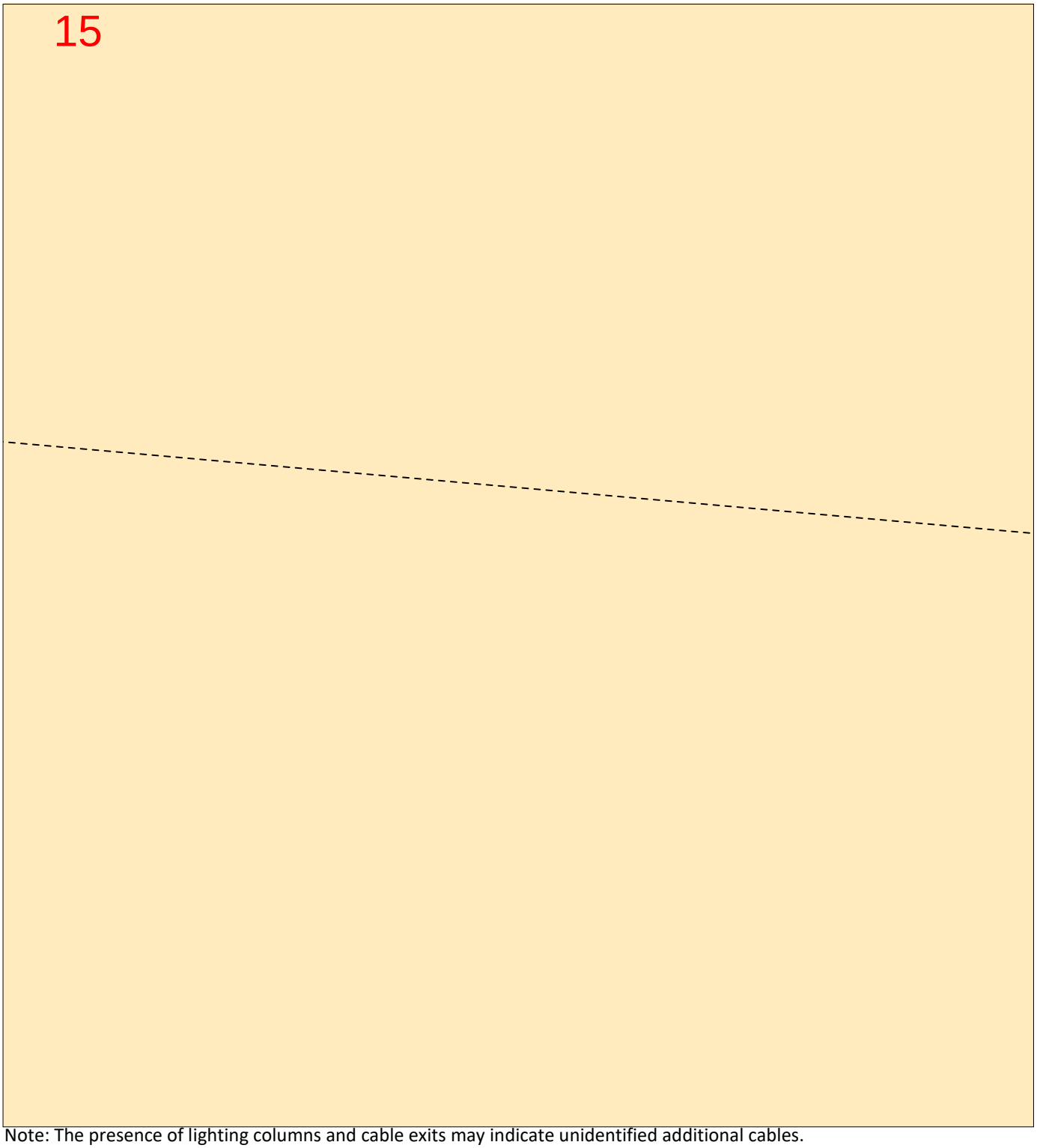
Date: 14/05/2025

SA Power Networks

Map 15

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

SA Power Networks

Map 16

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna

Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

Date: 14/05/2025

SA Power Networks

Map 17

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna

Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

SA Power Networks

Map 18

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna

Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

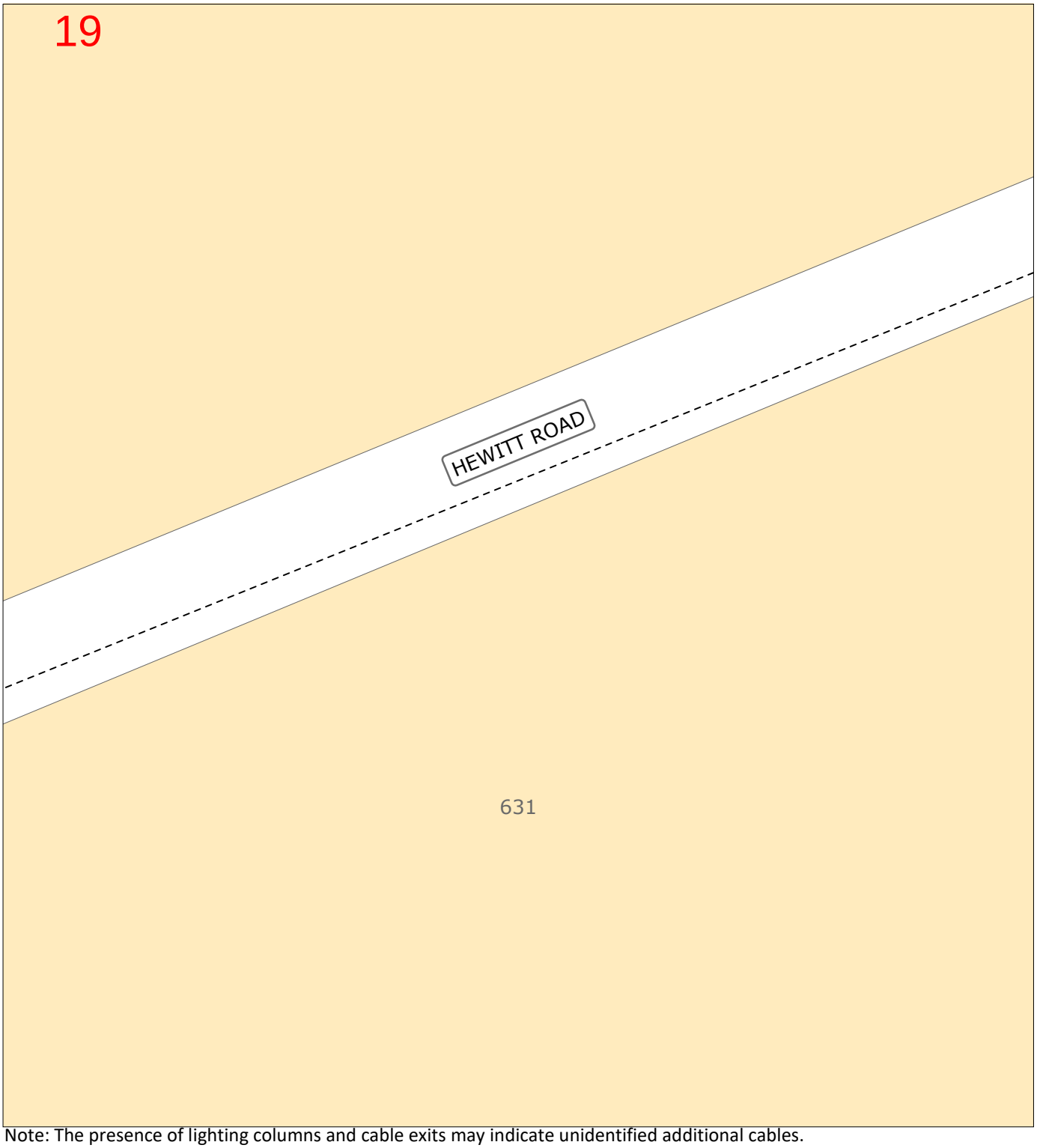
0 0.009km

Date: 14/05/2025

Map 19

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

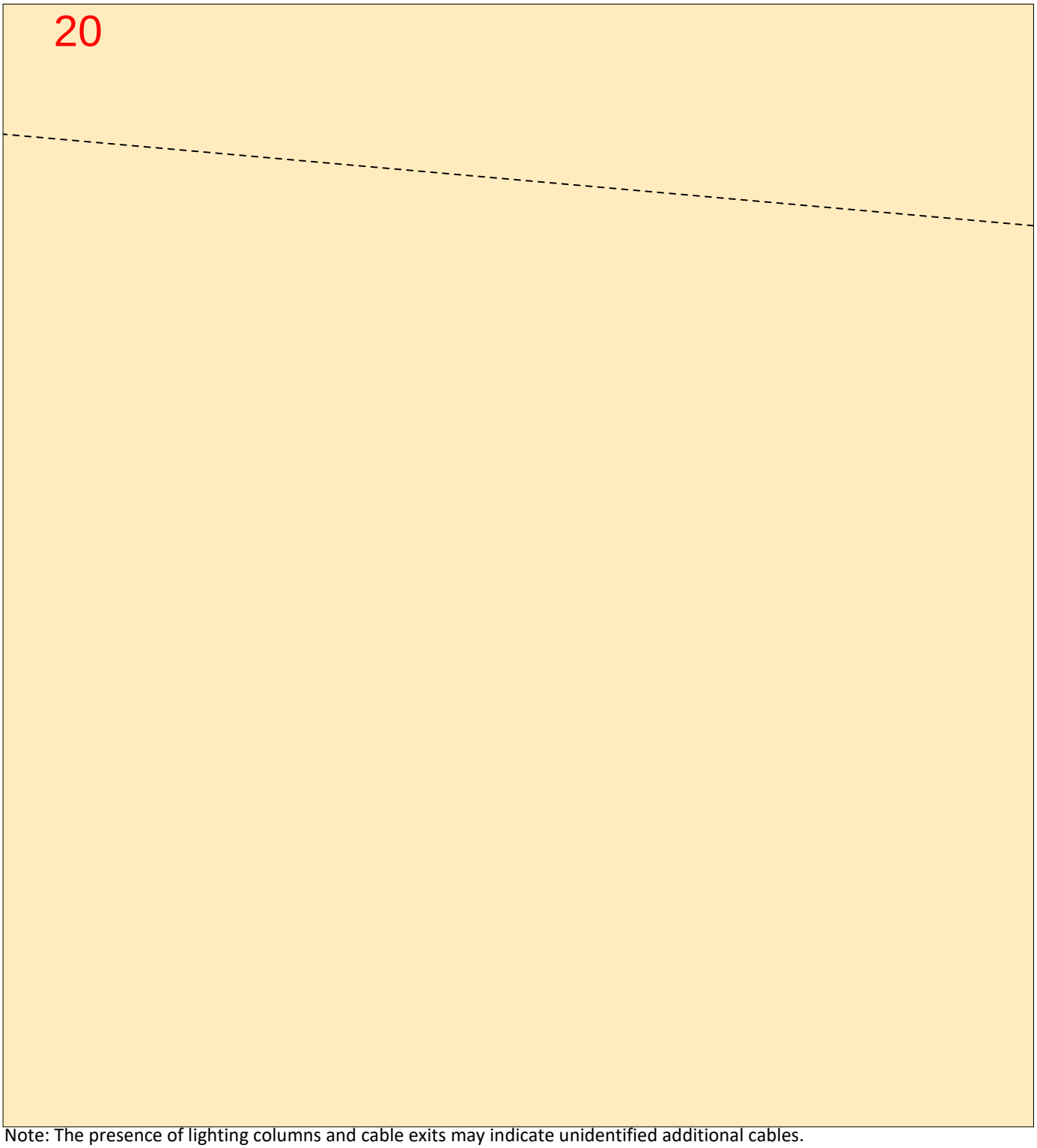
Date: 14/05/2025

SA Power Networks

Map 20

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

Date: 14/05/2025

Map 21

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna

Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

SA Power Networks

Map 22

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna

Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

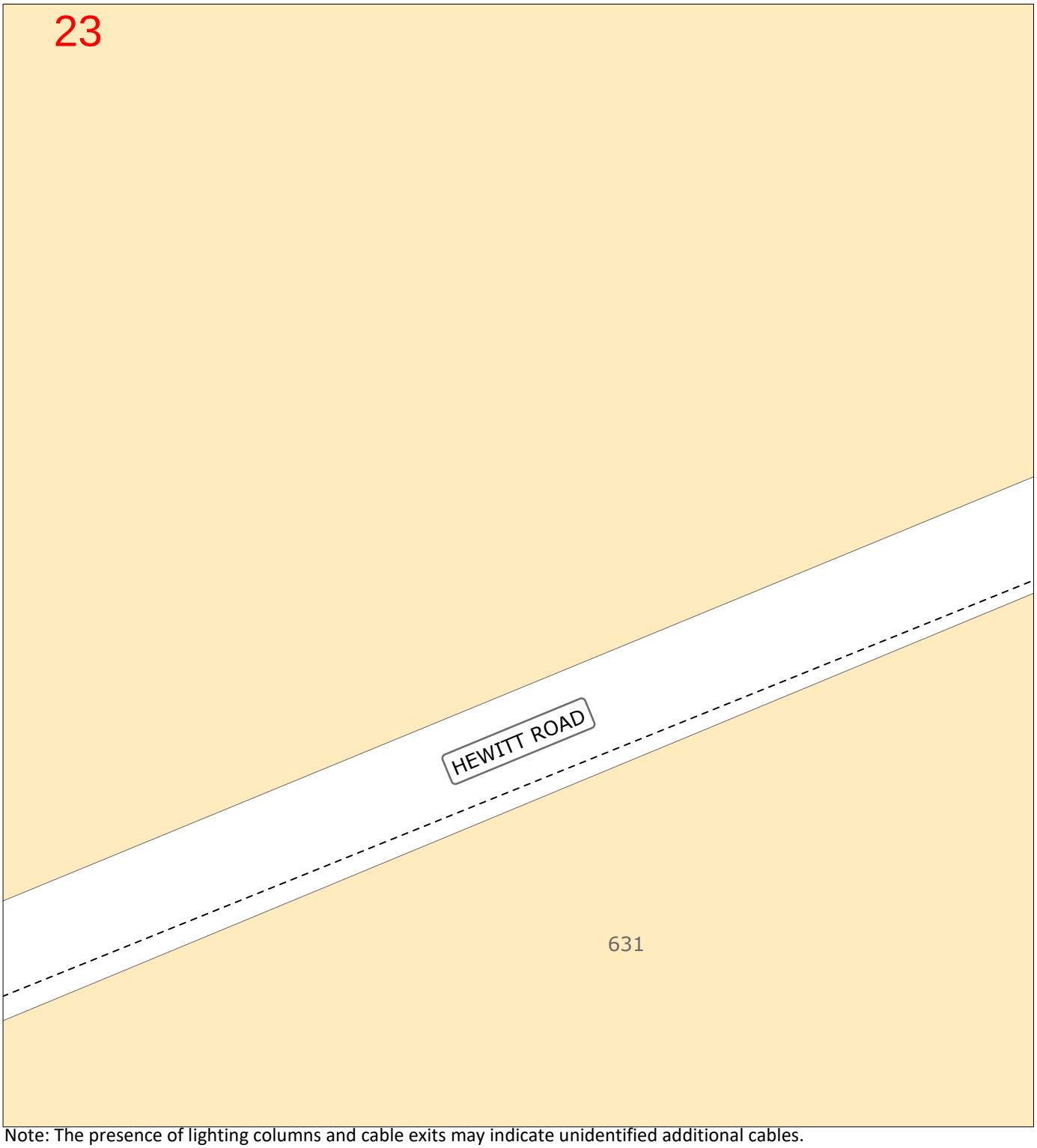
Date: 14/05/2025

SA Power Networks

Map 23

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

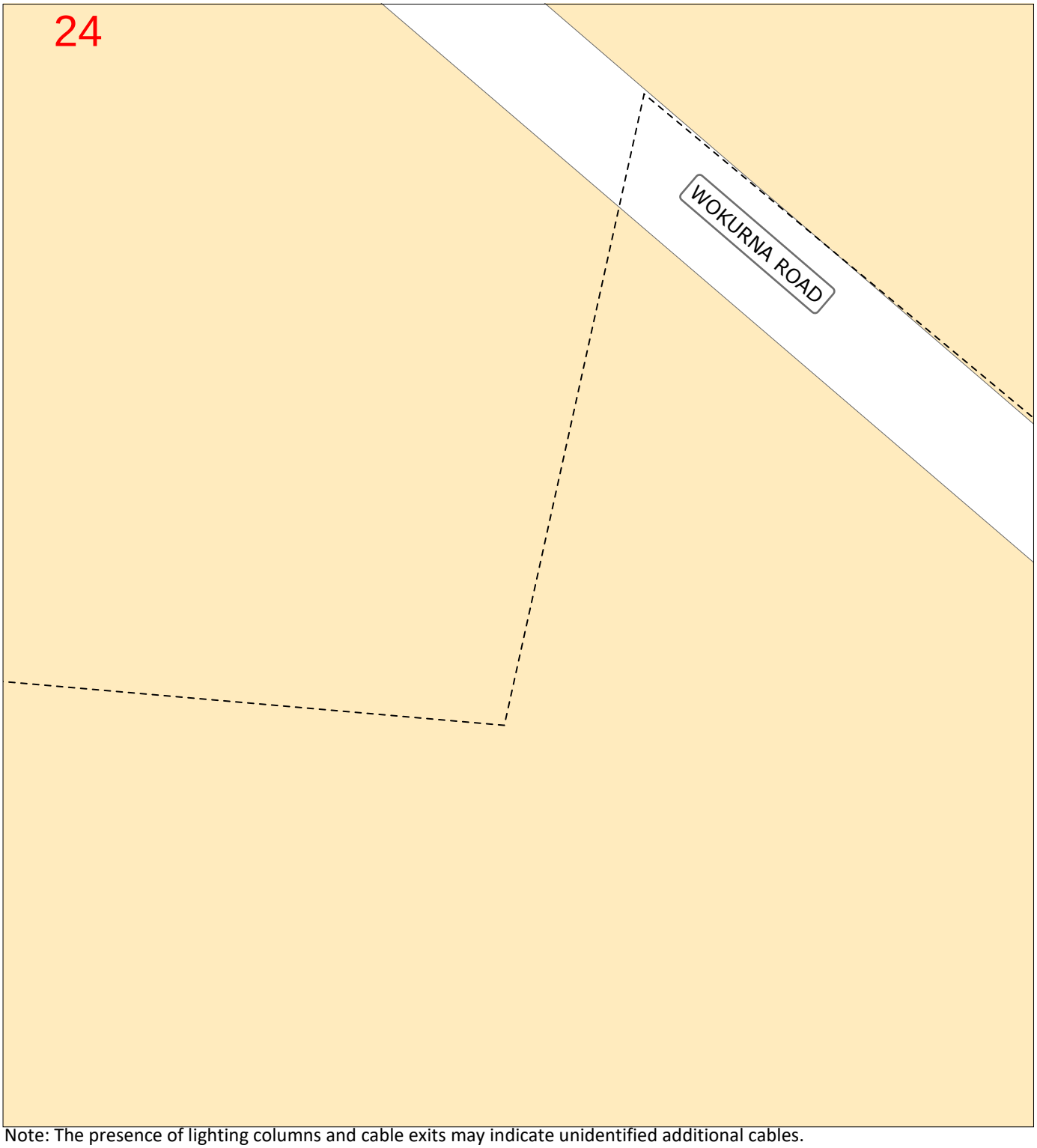
Date: 14/05/2025

SA Power Networks

Map 24

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

SA Power Networks

Map 25

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna

Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

Date: 14/05/2025

SA Power Networks

Map 26

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna

Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

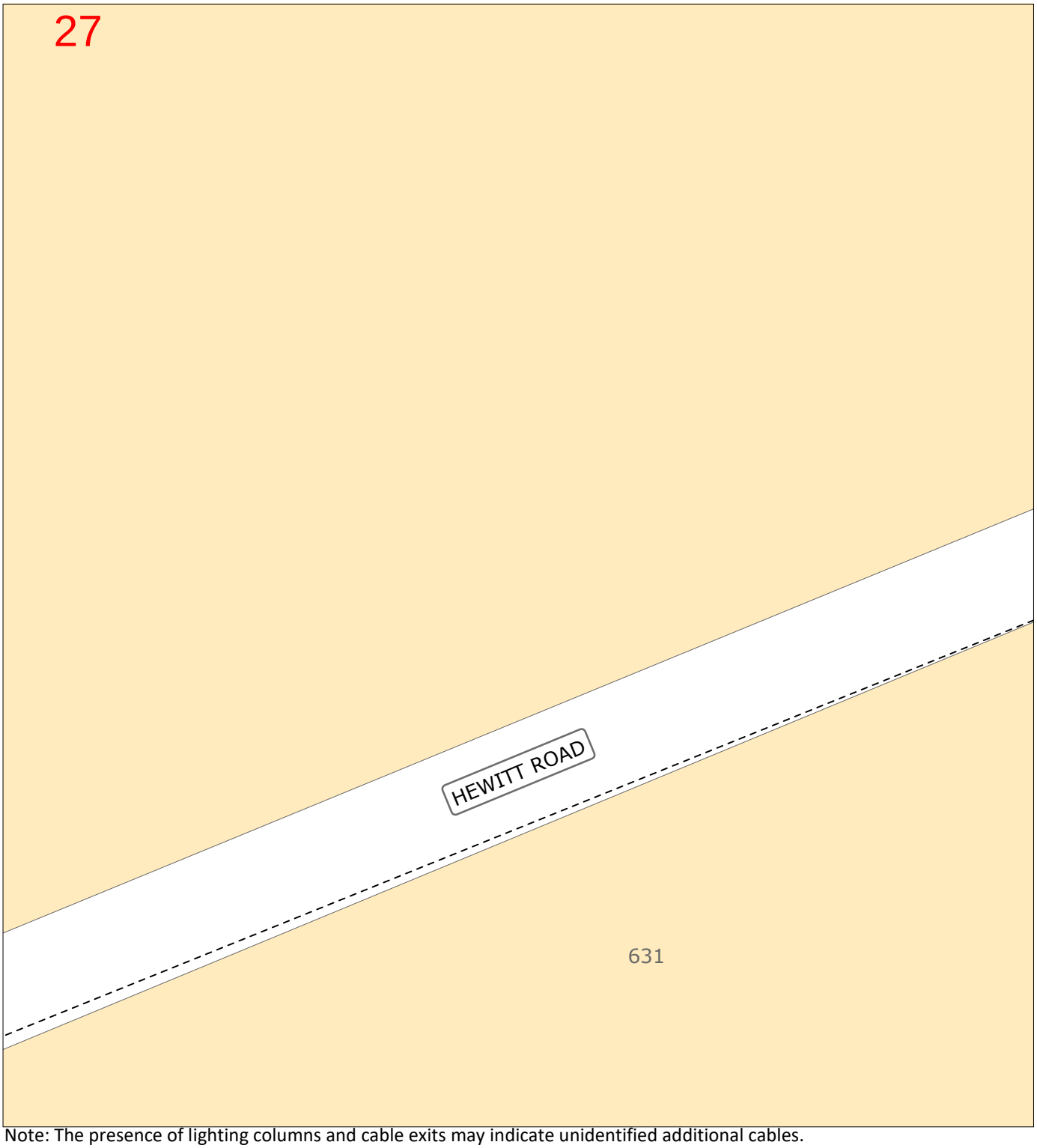
Date: 14/05/2025

SA Power Networks

Map 27

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

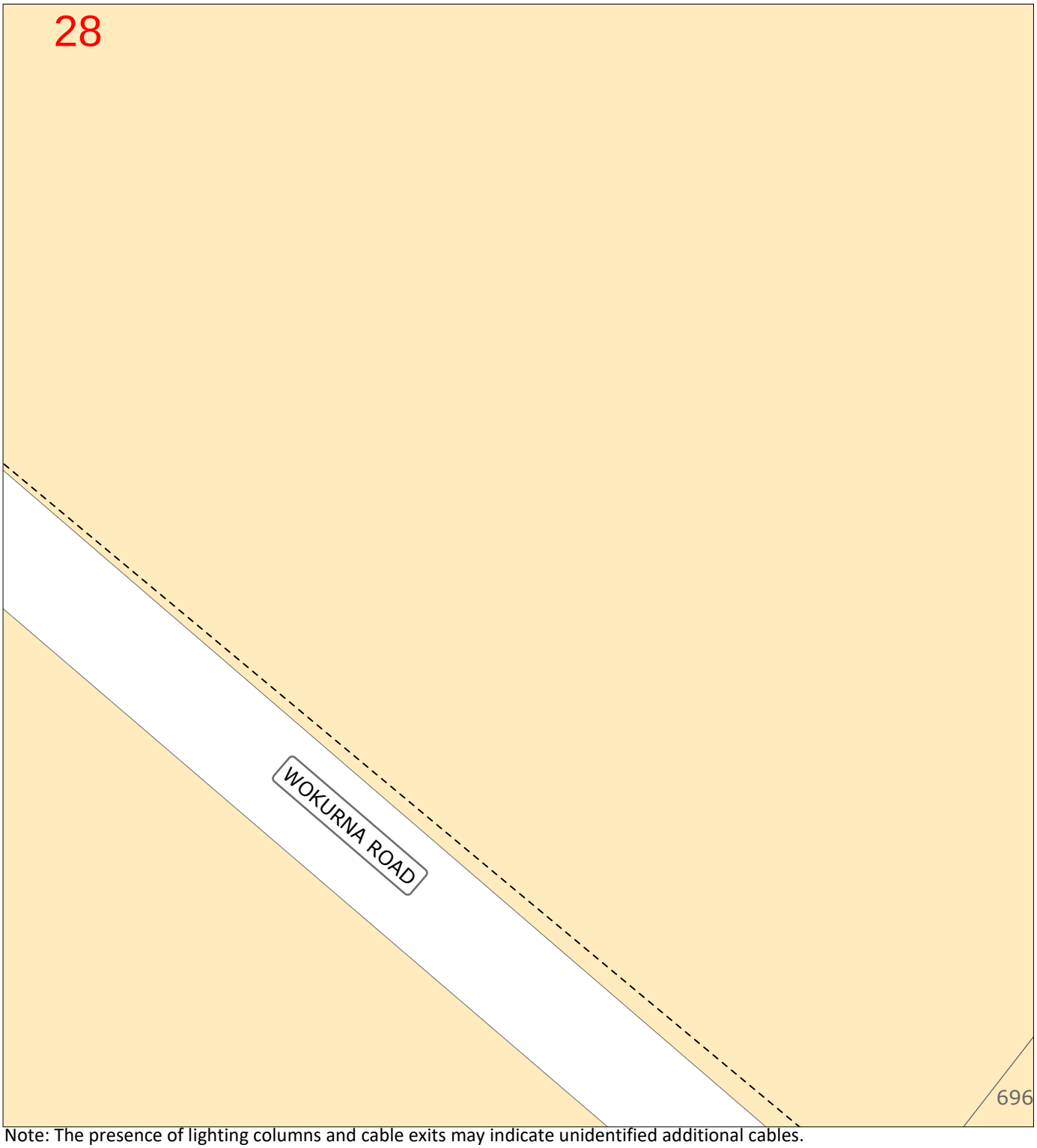
Date: 14/05/2025

SA Power Networks

Map 28

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

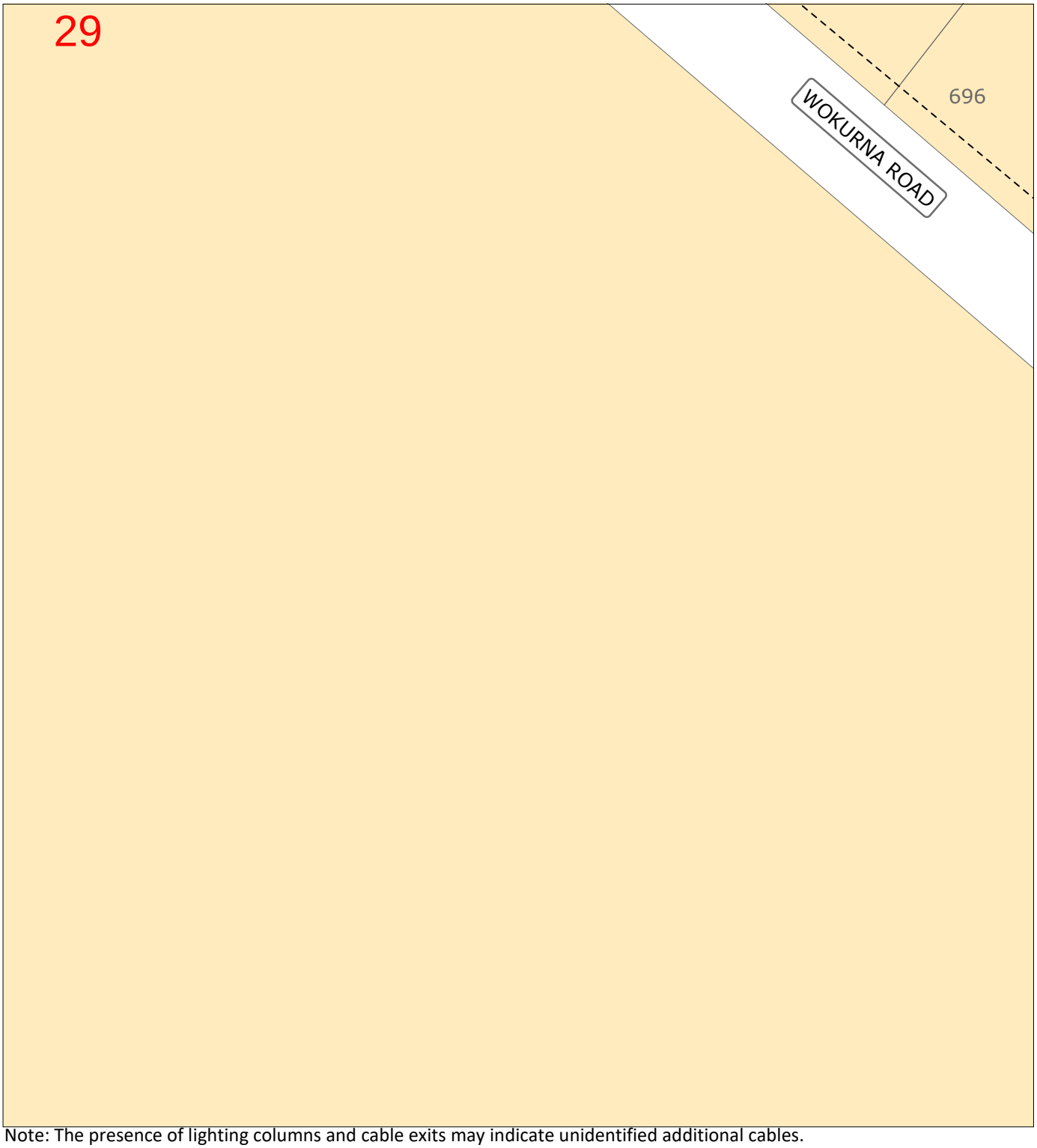
Date: 14/05/2025

SA Power Networks

Map 29

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

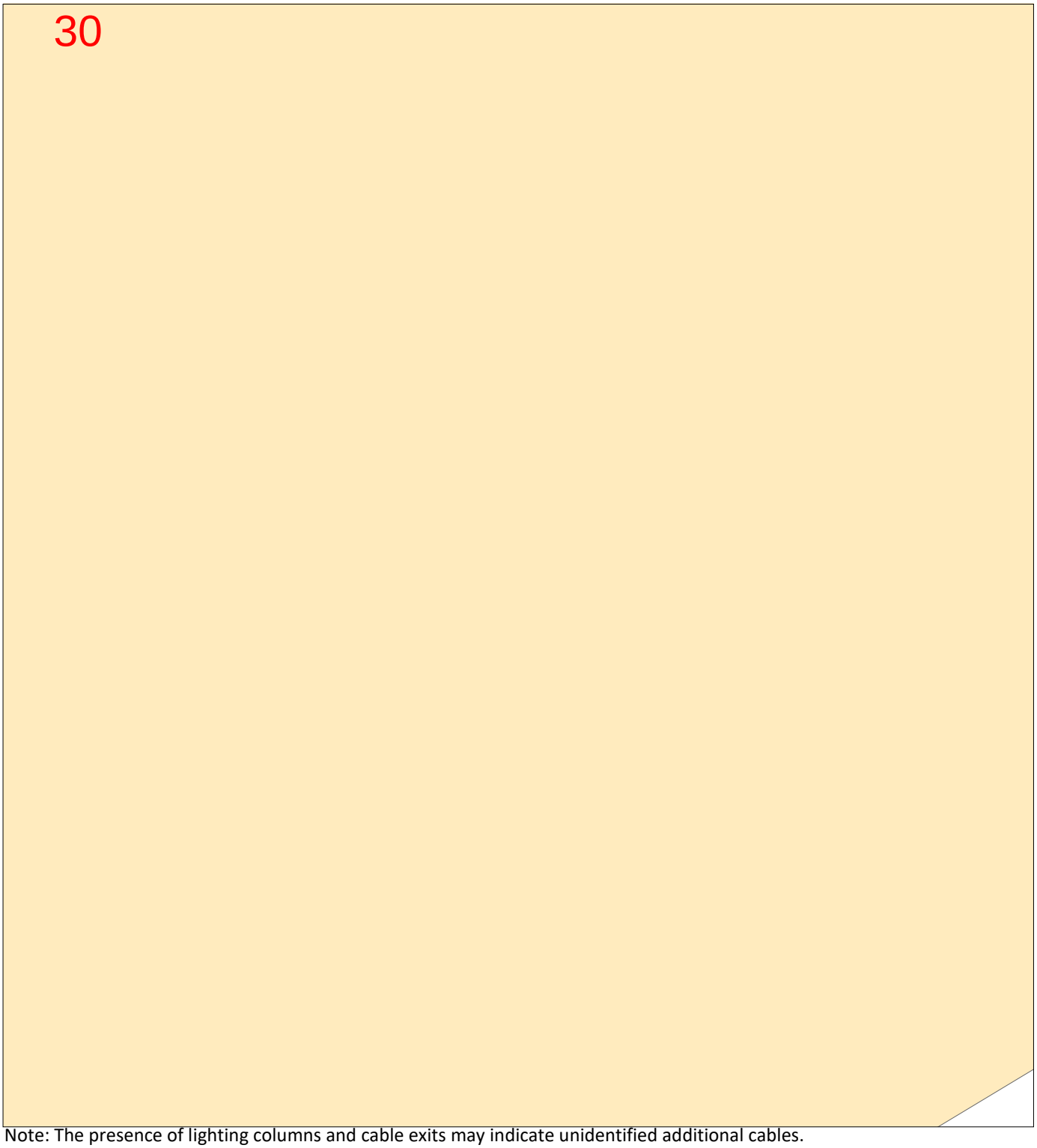
0 0.009km

SA Power Networks

Map 30

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

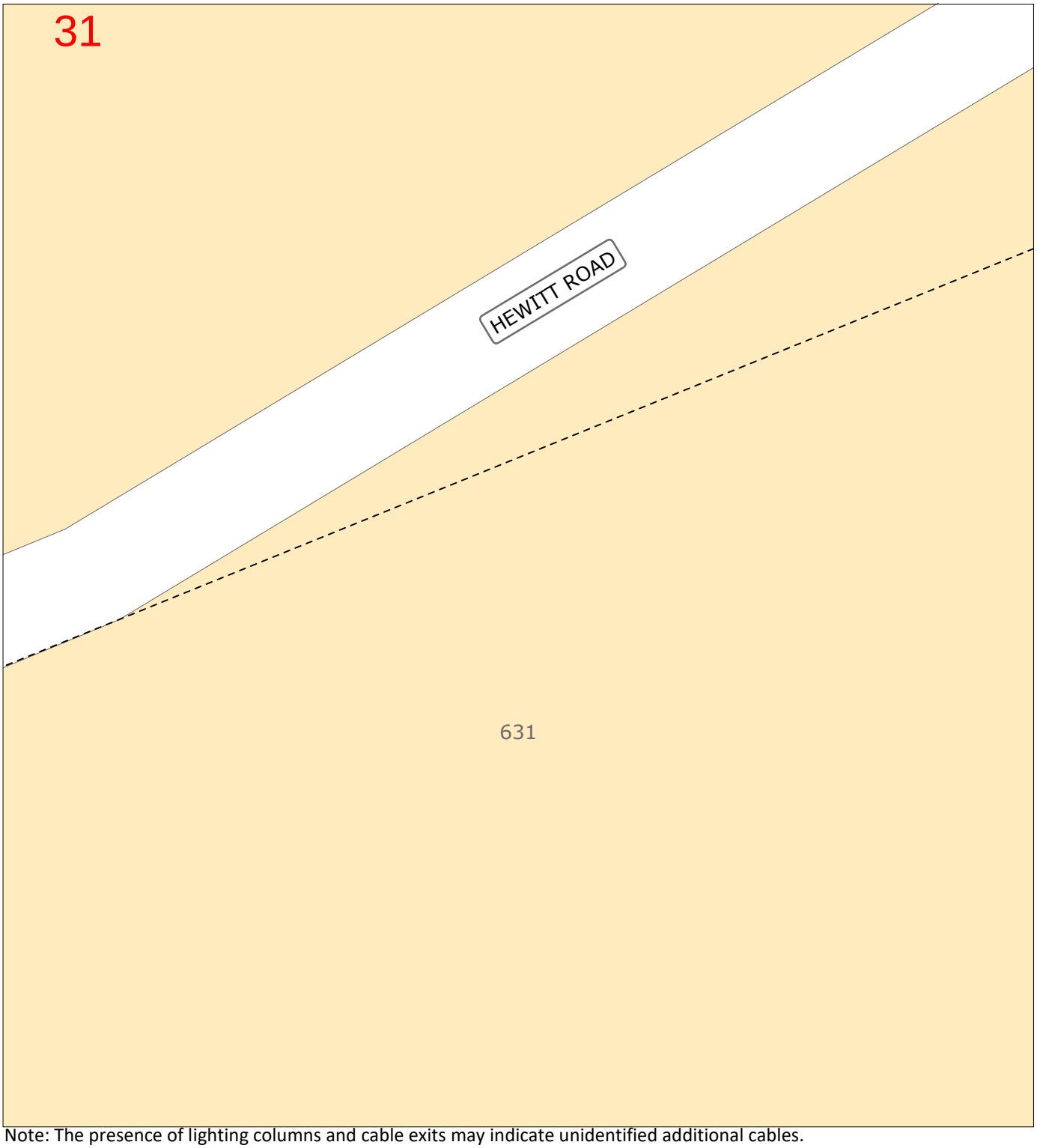
Date: 14/05/2025

SA Power Networks

Map 31

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

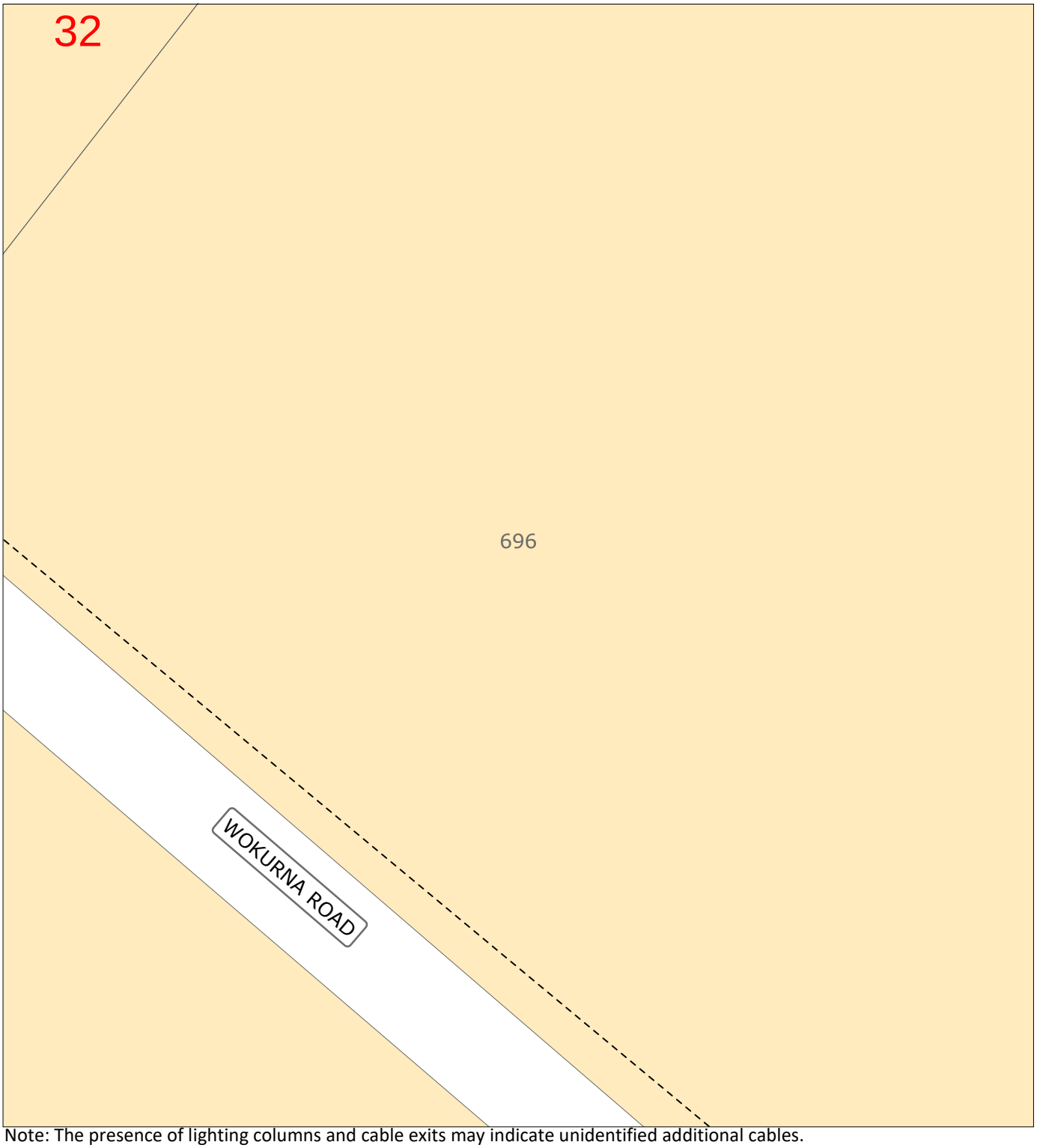
Date: 14/05/2025

SA Power Networks

Map 32

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

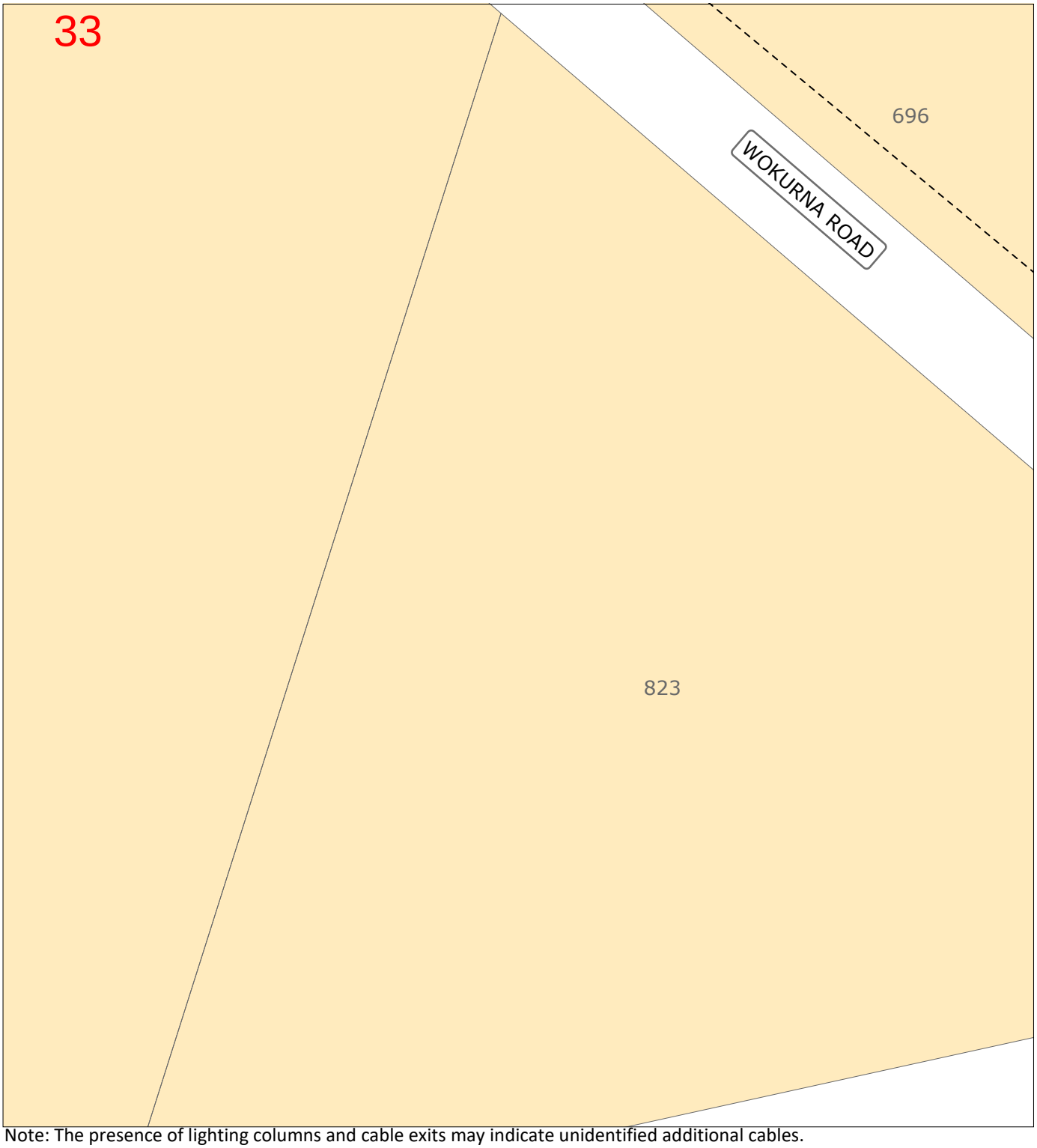
Date: 14/05/2025

SA Power Networks

Map 33

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

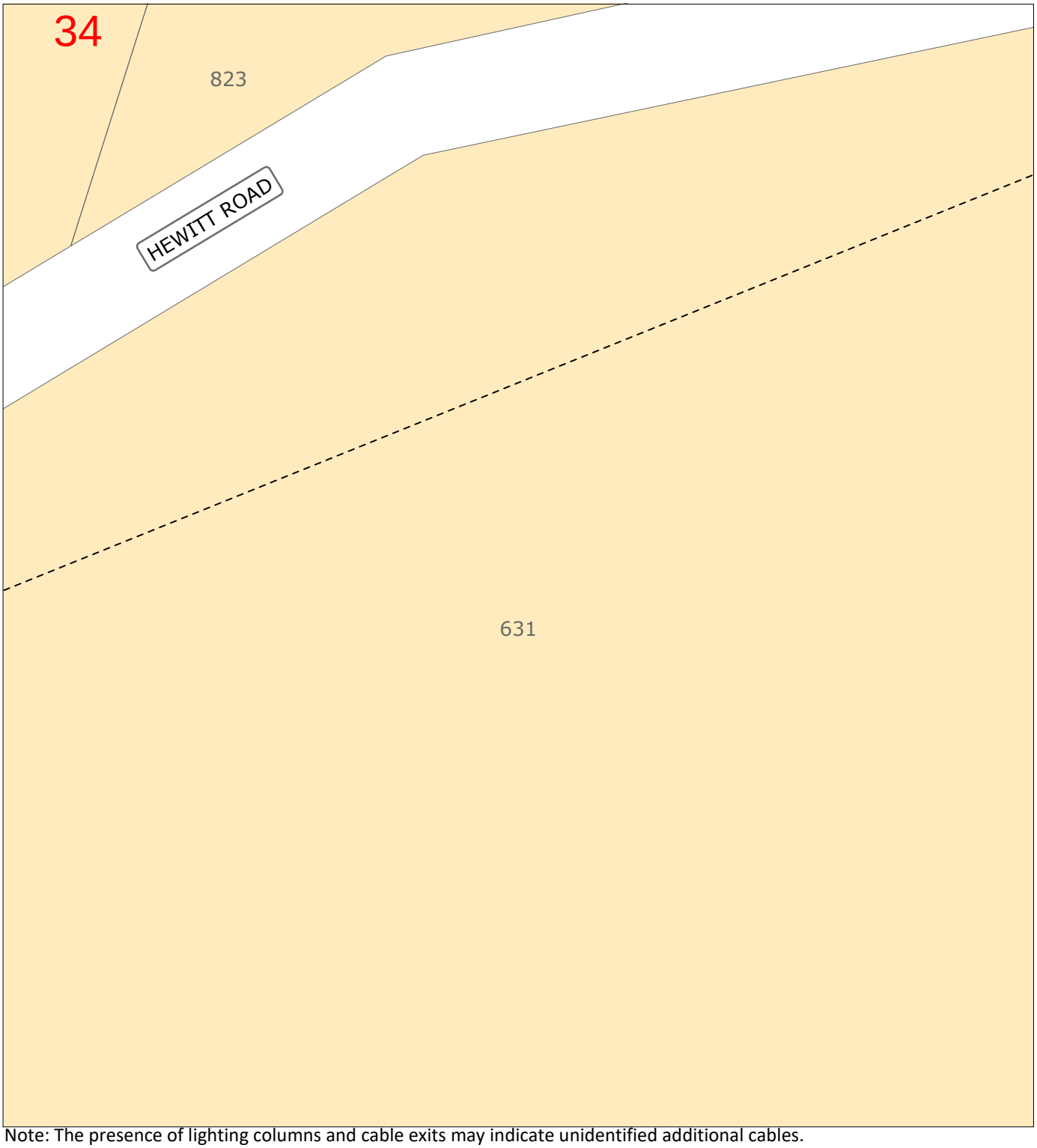
Date: 14/05/2025

SA Power Networks

Map 34

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

LEGEND:

Cable Exits	Cables		
66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
33kV	33kV	HV Switch Unit	Fibre Pit
19kV	19kV	Transformer Unit	Pilot Cable
11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

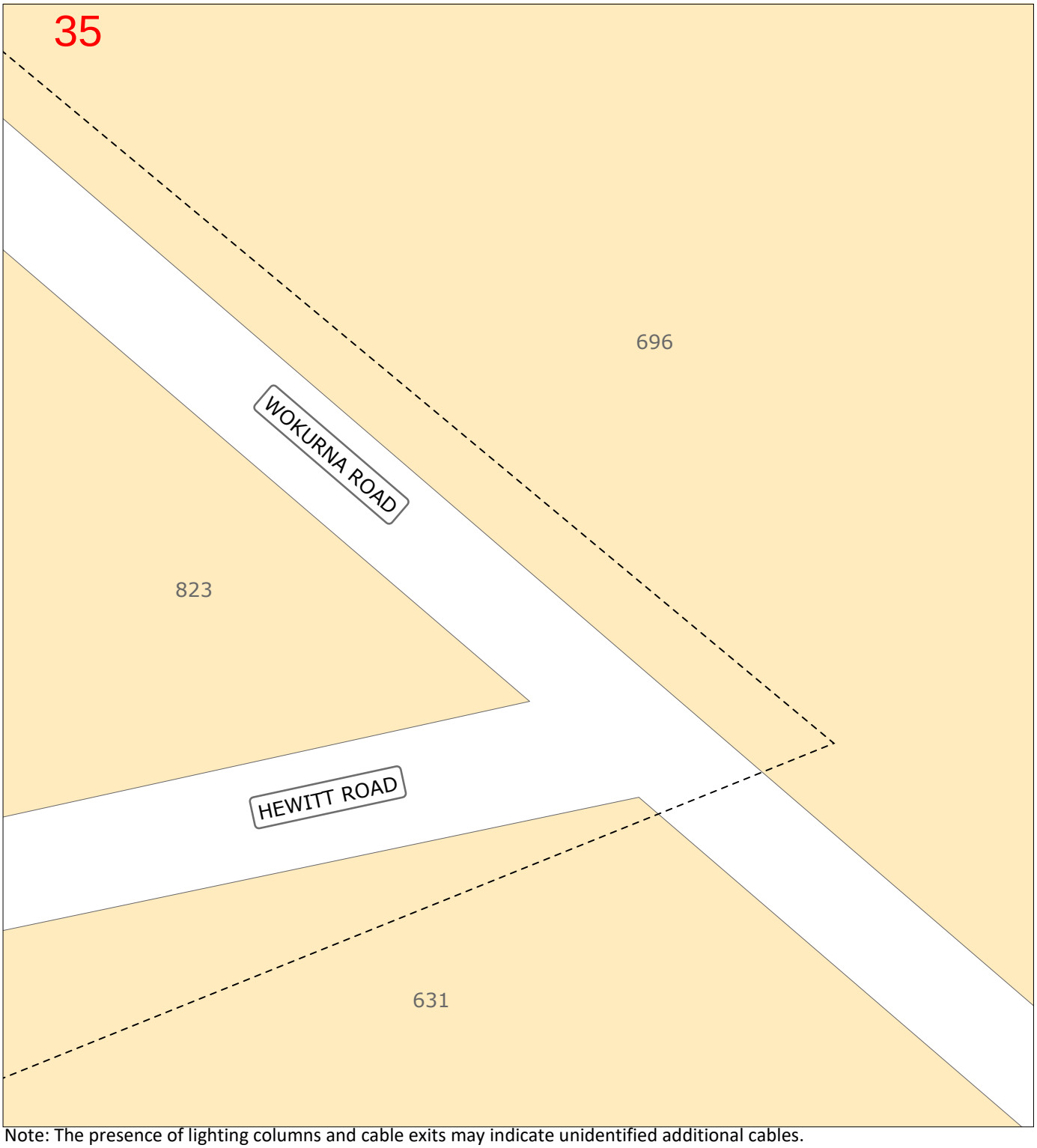
Date: 14/05/2025

SA Power Networks

Map 35

Sequence No: 254995863

Lot 101 Hewitt Road Wokurna



Note: The presence of lighting columns and cable exits may indicate unidentified additional cables.

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66kV/132kV	66kV/132kV	BYD Requested Area	Fibre Cable/Duct
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11kV	11kV	HV Joint Bay	Pilot Manhole/Pit
Other HV	Other HV	LV Unit	Substation
Not In Service	Not In Service	Pit	Electricity Pole
Low Voltage	Low Voltage	Electrical Earthing Area	Light Column

N

0 0.009km

SA Water

Referral
254995860

Member Phone
(08) 7424 1117

Responses from this member

Response received Wed 14 May 2025 11.59am

File name	Page
Response Body	46
Response letter (Assets found) 254995860.pdf	47
ASSET Water 5000 254995860.pdf	48

Attention: **Kingsley Wong**

Thank you for your Before You Dig Australia (BYDA) enquiry.

Job Number: **50178381**

Sequence Number: **254995860**

Dig Site Location: **Lot 101 Hewitt Road Wokurna SA 5520**

According to our records, your enquiry with the following details **impacts our infrastructure**. Please ensure that you read the attached documents, it contains important information including essential steps that must be undertaken prior to commencing construction activities.

This enquiry is valid for **30 days** from the enquiry date.

If you require further information or assistance with interpretation of plans, please contact **SA Water** on **1300 883 121 dialbefore.youdig@sawater.com.au**

This enquiry response, including any associated documentation, has been assessed and compiled from the information detailed within the BYDA enquiry outlined above. Please ensure that the BYDA enquiry details and this response accurately reflect your proposed works.

You may also view the response with an interactive web map below:

View web map

Download spatial data

Notification number:	50178381
Sequence number:	254995860
Enquiry date:	14 May 2025
Enquiry location:	Lot 101 Hewitt Road Wokurna SA 5520

Dear Kingsley Wong

Thank you for contacting Before You Dig **(BYDA)** before starting any work or activities which may affect the water and sewerage infrastructure of SA Water.

Our records indicate there has been SA Water infrastructure identified within your nominated search area and has been shown on the attached plan.

The requirements for works undertaken near SA Water infrastructure are contained in SA Water Technical Standard TS 0136 (Pipework Access and Protection), which is available on the SA Water website.

Disclaimer

The information has been generated by an automated system based on the area highlighted. It is your responsibility to ensure that the dig site is properly defined when submitting your Before You Dig enquiry. If the information does not match the dig site or you have received this message in error, please resubmit your enquiry.

This advice and/or information is given for your private use only. The accuracy of the advice and information is not guaranteed, and no responsibility is accepted by the crown, the South Australian Water Corporation or their officers, agents or servants for any loss or damage caused by reliance upon this advice and/or information, as a result of any error, omission, incorrect description or statement therein whether caused by negligence or otherwise.

The information contained in this message may be confidential and may also be subject of legal, professional or public interest immunity. If you are not the intended recipient any use, disclosure or copying of this document is unauthorised. If you have received this message in error, please contact Dial Before You Dig.

For further enquiries or assistance with interpretation of plans and search content, or to report any obvious errors with the data provided, please contact our Alterations Team via email sawateralterations@sawater.com.au

Thank you for contacting the SA Water Alterations Team.

Kind regards,

SA Water Alterations Team.

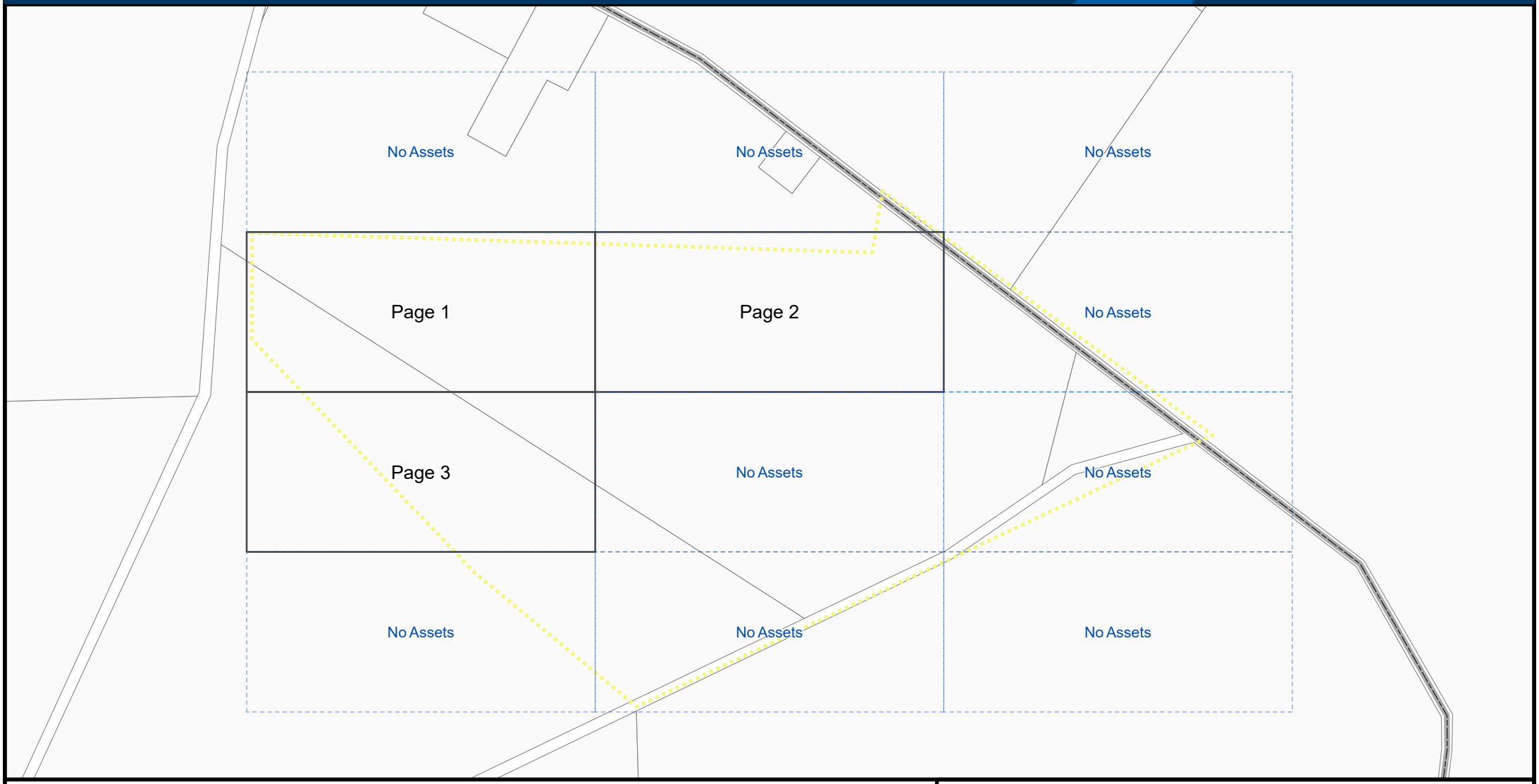
SA Water Alterations

Please note: Any damage to SA Water infrastructure must be reported immediately to our Faults Team (24 hours, 7 days) on 1300 SA WATER (1300 729 283)

WATER RETICULATION

Seq # 254995860

Job # 50178381



BYDA Enquiry

Detailed map page

No dig site assets

Parcels

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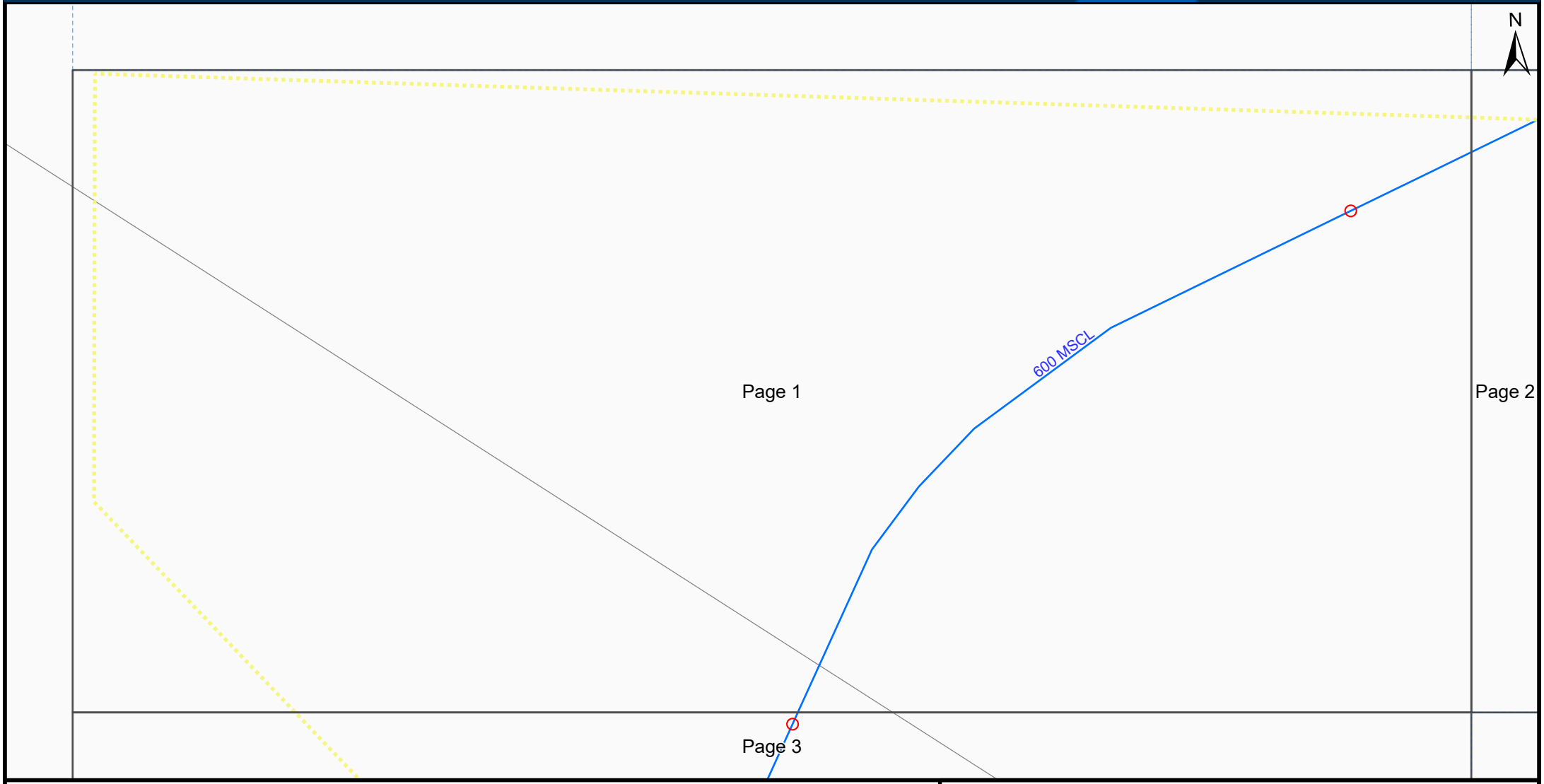
WATER RETICULATION

Seq # 254995860

Job # 50178381



- BYDA Enquiry
- Water Valves
- Water Main
- Decommissioned Asbestos Mains
- Water Pillar Hydrant
- Water Hydrant
- CP Facility
- CP Electricity Supply Cables
- CP Anode Cathode Cables
- CP Anode Bed Outlines
- Shifted Water Meter*
- Water Meter
- Suburbs and Towns
- Parcels

Scale @ A4: 1:2,500

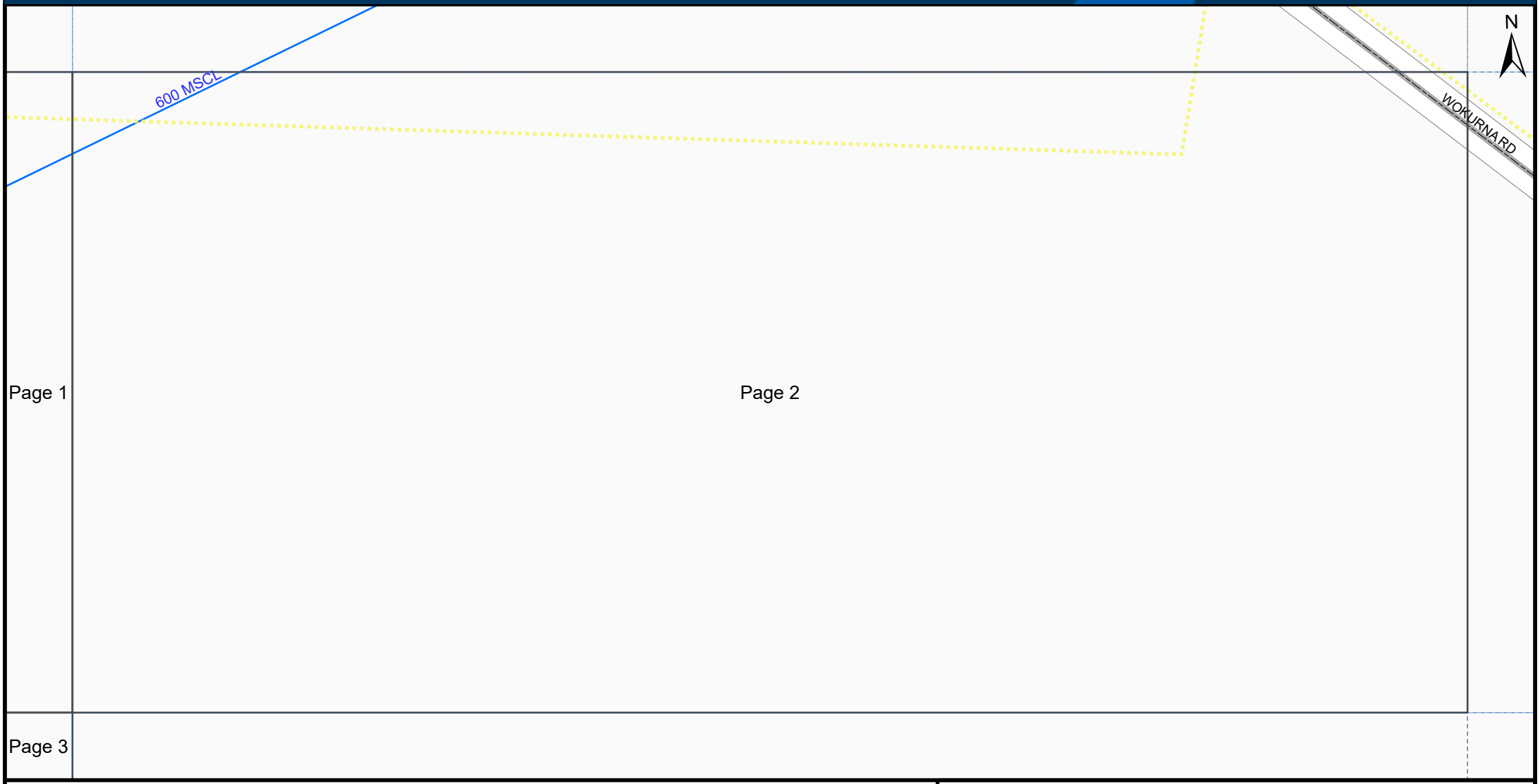
Connection between water meter and pipe not shown

This advice and/or information is given for your private use only. The accuracy of the advice and information is not guaranteed, and no responsibility is accepted by the crown, the South Australian Water Corporation or their officers, agents or servants for any loss or damage caused by reliance upon this advice and/or information, as a result of any error, omission, incorrect description or statement therein whether caused by negligence or otherwise.

WATER RETICULATION

Seq # 254995860

Job # 50178381



- BYDA Enquiry
- Water Valves
- Water Main
- Decommissioned Asbestos Mains
- Water Pillar Hydrant
- Water Hydrant
- CP Facility
- CP Electricity Supply Cables
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- Suburbs and Towns
- Parcels

Scale @ A4: 1:2,500

***Connection between water meter and pipe not shown**

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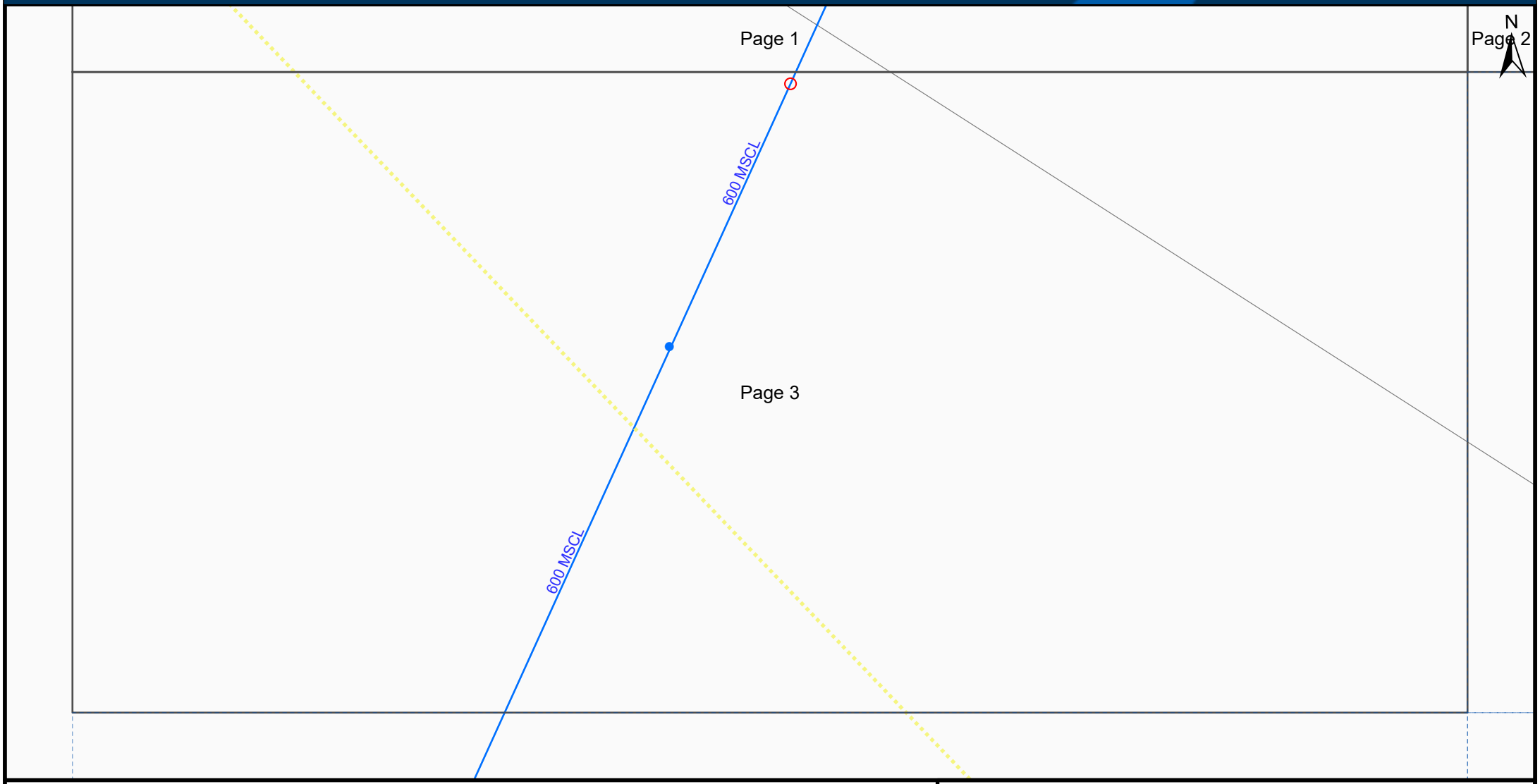
WATER RETICULATION

Seq # 254995860

Job # 50178381



- BYDA Enquiry
- Water Valves
- Water Main
- Decommissioned Asbestos Mains
- Water Pillar Hydrant
- Water Hydrant
- CP Facility
- CP Electricity Supply Cables
- CP Anode Cathode Cables
- CP Anode Bed Outlines
- Shifted Water Meter*
- Water Meter
- Suburbs and Towns
- Parcels

Scale @ A4: 1:2,500

Connection between water meter and pipe not shown

This advice and/or information is given for your private use only. The accuracy of the advice and information is not guaranteed, and no responsibility is accepted by the crown, the South Australian Water Corporation or their officers, agents or servants for any loss or damage caused by reliance upon this advice and/or information, as a result of any error, omission, incorrect description or statement therein whether caused by negligence or otherwise.

Wakefield Regional Council

Referral
254995861

Member Phone
(08) 8862 0800

Responses from this member

Response received Wed 14 May 2025 11.58am

File name	Page
Response Body	53
4. Council Member Cover Letter and Duty of Care template V3 (004) 254995861.pdf	54
ASSET 254995861.pdf	56

Attention: **Kingsley Wong**

Thank you for your Before You Dig (BYDA) enquiry.

Job Number: **50178381**

Sequence Number: **254995861**

Dig Site Location: **Lot 101 Hewitt Road Wokurna SA 5520**

According to our records, your enquiry with the following details **does not impact our infrastructure**.

This enquiry is valid for **30 days** from the enquiry date.

If you require further information or assistance with interpretation of plans, please contact **Wakefield Regional Council** on **(08) 8862 0800 admin@wrc.sa.gov.au**

This enquiry response, including any associated documentation, has been assessed and compiled from the information detailed within the BYDA enquiry outlined above. Please ensure that the BYDA enquiry details and this response accurately reflect your proposed works.

WAKEFIELD
REGIONAL COUNCIL

Date: 14 May 2025

To:
Kingsley Wong
Level 15, 28 Freshwater Place
Southbank VIC 3006

According to our records your enquiry with the following details impacts our infrastructure. Please review other documents included with this response for additional details:

Sequence No: 254995861
Job No: 50178381
Location: Lot 101 Hewitt Road Wokurna 5520

If you require further information, please contact the Wakefield Regional Council on (08) 8862 0800

Please note, if you are planning to conduct works on the road verge adjacent to your property, and you are not working under the Electricity Act 1996 or the Water Industry Act 2012, you need to obtain approval from Wakefield Regional Council prior to commencing any works. Under Section 221 of the Local Government Act 1999 a person (other than the council or a person acting under some other statutory authority) must not make an alteration to a public road unless authorised to do so by the council. The Act describes a public road as extending from property boundary to property boundary and includes the carriageway, footpaths and verges.
A maximum penalty of $5000 can be imposed on a person who makes alterations to a public road without Council approval. These approvals are required to ensure the safety of yourselves and the community.
To obtain approval, please complete and return a 'Roads and Roadsides – Application to Alter' for located on the Council website at https://www.wrc.sa.gov.au/permits-and-forms

This enquiry is valid for 30 days from the enquiry date.

Important Notice: This enquiry response, including any associated documentation, has been assessed and compiled from the information detailed within your BYDA enquiry**. Please ensure that the BYDA enquiry details and this response accurately reflect your proposed works.**

Please note: When working in the vicinity of Wakefield Regional Council assets you have a legal 'Duty of Care' that must be observed.

Please ensure that you read the 'Duty of Care' details (below) - it contains important information including essential steps that must be undertaken prior to commencing construction activities.

We recommend that you engage the services of a Certified Locator otherwise you may be liable for damage costs if no location is undertaken, or uncertified locators are used. (mandatory requirements for Certified Locators include having appropriate training, equipment and having current insurance).

Important Information

In particular Wakefield Regional Council wishes to advise –

- The actual location of any Wakefield Regional Council assets may differ significantly from the position shown on the attached plans. *(refer to the Duty of Care details below for further information on the accuracy of supplied information)*
- All Wakefield Regional Council assets, including underground network, must be validated (physically sighted and identified), prior to commencing any excavation. *(refer to the Duty of Care details below for further information)*
- All Wakefield Regional Council assets once validated must be protected from damage. *(refer to the Duty of Care details below for further information)*
- All trench and pothole reinstatements are to occur no later than 5 days after working occurring, please refer to the standard drawing attached
- If your project is dependent on the position of the Wakefield Regional Council assets, then it is recommended that you validate the position of the network prior to finalising your design. *(refer to the Duty of Care details below for further information)*
- Plans are valid for 30 days after issue and must be replaced if required after the 30 days
- Asset correction (incorrect plans) – Please advise if there are any errors or incorrect locations shown on the plans by contacting Wakefield Regional Council on (08) 8862 0800 or admin@wrc.sa.gov.au
- **Any damage to Wakefield Regional Council owned infrastructure or property must be reported immediately to Wakefield Regional Councli &/or (08) 8862 0800**

Further Information

- http://www.dbydlocator.com/certified-locators/
- Before You Dig Best Practices
- PDF Map Files - free viewing software is available from the internet e.g.
  Adobe Acrobat Reader (http://get.adobe.com/reader/), or
  Foxit Reader (http://www.foxitsoftware.com/downloads/)

If you require further information, please contact the Wakefield Regional Council on (08) 8862 0800 and/or admin@wrc.sa.gov.au

General Responsibilities and Duty of Care

Duty of Care

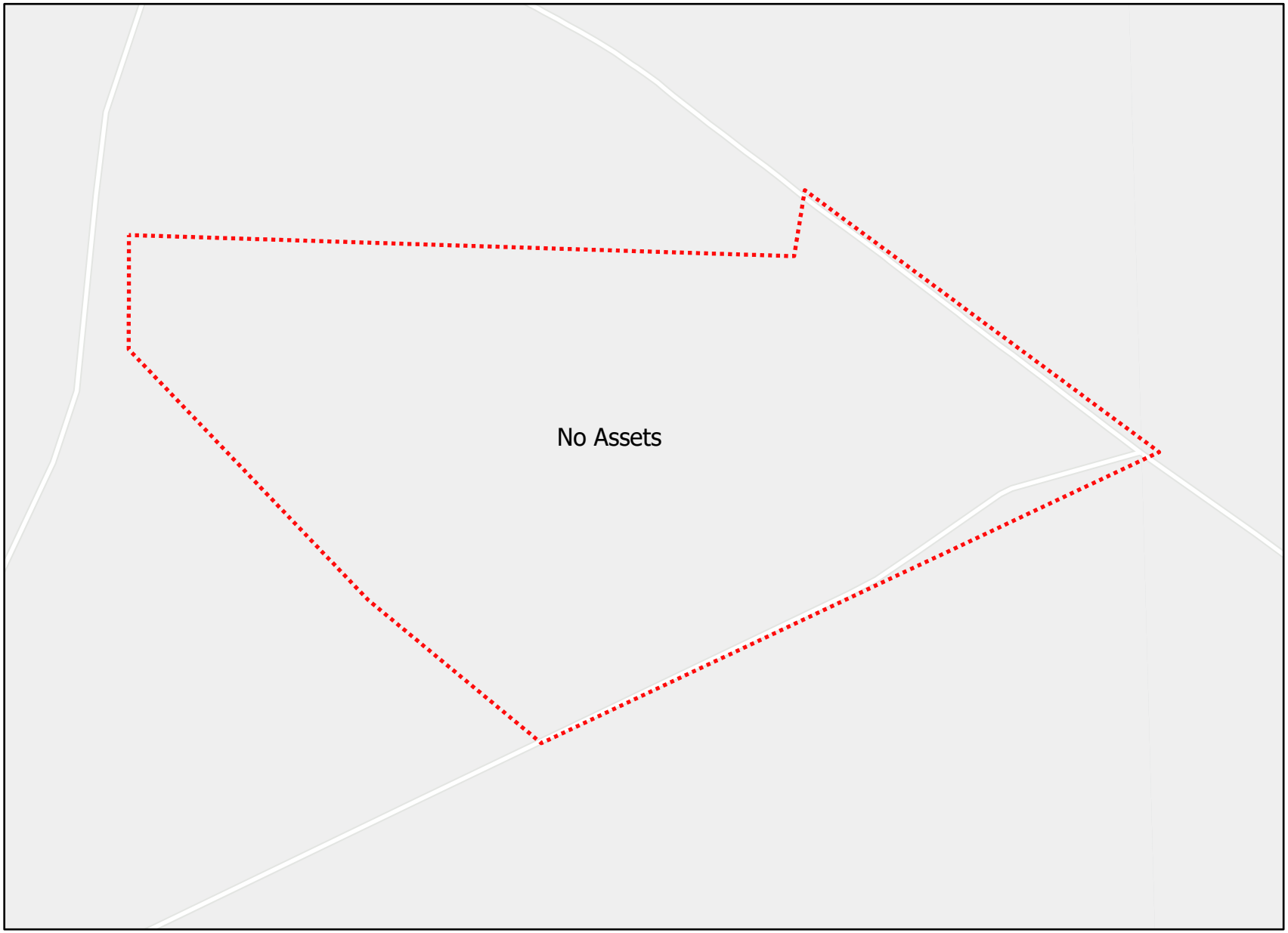
• This enquiry is valid for 30 days from the enquiry date
• Asset location plans are intended to be indicative only, completeness and accuracy of the information provided cannot be guaranteed
• Council infrastructure is not to be altered by any third party without prior approval. Council reserves the right to recover compensation for loss or damage to infrastructure or any property
• Location of underground assets must be confirmed by field investigation. It is recommended an BYDA Certified service locator be engaged for the locating of assets

WAKEFIELD
REGIONAL COUNCIL

Job # 50178381
Seq # 254995861

Provided by Wakefield Regional Council

BEFORE YOU DIG
www.byda.com.au



Legend

BYDA Enquiry

Esri Community Maps Contributors, Esri, TomTom, Garmin, METI/NASA, USGS

Disclaimer: The Plan is provided in response to a Before You Dig request. While all reasonable care has been taken to ensure the accuracy of the information on this plan, its purpose is to provide a general indication of the location of Wakefield Regional Council infrastructure. The information provided may contain errors or omissions and the accuracy may not suit all users. A site inspection and investigation is recommended before commencement of any project based on this data.

In an emergency contact Wakefield Regional Council on (08) 8862 0800

Index Sheet

Plans generated by SmarterWX™ Automate

0 112.5 225 450 m

N

Scale 1:10,000

End of document

This document may exclude some files (eg. DWF or ZIP files)

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Appendix E

Desktop hydrology assessment

Design
for a better
future /

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

Snowtown BESS

Desktop Hydrology Assessment

June 2025

Question today
Imagine tomorrow
Create for the future

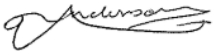
Snowtown BESS
Desktop Hydrology Assessment

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

WSP
Level 17, 83 Pirie Street
Adelaide SA 5000
GPO Box 398
Adelaide SA 5001

Tel: +61 8 8405 4300
Fax: +61 8 8405 4301
wsp.com

Rev	Date	Details
B	2 April 2025	Draft for client review – transferred to report template
C	30 May 2025	Final
D	26 June 2026	Revised final

	Name	Date	Signature
Prepared by:	Baijie Chen Ajinkya Kemble	26 June 2025	
Reviewed by:	Karen Brakell	26June 2025	
Approved by:	Tenille Anderson	26 June 2025	

WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

This document may contain confidential and legally privileged information, neither of which are intended to be waived, and must be used only for its intended purpose. Any unauthorised copying, dissemination or use in any form or by any means other than by the addressee, is strictly prohibited. If you have received this document in error or by any means other than as authorised addressee, please notify us immediately and we will arrange for its return to us.

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Abbreviations

AEP	Annual Exceedance Probability
AIL	Associated Infrastructure Licence
ARR	Australian Rainfall and Runoff
BESS	Battery Energy Storage System
BOM	Bureau of Meteorology
HRE Act	*Hydrogen and Renewable Energy Act 2023*
IFD	Intensity–Frequency–Duration
Km	Kilometres
kV	Kilovolt
MW	Megawatts
Project	All proposed activities for the Snowtown BESS project
Project Area	Land on which the Project is located
SA	South Australia
SSP	Shared Socio-economic Pathway
Tilt Renewables	Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust
WSP	WSP Australia Pty Limited

Executive summary

Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables) is proposing to develop the Snowtown BESS project (the Project) located approximately 10 km northwest of Snowtown in South Australia. The Project includes grid connection to the existing sub-station, located directly east on the adjoining land parcel.

A desktop hydrology assessment for the Project was undertaken to support the application for an Associated Infrastructure Licence, as well as guiding the detailed design of the Project by gaining an understanding of the hydrology setting for the proposed BESS site, including catchment, drainage, and flood conditions. The desktop hydrology assessment shows that:

- Ground elevation is around 218 m at the eastern side and reduces to approximately 209 m at the western side of the BESS site. The ground slopes within the BESS site are approximately 4% to 6%.
- The catchment conveying surface water runoff towards the proposed BESS site is approximately 1 km^2. There is a flow path draining through the BESS site.
- To manage and mitigate the potential flood risks and impacts, the following measures can be considered during the planning and design phases of the Project:
  - Locate key project components (e.g., BESS, electrical infrastructure or buildings) away from the flow paths or raise the finished level of the proposed bench area and these project components above the design flood levels with appropriate freeboard.
  - Include cut-off drains around the proposed bench area to divert the upstream surface runoff. Cross drainage structures or low-level causeways may be required at the proposed access tracks where they cross the cut-off drains and should be further investigated.
  - Assess the onsite detention requirement (e.g., basin) to reduce flood risks and mitigate potential flood impacts.

The conceptual management measures above have been developed based on the preliminary design layout and should be reviewed and updated during detailed design phase. The feasibility of the potential cut-off drains diverting the upstream surface runoff should be further investigated considering the design and environmental constraints, if any.

The desktop hydrology assessment was informed by the 50 cm contours provided by Tilt Renewables. The cross-sectional details of the drainage through the project site are required to assess and define the channel capacity. Therefore, further investigation and flood modelling informed by survey or high-resolution topographic data would be required to define the flooding conditions and inform design solutions. Design rainfall intensities will increase due to climate change, therefore the climate change effects on flood conditions should also be considered for the project design and implementation.

1 Introduction

1.1 Project overview

Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables) is developing the Snowtown Battery Energy Storage System (BESS) project (the Project); a 100-megawatt (MW) BESS with up to 4-hour duration located approximately 10 kilometres (km) northwest of Snowtown in South Australia.

The Project proposes both permanent and temporary infrastructure. Permanent site infrastructure will comprise:

- BESS with capacity of 100 MW with up to 4-hour duration, including Battery Pack Containers, inverters, inverter transformers and associated control, monitoring and protection equipment
- Ancillary infrastructure including auxiliary supply transformers
- Hardstand areas
- Drainage and erosion control
- Internal roads, access tracks and parking
- Water management infrastructure (water tanks, water supply, detention pond, water treatment)
- Onsite buildings (operations and maintenance, switchroom and control room, storage)
- Underground cabling
- Harmonic filter yard (if required)
- Lightning protection rods
- Communications tower (if required)
- Site fencing and security
- Business identification and safety signage.

Temporary site infrastructure will include:

- Construction compound
- Equipment laydown areas
- Fuelling stations
- Washdown bay (if required).

The Project also includes a proposed grid connection to an existing substation located directly east of the proposed BESS site; developed as part of the Snowtown 1 Wind Farm. Modification works to the existing Snowtown Substation will be required as part of the Project to facilitate the connection of the BESS to the electricity grid. Substation works are expected to include:

- Installation of a new isolator and earth switch
- Installation of a 33 kilovolt (kV) conductor between the new isolator and the existing wind farm isolator
- 33 kV cable trench from the BESS Facility into the substation
- Associated protection, control, and metering equipment to be installed in the existing Snowtown Wind Farm substation building.

The Project constitutes a *regulated activity* under the *Hydrogen and Renewable Energy Act 2023* (HRE Act) and will seek licencing under an Associated Infrastructure Licence (AIL). WSP Australia Pty Limited (WSP) have been engaged to prepare an Environmental Impact Report, Statement of Environmental Objectives and technical studies to support the AIL application.

1.2 Project Area

The Project will be located on an approximate 13-hectare site (the Project Area) located directly west of an existing ElectraNet substation; at the junction of Wokurna Road and Hewitt Road, Wokurna. The Project Area is shown below in Figure 1.1.

The Project Area has two road frontages; Wokurna Road along the northern boundary and Hewitt Road along the southern boundary. The primary access point to the Project Area will be created off Wokurna Road and will be used to support the construction phase as well as the operation phase of the Project. Hewitt Road will be used as emergency and secondary access to the facility.

The Project Area is currently used for cropping and has been cleared of native vegetation.

Legend

- Project Area
- Existing 132kV Transmission Line
- Existing 33kV Transmission Line
- Indicative Underground Cable
- Indicative Underground Substation Cable
- Indicative BESS Infrastructure
- Indicative Internal Road
- Indicative Bench
- Indicative Switchroom and Control Room
- Indicative Harmonic Filter
- Indicative O&M Building
- Indicative Detention Pond
- Indicative Water Tank
- Indicative Washdown Bay
- Indicative Spare BESS Infrastructure
- Indicative Fence
- Existing Substation
- Tilt Owned Land
- Cadastre

Note: Indicative layout and subject to change

Date: 23/05/2025
Version: C
GDA2020 MGA Zone 54
1:3,000

N

0 50 100 Meters

Document Path: G:\GIS\Project Data\Development\SA\SnowTown Battery Storage\Maps\mxd\STBS_13A_RL_Preliminary Layout_A3L_20250521.mxd

Snowtown BESS

Indicative Project Layout

renewables

1.3 Scope of report

The aim of this assessment is to assess the hydrology and flood conditions of the proposed Snowtown BESS project infrastructure footprint (the BESS site), which is comprised of the portions of the Project Area.

1.4 Legislative and policy requirements

The relevant South Australia Planning and Design Code Overlays applicable to the site relating to flooding include:

- Hazards (Flooding – Evidence Required) Overlay: The Hazards (Flooding – Evidence Required) Overlay adopts a precautionary approach to mitigate potential impacts on people, property, infrastructure and the environment from potential flood risk through appropriate siting and design of development.
- Water Resources Overlay: The Water Resources Overlay seeks to protect the quality of surface waters considering adverse water quality impacts associated with projected reductions in rainfall and warmer air temperatures as a result of climate change. Maintain the conveyance function and natural flow paths of watercourses to assist in the management of flood waters and stormwater runoff.

1.5 Assessment methodology

The following objectives have been completed as part of this assessment:

- obtain and review available topographic data and climate data including rainfall data.
- delineate and define catchments areas contributing to surface water runoff.
- identify constraints and limitations from a flood risk perspective.

The following limitations apply to the assessment:

- Topography data: The desktop hydrology assessment for the BESS site is based on the 50 cm and 1 m contours provided by Tilt Renewables. Cross-sectional details of the drainage through the project site are not available to assess the channel capacity.
- Gauges data (such as rainfall or stream flow data) within the catchment: No gauge data were available to inform the assessment.
- Historical flood data: No historical flood data is available for the BESS site.

The desktop hydrology assessment is only intended to inform flow paths and high-level flood conditions and are not intended for assessing design flood levels and planning levels. Further hydrology and hydraulic modelling and analysis informed by survey or high-resolution topographic data will be required to inform the design.

2 Existing conditions

The following sections describe the existing conditions of the BESS site, as defined by a desktop review of all available data.

2.1 Topography

The topography used in the assessment has been defined through the 50 cm LiDAR contours captured in October 2017 and provided by Tilt Renewables on 7 November 2024, which covers approximately 8 km² from the existing substation to Barunga Top Road downstream of the BESS site. The 1 m contours covering the area further upstream of the BESS site was also provided by Tilt Renewables and was used for catchment delineation.

The topography in the vicinity of the BESS site is shown in Figure 2.1. Based on the 50 cm contours, ground elevation is around 218 m at the eastern side and reduces to approximately 209 m at the western side of the BESS site. The ground slopes within the BESS site are approximately 4% to 6%.

2.2 Catchment and drainage

The BESS site is located on the western side of the hillside and is on the western side of the existing sub-station. Figure 2.2 shows the locality of the BESS site, as well as the contributing catchment to the BESS site and flow directions of the catchments. The catchment draining directly towards the proposed BESS site has a catchment area of approximately 1 km^2 (999994.34 m^2). An existing flow path is draining through the proposed BESS site.

The nearby substation culvert (location shown in Figure 2.1) discharges towards the proposed BESS site from the north-eastern corner.

The current land use within the BESS site is predominately rural use.

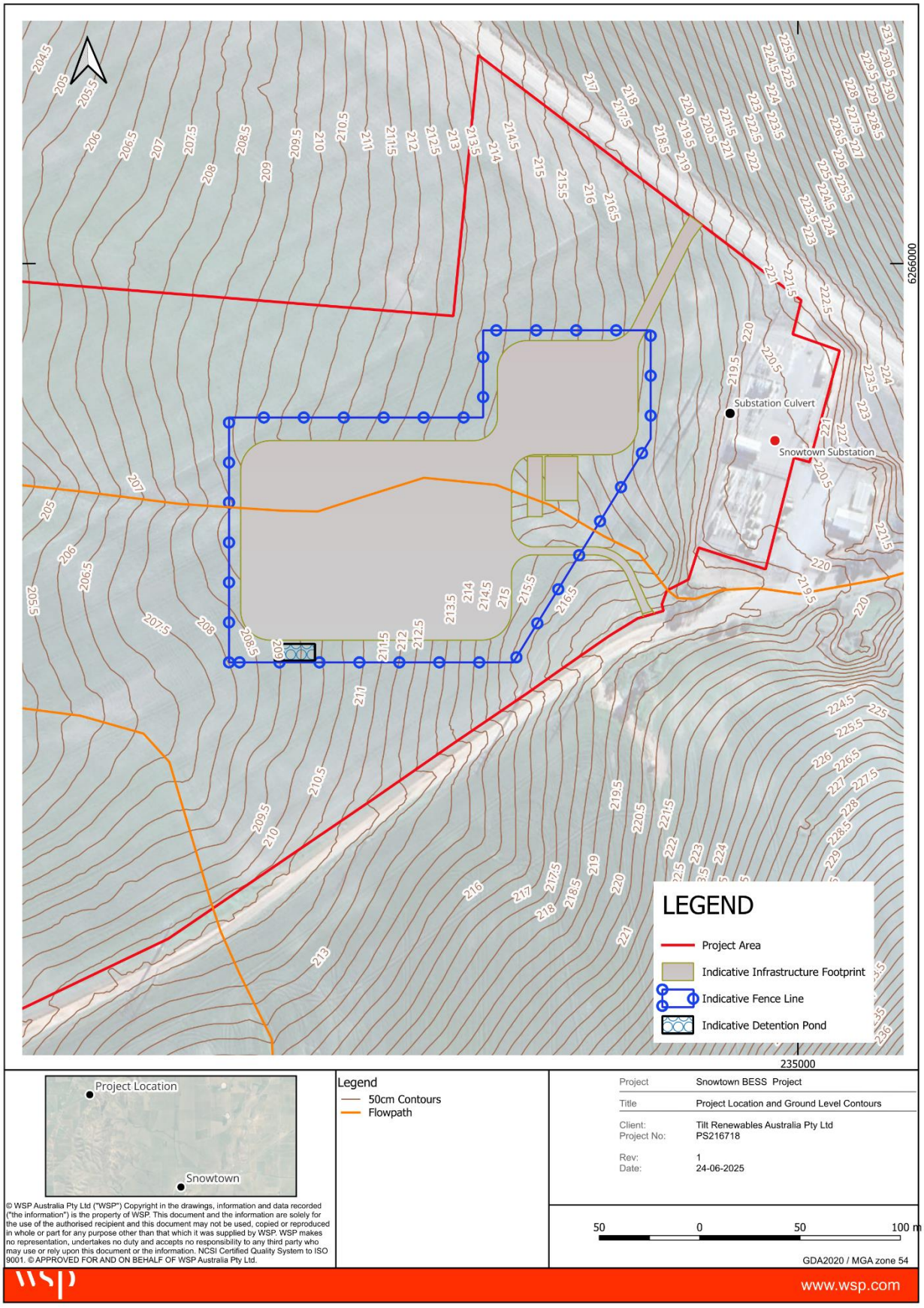

Figure 2.1 Project location and ground level contours

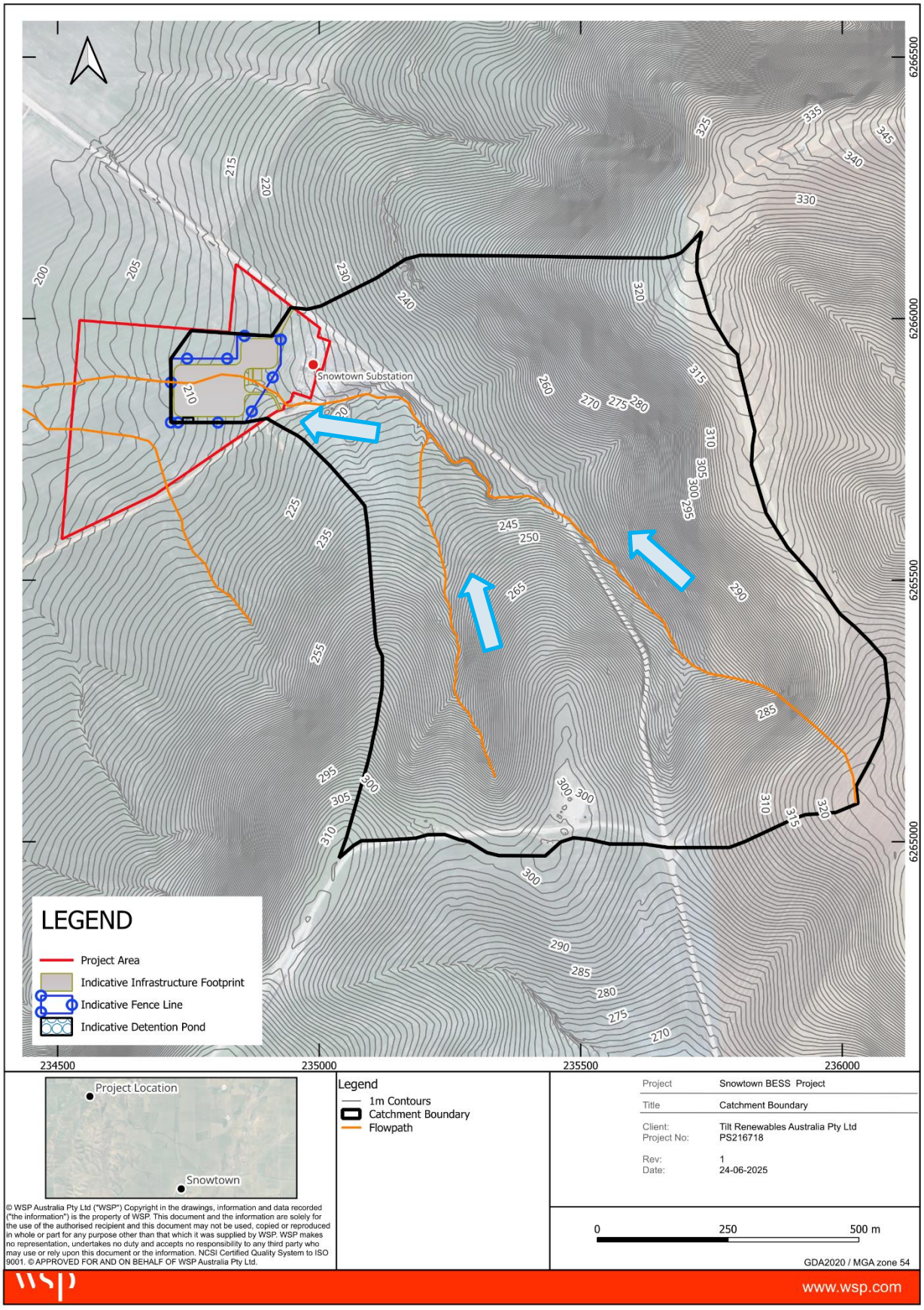

Figure 2.2 Catchment and drainage of the BESS site

2.3 Rainfall and evaporation

Long-term SILO (Jeffrey et al., 2001) rainfall and evaporation data since 1900 was obtained for a location near the BESS site (Latitude -33.70, Longitude 138.15, 1.8 km north of the site). Table 2.1 and Figure 2.3 show the long-term average monthly rainfall and evaporation for the site. The BESS site is located within the region with low mean annual rainfall and relatively higher mean annual evaporation. The long-term SILO data indicates the average annual rainfall is 432 mm and the average annual evaporation is 1,882 mm.

Table 2.1 Long-term average rainfall and evaporation (Lat -33.70, Long 138.15)

Month	Average rainfall	Average evaporation
January	18	281
February	20	235
March	18	200
April	31	126
May	51	79
June	56	55
July	51	61
August	54	83
September	48	117
October	36	170
November	26	215
December	23	260
Annual Total	**432**	**1,882**

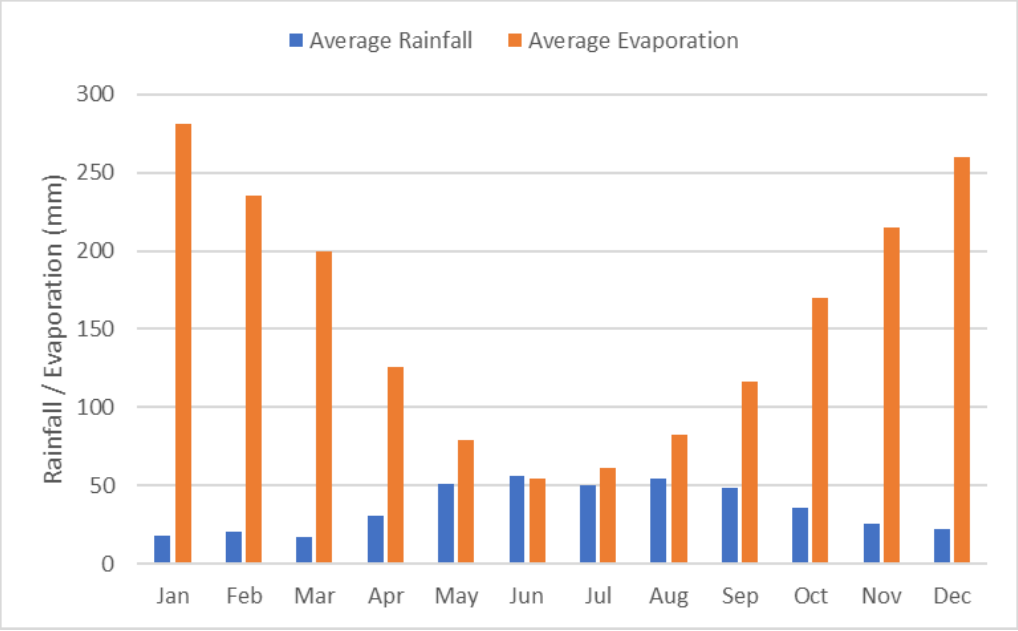

Figure 2.3 Long-term average rainfall and evaporation (Lat -33.70, Long 138.15)

Design flood event rainfall depths near the project site were obtained from the BoM 2016 IFDs (Lat -33.7125, Long 138.1375). The design event rainfall data is plotted in Figure 2.4.

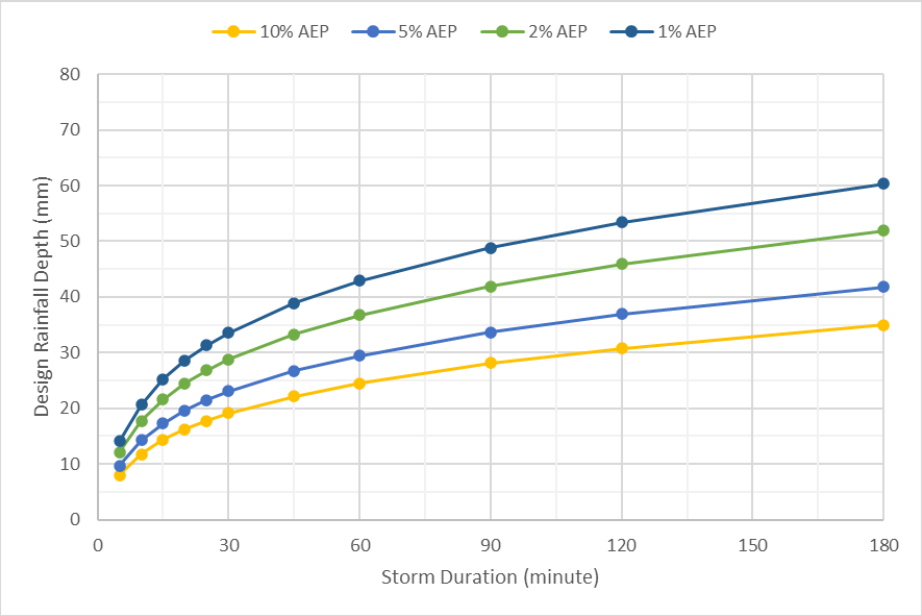

Figure 2.4 Design event rainfall depths based on BoM 2016 IFDs (Lat -33.7125, Long 138.1375)

2.3.1 *Climate change on design rainfall*

In accordance with the updated climate change factors from the Australian Rainfall and Runoff (ARR) Data Hub results (Babister et al., 2016, accessible at http://data.arr-software.org/), the design rainfall depths are expected to increase by 20% for the 'Current and near-term (2030 midpoint)' and by 34% for the 'Medium-term (2050 midpoint)' under the SSP-8.5 scenario climate change scenario for storm durations up to 1 hour. For the 'Long-term (2090 midpoint)' under the SSP-8.5 climate change scenario, design rainfall depths for storm durations up to 1 hour are expected to increase by 77%.

2.4 Recorded rainfall and streamflow data

Relevant recorded rainfall and streamflow data are not available in the vicinity of the BESS site.

3 Flooding

The BESS site is located within a flow path with catchment area of approximately 1 km^2 (999994.34 m^2). The Project siting and design are required to consider the potential overland flooding from the upslope catchment and its flow path. A preliminary assessment indicates that the 1% AEP design discharge for the catchment upstream of the BESS site is approximately 11 m^3/s, using the BoM 2016 IFDs. Detailed hydrologic and hydraulic modelling including the climate change effects, informed by survey or high-resolution topographic data, will be required to define the flood extent, depths and velocities along this flow path across the BESS site to assess the flood conditions and potential impacts of the Project.

Based on the current conceptual layout of the Project, the BESS site will be required to fill above the design flood levels with appropriate freeboard and additionally cut-off drains will be required to divert the upstream runoff. The feasibility of the potential cut-off drains diverting the upstream surface runoff should be further investigated considering the design and environmental constraints, if any. Subject to further investigation and modelling, a basin may also be required for BESS site to reduce the peak runoff discharge to mitigate any potential impact to the downstream area.

4 Conceptual management and mitigation measures

To manage and mitigate the potential flood risks and impacts, the following measures can be considered during the planning and design phases of the Project (Figure 4.1):

- Locate key project components (e.g., BESS, electrical infrastructure or buildings) away from the flow paths or raise the finished level of the proposed bench area and these project components above the design flood levels with appropriate freeboard. It is recommended the Switch Room and Harmony Filter be relocated or realigned to avoid the flow path as much as possible and raised on an earthworks bench that avoids the flow path.
- Include cut-off drains around the fence area to divert the upstream catchment surface runoff. Cross drainage structures or low-level causeways may be required at the proposed access tracks where they cross the cut-off drains and should be further investigated. Additionally, a local sag point should be introduced along the access road (refer to Figure 4.1) to ensure flows exceeding the capacity of the cut off drain (including extreme rainfall events) do not inundate the project components but have a controlled flow path should the cut-off drain capacity be exceeded.
- Assess the onsite detention requirement (e.g., basin) to reduce flood risks and mitigate potential flood impacts.

Further hydrology and hydraulic assessment and modelling are required to assess the flood characteristics across the BESS site and define the flood extent, depths and velocities. The conceptual management measures have been developed based on the preliminary design layout and should be reviewed and updated during detailed design phase. The feasibility of the potential cut-off drains diverting the upstream surface runoff should be further investigated considering the design and environmental constraints, if any.

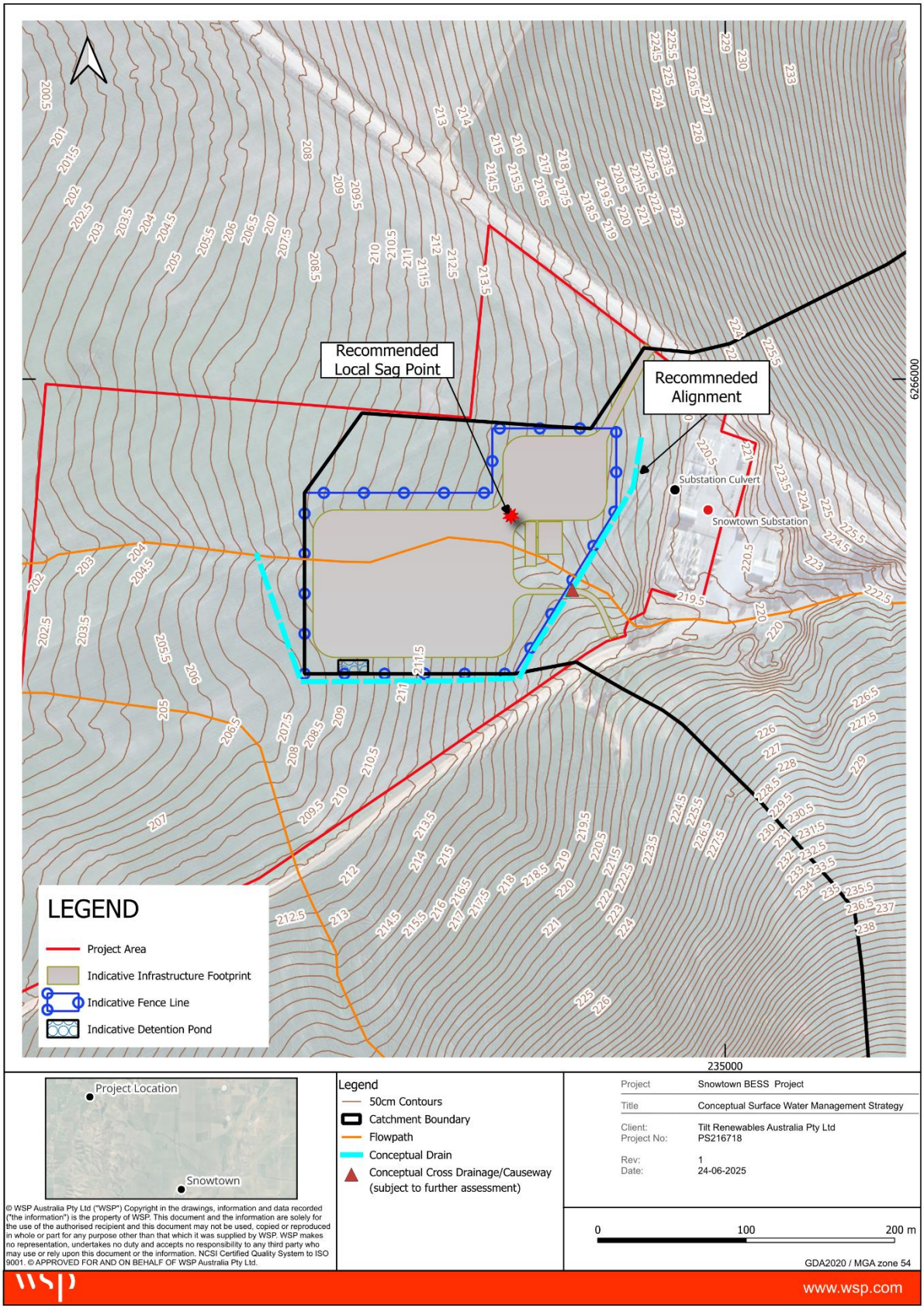

Figure 4.1 Conceptual surface water management strategy

5 Summary and recommendations

A desktop hydrology assessment for the proposed Snowtown BESS project was undertaken to understand the hydrology setting for the proposed BESS site, including catchment, drainage and high-level flooding conditions, based on available data.

The desktop hydrology assessment shows that:

- Ground elevation is around 218 m at the eastern side and reduces to approximately 209 m at the western side of the BESS site. The ground slopes within the BESS site are approximately 4% to 6%.
- The catchment conveying surface water runoff towards the proposed BESS site is approximately 1 km^2 (999994.34 m^2). There is a flow path draining through the BESS site.
- To manage and mitigate the potential flood risks and impacts, the following measures can be considered during the planning and design phases of the Project:
  - Locate key project components (e.g., BESS, electrical infrastructure or buildings) away from the flow paths or raise the finished level of the proposed bench area and these project components above the design flood levels with appropriate freeboard.
  - Include cut-off drains around the proposed bench area to divert the upstream surface runoff. Cross drainage structures or low-level causeways may be required at the proposed access tracks where they cross the cut-off drains and should be further investigated. The surface water management measures should be designed to have sufficient capacity to mitigate any potential flood impacts to the existing substation adjacent to the BESS site.
  - Assess the onsite detention requirement (e.g., basin) to reduce flood risks and mitigate potential flood impacts.

The conceptual management measures have been developed based on the preliminary design layout and should be reviewed and updated during detailed design phase. The feasibility of the potential cut-off drains diverting the upstream surface runoff should be further investigated considering the design and environmental constraints, if any.

The desktop hydrology assessment was informed by the 50 cm contours provided by Tilt Renewables. The cross-sectional details of the drainage through the BESS site are required to assess and define the channel capacity. Therefore, further investigation and flood modelling informed by survey or high-resolution topographic data would be required to define the flooding conditions and inform design solutions. Design rainfall intensities will increase due to climate change, therefore the climate change effects on flood conditions should also be considered for the project design and implementation.

6 Limitations

This Report is provided by WSP Australia Pty Limited (*WSP*) for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal dated 28 August 2024 and agreement with the Client dated 28 November 2024 (*Agreement*).

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Appendix F

Consultation plan

[Placeholder – Consultation Plan to be added after Applicant consultation period]

Appendix G

Environmental noise assessment

Snowtown BESS

Environmental Noise Assessment

S8300C2

May 2025

sonus.

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Document Title	: Snowtown BESS Environmental Noise Assessment
Client	: WSP / Tilt Renewables
Document Reference	: S8300C2
Date	: May 2025
Author	: Adam Cook, MAAS
Reviewer	: Chris Turnbull, MAAS

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1 INTRODUCTION

An environmental noise assessment has been prepared for the proposed Snowtown Battery Energy Storage System (**BESS**). Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (**Tilt Renewables**) is proposing to locate a BESS adjacent to the existing electricity substation at the intersection of Wokurna Road and Hewitt Road, approximately 10km northwest of Snowtown.

This assessment considers the noise at the dwellings surrounding the proposed BESS. The assessment has been based upon:

- Tile Renewables drawing "Battery Energy Storage System General Arrangement – Concept Design", version D, dated 24 April 2025, included in Appendix A.
- A proposed site capacity of 100MW / 4 hours.
- Noise data for the BESS equipment provided by Tile Renewables.
- Advice from Tile Renewables that the BESS is to be comprised of equipment from one of two OEMs, with the higher sound power level of the equipment from the two suppliers used for the assessment.
- Positioning of the BESS units at the closest part of the site boundary to the nearest noise-sensitive receiver, as shown in Figure 1.

The location of the BESS site and the surrounding dwellings are shown in Figure 1.

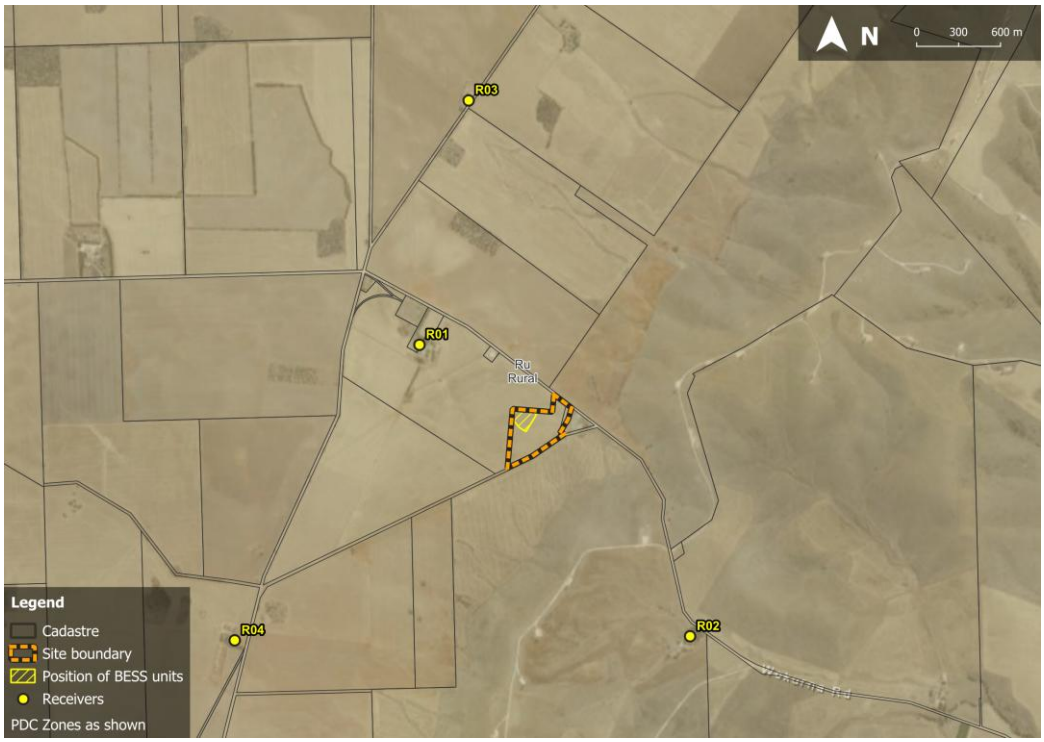


Figure 1: Site and receiver locations

2 CRITERIA

2.1 Legislation

Development of the BESS is subject to licensing and approvals under the *Hydrogen and Renewable Energy Act 2023* (the **HRE Act**). The South Australian Department for Energy and Mining (**DEM**) is the government body which administers the HRE Act and grants licenses and approvals.

In granting licences and approvals for a BESS, the HRE Act requires an Environmental Impact Report (**EIR**) to be prepared which assesses potential environmental impacts and outlines management controls to minimise such impacts. To assist with impact assessment, DEM has produced a document *Environmental Impact Assessment Criteria - Hydrogen and Renewable Energy Act 2023* which outlines the relevant legislation, standards, and receptors to be considered by EIRs. With regard to noise from BESS projects, the relevant legislation is identified as the *Environment Protection Act (1993) (the **EP Act**)* and the assessment criteria for noise impacts from BESS projects as the *Environment Protection (Commercial and Industrial Noise) Policy 2023* (the **Policy**).

2.2 Policy

The Policy provides objective noise criteria to assess the environmental noise emissions from commercial and industrial premises. The noise criteria provided by the Policy are based on the *Guidelines for Community Noise 1999* (the **Guidelines**) published by the *World Health Organisation.*

The Policy provides goal noise levels to be complied with at sensitive receivers, based on the Planning and Design Code zones in which the noise source and the noise receivers are located. The Policy states that where compliance with the goal noise levels of the Policy is achieved, the general environmental duty under Section 25 of the EP Act is satisfied in relation to noise from a noise source.

In this instance, the Policy provides the following goal noise levels for BESS and closest receivers both located within the *Rural Zone*:

- An average noise level (L_{eq}) of no more than 57 dB(A) during the day (7:00 am to 10:00 pm).
- An average noise level (L_{eq}) of no more than 50 dB(A) during the night (10:00 pm to 7:00 am).

Based upon 24-hour operation of the BESS, the night time (10:00pm to 7:00am) goal noise level will be the most relevant assessment criterion for the assessment.

When measuring or predicting noise levels for comparison with the Policy, adjustments may be made to the noise levels for each “annoying” characteristic of tonality, impulsiveness, low frequency, intermittency and modulation of the noise sources. The characteristic must be dominant in the acoustic environment for adjustments to apply, and therefore the application of a penalty varies depending on the assessment location, time of day, the noise source being assessed, and the measured or predicted noise level. The application of penalties is discussed further in the Assessment section.

3 ASSESSMENT

3.1 Noise Prediction Model

Noise predictions have been made using the CONCAWE[1] noise propagation model in SoundPLAN noise modelling software. The CONCAWE noise propagation model is widely accepted as an appropriate model for ground-based sources and has the ability to take into account relevant influences, including:

- sound power levels of each individual noise source;
- the location of noise sources;
- separation distances between noise sources and sensitive receptors;
- the influence of barriers;
- influence of the ground and topography;
- directivity of noise source; and,
- atmospheric absorption.

The CONCAWE noise model divides meteorological conditions into six separate "weather categories", depending on wind speed, wind direction, time of day and level of cloud cover. Weather Category 1 provides the weather conditions associated with the "lowest" propagation of noise, whilst Weather Category 6 provides "worst-case" (i.e. highest noise level) conditions. Predictions of noise from the BESS have been made based upon Weather Category 6.

3.2 Noise sources

The noise sources associated with the proposed BESS have been determined from the site capacity and noise data available for the BESS equipment from the OEMs. The highest total sound power level from battery, inverter and transformer components is 115 dB(A).

[1] CONCAWE Conservation of clean air and water in Europe – Report 4/81 *The propagation of noise from petroleum and petrochemical complexes to neighbouring communities*, Manning, C.J. et al.

3.3 Predicted noise levels

The noise level at the nearest noise sensitive receivers has been predicted based upon positioning of the noise sources at the closest part of the site boundary as shown in Figure 1, and the highest sound power levels. Note that this noise source location is closer to the nearest receiver than the position of battery blocks shown in Appendix A, based upon instruction from Tilt Renewables to conduct a conservative assessment for the site boundary provided. The final BESS location within the lease area will be determined during the detailed design.

The noise from BESS facilities can attract an adjustment for tonal noise character under the Policy, if a tone is found to be prominent at the receiver location. The EPA's document *Guidelines for the use of the Environmental Protection (Commercial and Industrial Noise) Policy 2023* provides guidance on the application of adjustment for tonality, based on Australian Standard AS1055−2018 *Acoustics−Description and measurement of environmental noise*. For mid-to-high frequency ranges associated with tones from BESS equipment, where the noise level in a 1/3 octave band is greater than 5 dB(A) above the two adjacent bands, an adjustment for tonal character is applicable to the overall predicted noise level.

The applicability of the tonal penalty is therefore related to both the noise from the source and masking noise present in the ambient noise environment. In the absence of measurements of the ambient environment, noise level predictions are presented both with and without a +5 dB(A) adjustment for tonal noise character.

Predicted noise levels are provided in Table 1. A noise contour plot is provided in Appendix B.

Table 1: Predicted noise levels

Location	Criterion	Predicted Noise Level [dB(A)]	
		Without adjustment for tonal noise	With adjustment for tonal noise
R01	50	41	46
R02	50	<20	<25
R03	50	28	33
R04	50	26	31

Predicted noise levels from the BESS will comply with the Policy goal noise levels for each of the receiver locations regardless of whether an adjustment for tonal noise character is applicable.

4 CONCLUSION

An environmental noise assessment has been conducted for the proposed Snowtown Battery Energy Storage System.

The assessment has found that noise from the proposed BESS will be compliant with the goal noise levels from the Environment Protection (Commercial and Industrial Noise) Policy 2023.

As such, the Snowtown BESS can satisfy the general environmental duty under Section 25 of the *Environment Protection Act (1993),* and therefore the noise-related requirements for approvals sought under the *Hydrogen and Renewable Energy Act 2023*.

APPENDIX A: SITE LAYOUT DRAWING

Legend

- Project Area
- Existing 132kV Transmission Line
- Existing 33kV Transmission Line
- Indicative Underground Cable
- Indicative Underground Substation Cable
- Indicative BESS Infrastructure
- Indicative Internal Road
- Indicative Bench
- Indicative Switchroom and Control Room
- Indicative Harmonic Filter
- Indicative O&M Building
- Indicative Detention Pond
- Indicative Water Tank
- Indicative Washdown Bay
- Indicative Spare BESS Infrastructure
- Indicative Fence
- Existing Substation
- Tilt Owned Land
- Cadastre

Note: Indicative layout and subject to change

Date: 23/05/2025
Version: C
GDA2020 MGA Zone 54
1:3,000

N

0 50 100 Meters

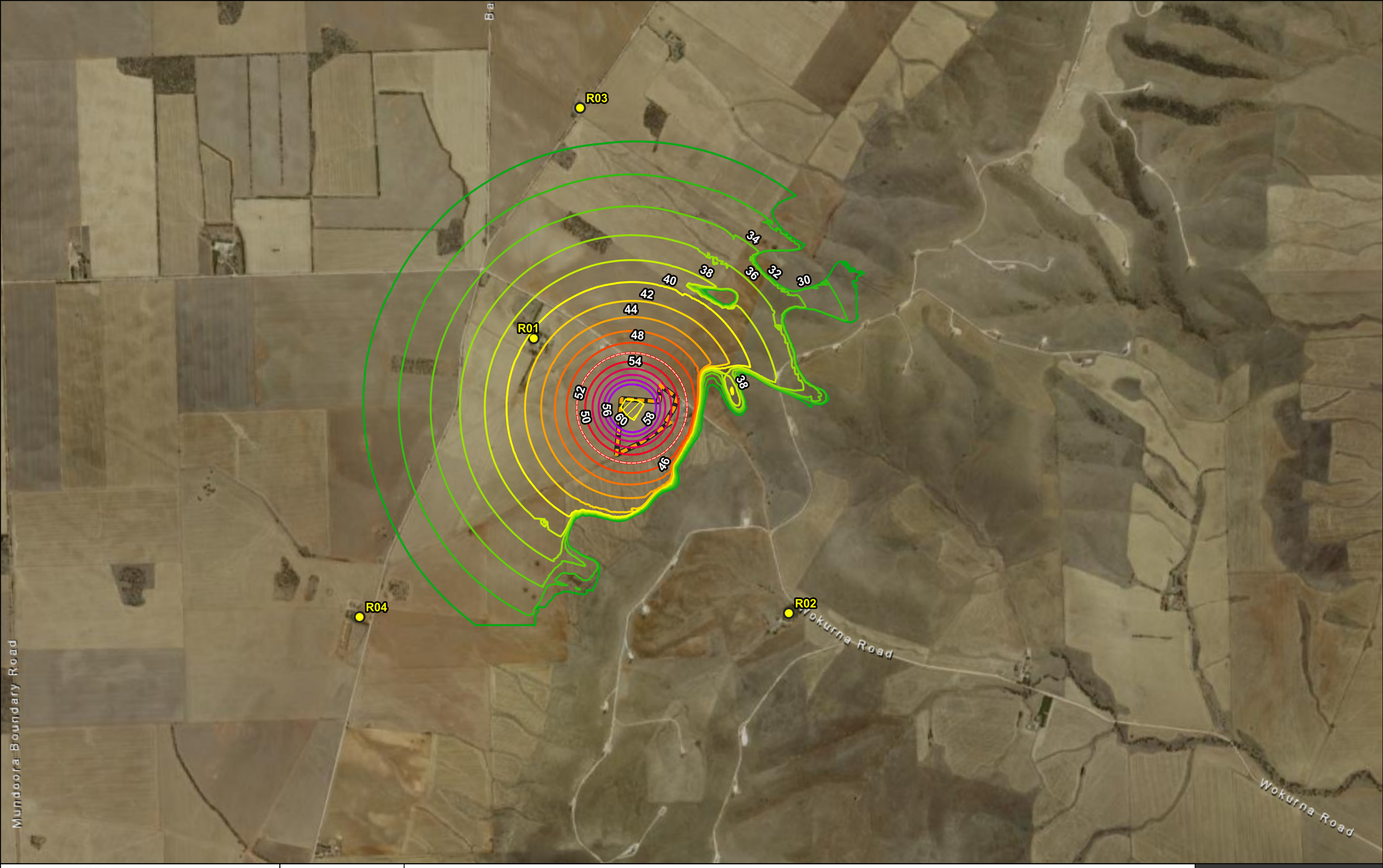
Document Path: G:\GIS\Project Data\Development\SA\SnowTown Battery Storage\Maps\mxd\STBS_13A_RL_Preliminary Layout_A3L_20250521.mxd

Snowtown BESS

Indicative Project Layout

renewables

APPENDIX B: NOISE CONTOUR MAP



Snowtown BESS

Environmental Noise Assessment

Predicted noise levels

Figure: B.1 Page:1/1	Date: 21/05/2025 Refer report: S8300C2	Author: AC Reviewed: CT

0 200 400 600 m

GDA94 / MGA zone 54

1:25,000 at A3

Legend

- Receivers
- Site boundary
- BESS source location

Predicted Leq noise levels [dB(A)]

- < 30
- < 32
- < 34
- < 36
- < 38
- < 40
- < 42
- < 44
- < 46
- < 48
- < 50
- < 52
- < 54
- < 56
- < 58
- < 60

Imagery sources: SAPPA

sonus.

Appendix H

Traffic impact assessment

Design
for a better
future /

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

Snowtown BESS

Traffic Impact Assessment

June 2025

Question today
Imagine tomorrow
Create for the future

Snowtown BESS
Traffic Impact Assessment

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

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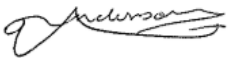
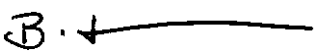
Rev	Date	Details
0	28 March 2025	Draft issue for review
A	15 May 2025	Final draft
B	29 May 2025	Final
C	26 June 2025	Revised final

	Name	Date	Signature
Prepared by:	Daniel Keller	26 June 2025	
Reviewed by:	Tenille Anderson	26 June 2025	
Approved by:	Bronte Nixon	26 June 2025	

WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Abbreviations

AIL	Associated Infrastructure Licence
AADT	Annual Average Daily Traffic
ASD	Approach Sight Distance
BESS	Battery Energy Storage System
DIT	Department for Infrastructure and Transport
HRE Act	*Hydrogen and Renewable Energy Act 2023*
Km/h	Kilometres per hour
m	Metres
MW	Megawatts
PBS	Performance Based Standards
Project	All proposed activities for the Snowtown BESS project
Project Area	Land on which the Project is located
SISD	Safe Intersection Sight Distance
SNSF	Snowtown North Solar Farm
t	Tonne
TIA	Traffic Impact Assessment
Tilt Renewables	Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust
TMP	Traffic Management Plan
WTG	Wind Turbine Generator

Executive summary

Project overview

Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables) is developing the Snowtown BESS project (the Project); a 100-megawatt (MW) Battery Energy Storage System (BESS) with up to 4-hour duration located approximately 10 kilometres (km) north-west of Snowtown in South Australia.

This Traffic Impact Assessment (TIA) Report provides an assessment of the physical condition and operational performance of the arterial and local road network in proximity to and within the Project Area and of the road network ability to cater for the traffic movements generated by the Project construction activities. Recommendations are provided to mitigate any adverse impacts of these activities on the safe and efficient operation of the road network.

Existing road network

An extensive review and assessment of the existing road network has been undertaken, including access routes and at junctions where project-generated traffic movements are expected to pass. Majority of the freight movements to the site will be along the Augusta Highway which is a gazetted freight route, accommodating vehicles up to 36.5 metre (m) Road Trains and oversize/overmass vehicles (up to 4.6 m Wide Load, 25 m/59.5 tonne Low Loader). Access to the site is on Wokurna Road, which has previously been used during construction of the Snowtown I Wind Farm.

Traffic generation and impact analysis

The Project will be constructed over a duration of approximately 14 months, comprising two phases; Phase 1 Civil works (site establishment, site civil works and concreting), and Phase 2 Installation (Equipment delivery, installation and commissioning of electrical and mechanical).

The Project Area will have the main construction access point located on Wokurna Road, north-west of Hewitt Road where majority of vehicle movements will access the site. An access on Hewitt Road will be used as emergency and secondary access to the facility.

It is expected that the construction traffic will access the site via either of the 2 routes below:

- Traffic generated from the south (general deliveries, quarry materials, personnel):
  - Augusta Highway – Wokurna Road (east)
- Traffic generated from the north (concrete):
  - Upper Yorke Road – Wokurna Road (west)

Traffic forecasts developed for the Project show daily traffic on Wokurna Road (east) will increase between 30 and 60%, and up to 20% on Wokurna Road (west). Increases in traffic volumes along Augusta Highway are estimated to be up to 2–4% of daily traffic volumes. These increases are not expected to have a significant impact upon the nominated roads, with no physical upgrades required. Mitigation measures are summarised in the below section.

During normal operations, the BESS is expected to generate very small numbers of vehicles for ongoing operations and maintenance activities, forecast to be less than 1 vehicle per day which is not expected to result in significant impacts to the road network.

Key measures

Although no upgrades to the road network are necessary, several mitigation measures will be implemented to ensure minimal disruption and maintain safety:

- The contractor will develop a Traffic Management Plan (TMP) to manage all aspects of the Project delivery. It is recommended that the TMP address the safe movement of vehicles associated with the Project to, from, and within the Project Area. This might include safety messages with respect to driving on the unsealed local road network including:
  - driving on narrow roads requiring drivers to move over when passing oncoming vehicles
  - driving on unlit unsealed roads at night
  - driving in proximity to oversize or over-mass vehicles
  - awareness of occasional presence of farm machinery
- Stakeholder communication: establish and maintain communications with the local authority and local residents who use the roads regularly to keep them informed on every phase of the Project and what to expect in terms of vehicle traffic movements
- Minor trimming of vegetation at key intersections to improve sight lines; including:
  - Wokurna Road/Augusta Highway
  - Wokurna Road/Upper Yorke Road
- Monitor the condition of the road pavement along Project transport route including key intersections, and undertake maintenance as required to ensure the integrity of the riding surface
- Where it is within the control of the construction contractor, encourage regular truck operators to use the same local roads to access the Project Area so that the local community becomes familiar with the changed traffic conditions
- During major construction works, ensure plant/equipment/material deliveries are coordinated, ensuring that there is not a need for vehicles to queue on the local road network while waiting to access the site
- Minimise (if not avoid) traffic-generating activities at night-time so as to avoid noise nuisance and travel along the unlit and unsealed sections of roads and junctions
- If over-dimensional or over-mass vehicles are required, conduct a heavy vehicle assessment and act on the assessment findings prior to submitting an application for permits to operate over dimensional or over-mass vehicles along the required routes.

Conclusion

The construction and operation of the Snowtown BESS Project area not expected to have a significant impact on the existing road network. With the implementation of the proposed mitigation measures, any potential traffic impacts will be minimised, aiming to ensure a smooth and safe execution of the Project.

1 Introduction

1.1 Project overview

Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables) is developing the Snowtown BESS project (the Project); a 100-megawatt (MW) Battery Energy Storage System (BESS) with up to 4-hour duration located approximately 10 kilometres (km) northwest of Snowtown in South Australia.

The Project proposes both permanent and temporary infrastructure.

Permanent site infrastructure will comprise a BESS with capacity of up to 100 MW with up to 4-hour duration, hardstand areas and internal roads, and onsite buildings.

Temporary site infrastructure will include construction compound, equipment laydown areas and fuelling stations.

The Project also includes a proposed grid connection to an existing substation located directly east of the proposed BESS site; developed as part of the Snowtown I Wind Farm.

The Project constitutes a *regulated activity* under the *Hydrogen and Renewable Energy Act 2023* (HRE Act) and will seek licencing under an Associated Infrastructure Licence (AIL). WSP Australia Pty Limited (WSP) have been engaged to prepare an Environmental Impact Report, Statement of Environmental Objectives and technical studies to support the AIL application.

1.2 Project area

The Project will be located on an approximate 13-hectare site (the Project Area) located directly west of an existing ElectraNet substation; at the junction of Wokurna Road and Hewitt Road, Wokurna.

The Project Area has two road frontages; Wokurna Road along the northern boundary and Hewitt Road along the southern boundary. The primary access point to the Project Area will be created off Wokurna Road and will be used to support the construction phase as well as the operation phase of the Project. An existing site access point on Hewitt Road will be used as emergency and secondary access to the facility.

The Project Area is currently used for agriculture/cropping and has previously been cleared of native vegetation.

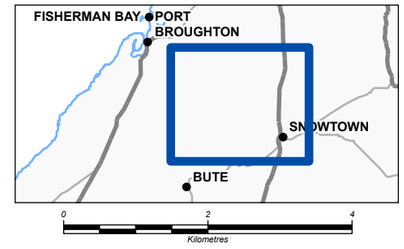
Refer below to Figure 1.1 for the locality of the Project Area.

Snowtown BESS project

Figure 1.1
Project Locality

Legend

- Road
- Project Area
- LGA Boundary



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1:85,000 Date: 22/05/2025

Data sources: SA Government, Metromap

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1.3 Scope of report

This Traffic Impact Assessment (TIA) Report provides an assessment of the physical condition and operational performance of the arterial and local road network in proximity to and within the Project Area and of the road network ability to cater for the traffic movements generated by the Project construction activities and recommends treatments to mitigate any adverse impacts of these activities on the safe and efficient operation of the road network.

1.4 Legislative and policy requirements

The following legislation is relevant to traffic aspects of the Project:

- *Road Traffic Act 1961*
- *Heavy Vehicle National Law Act 2013.*

1.5 Assessment methodology

This TIA has been undertaken utilising the below high-level methodology:

- Review of the existing site location and constraints
- Undertake site inspection of the Project Area and the local road network in the area of influence of the construction activities (site inspection undertaken on 13 December 2024)
- Review of the road network including available traffic counts and crash statistics (provided by council and/or traffic volumes and crashes extracted from SA Location viewer)
- Review of previous studies including the 2017 TIA Report for the previously proposed Snowtown North Solar Farm (SNSF), which comprised a solar farm and BESS facility within the currently proposed Snowtown BESS Project Area
- Review of documents provided by Tilt Renewables relating to the currently proposed Snowtown BESS project
- Review of construction traffic estimates, including volumes provided by Tilt Renewables as well as numbers estimated by WSP
- Assessing the physical, operational and safety impacts along the preferred route for traffic generated during the construction and operational phases of the Project
- Identifying measures to mitigate or avoid potential impacts commensurate with the duration of the construction activities.

The TIA makes reference to relevant guidelines including:

- ARRB Unsealed Roads Guide (ARRB Group Ltd, October 2020)
- Austroads Guide to Road Design Part 3 Geometric Design (Austroads, 2021).

1.6 Review of previous Snowtown North Solar Farm ("SNSF") TIA

A TIA for the previously proposed SNSF 'Snowtown North Energy Solar Farm: Traffic Impact & Route Assessment' (2017) was prepared by WGA in 2017 for a proposal by Tilt Renewables to develop a solar farm and BESS project at the site which now forms the Snowtown BESS Project Area. The SNSF TIA assessed the development of a 50 MW solar farm and 20 MW BESS.

The SNSF TIA concluded that the most suitable haulage route to access the site was via Augusta Highway and Wokurna Road (east). The assessment assumed the majority of solar farm components would be sourced from the Port Adelaide region. The recommended route represents the shortest and fastest route, partly comprises a gazetted road train route and impacts the least number of properties.

The SNSF project received development approval but was not progressed and approval has now lapsed.

The current Snowtown BESS project represents a development of similar intensity and it has been reasonably assumed that the same haulage route would be preferred for transporting materials and components to the Project Area.

1.7 TIA report structure

The following sections of this TIA Report describe the following:

- Existing road and traffic conditions (Section 2)
- The proposed development (Section 3)
- Traffic impacts (Section 4)
- Mitigation measures (Section 5).

2 Existing conditions

2.1 Broad landscape description

The Project Area is located to the west of the Hummocks Ranges and the land is gently sloping. The surrounding land includes the gentle to steep undulating land through the Hummocks Ranges and the flat terrain between the base of the ranges and the Augusta Highway to the east. The local road network passes through this land.

The Hummocks Ranges run approximately 4 km to the west of, and parallel with, the Augusta Highway. Several Wind Turbine Generators (WTG)'s are operating along the ridgeline of the ranges.

The land generally comprises large agricultural allotments used for livestock grazing and cropping. There are few outbuildings or residences within proximity of the Project Area. The Snowtown I Wind Farm substation is located immediately adjacent to the proposed BESS site.

2.2 Road network assessment

An inspection of the road network in the vicinity of the Project Area was undertaken during daylight hours and in dry weather on Friday 13 December 2024. The aim of the site inspection was to assess the suitability of individual roads (particularly any unsealed roads) and junctions to identify if they could safely cater for the movement of road traffic (particularly large trucks) generated by the Project construction and on-going operational activities. This includes the physical condition (the pavement and riding surface) and the geometric standard (width, curves and grades) of each road.

The pavement condition was assessed by observation only – the quality of the riding surface, evidence of corrugations, rutting and potholes and extent of drainage provisions.

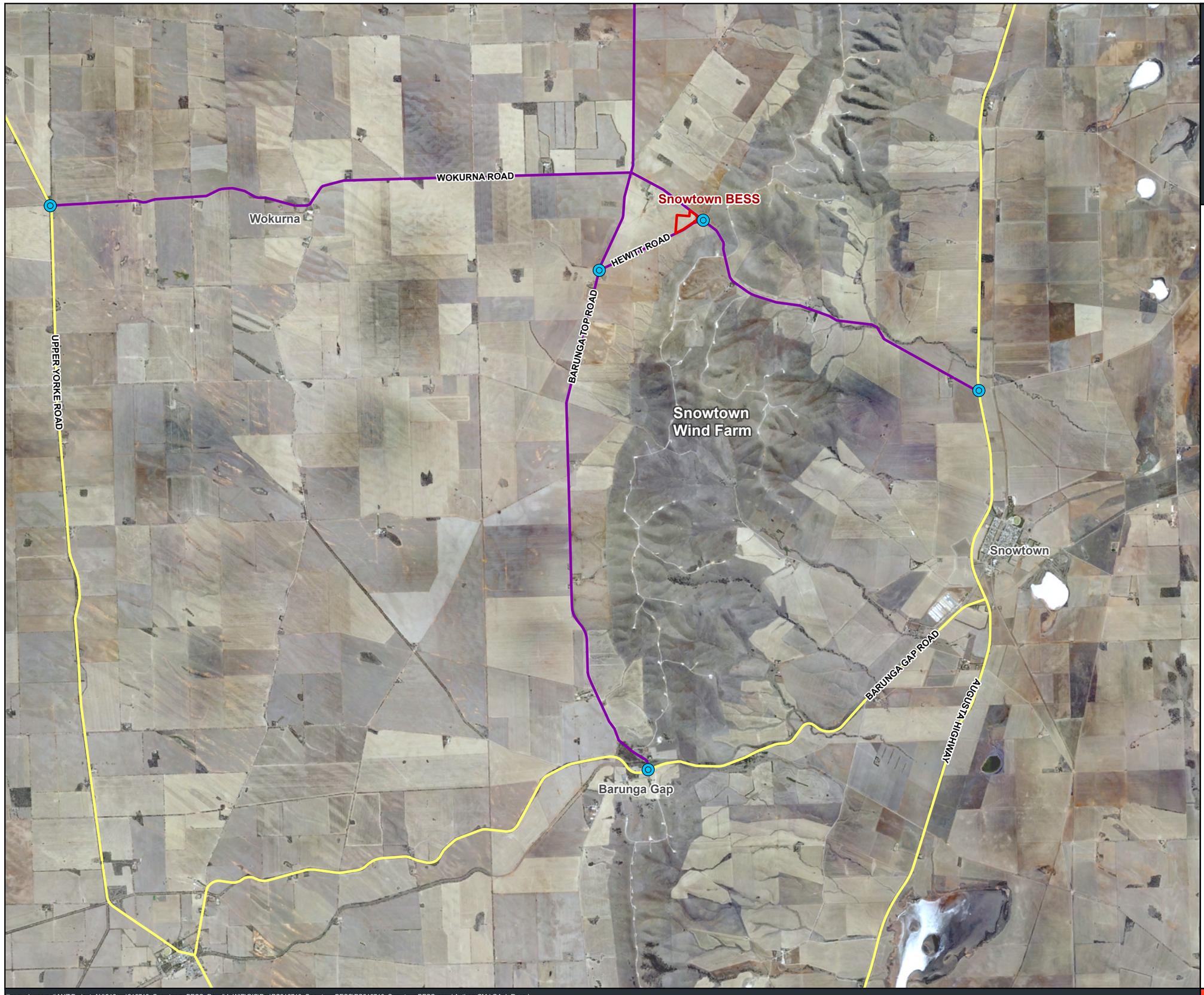
Reference was made to the following technical documents:

- ARRB Unsealed Roads Manual (Table 3.9)
- Austroads Guide to Road Design Part 3 Geometric Design (Section 4.2.6).

These documents recommend a typical minimum carriageway width of 7.0 metres (m) for a two-lane road to allow for moving vehicles to pass in opposite directions without stopping however a single lane may be suitable if traffic volumes are less than 150 vehicles per day.

At junctions where project-generated traffic movements are expected to pass, sight and stopping distances have been reviewed on site as well as the turning paths of large vehicles, including noting and encroachments into adjacent lanes. It is noted that this did not include an assessment for access for any oversize vehicles which may need to be undertaken separately including assessment of vehicle swept paths.

The road network in the surrounding Project Area is shown in Figure 2.1. The road network comprises the national highway (the Augusta Highway) and local roads and includes the preferred haulage route including Wokurna Road.



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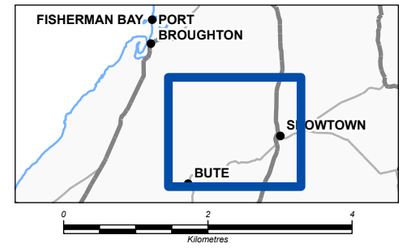
Snowtown BESS project

Figure 2.1
Surrounding Road Network

Legend

- Road Junction
- Project Area
- Gazetted Freight Route
- Local Road



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Relevant comments on each road are reported below. The inspection compared observations reported by the previous assessment conducted in 2017 to identify any significant changes in condition.

2.2.1 Gazetted freight routes

According to the National Network Map published by the National Heavy Vehicle Regulator (n.d.), the Augusta Highway, Barunga Gap Road, and Upper Yorke Road are gazetted freight routes:

- The Augusta Highway (A1): 36.5 m Road Train (GML), 4.6 m Wide Load, 25 m/59.5 tonne (t) Low Loader (OSM), PBS Level 3B
- Upper Yorke Road: 30 m Road Train (GML), 25 m/59.5 t Low Loader (OSM), PBS Level 2B
- Barunga Gap Road: 30 m Road Train (GML) 25 m/59.5 t Low Loader (OSM), PBS Level 2B.

Augusta Highway, Upper Yorke Road, and Barunga Gap Road are owned and maintained by the Department for Infrastructure and Transport (DIT).

No assessment was made of these routes as these have been deemed acceptable for inclusion in the gazette. Freight to the Project Area from origins to the south will be expected will travel to site predominantly via the Augusta Highway (a National Highway) but may also be via Upper Yorke Road/Barunga Gap Road. Refer to Figure 2.2 below for the road network to the site.

The Augusta (Princes) Highway links Snowtown with Adelaide (via Port Augusta and Port Wakefield) and with Port Adelaide (via the Northern Connector/Port River Expressway). It forms part of National Highway Route 1.

The highway runs approximately north-south about 4–5 km east of the Hummocks Ranges. Within 4 km north and 1.5 km south of Snowtown, the road is primarily a 2-lane undivided sealed road (one lane in each direction) with sealed shoulders, edge and centre lines, supplemented with a 1.5 km long northbound overtaking lane just north of Snowtown and auxiliary turning lanes at junctions. Traffic lanes along Augusta Highway are approximately 3.5 m wide.

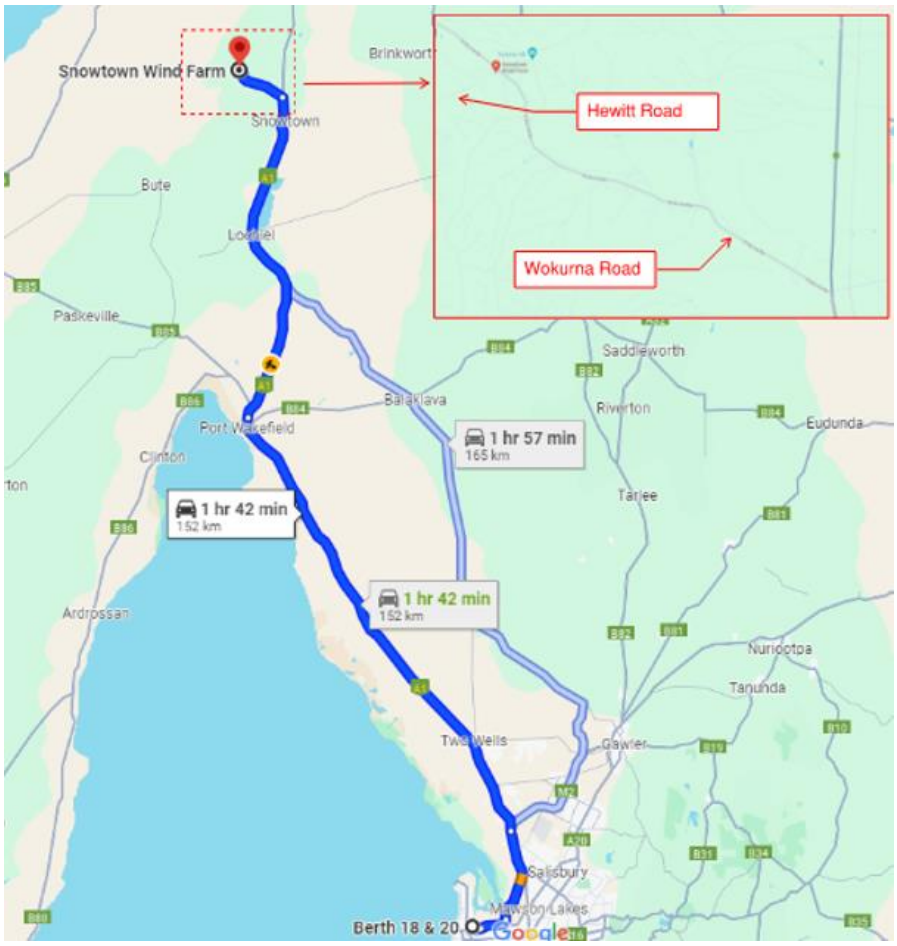

Figure 2.2 A1 National Highway

2.2.2 Local roads

2.2.2.1 Wokurna Road

Wokurna Road extends approximately 23.5 km between Upper Yorke Road and the Augusta Highway, passes through the Hummocks Ranges and passes immediately adjacent to the Project Area by the junction with Hewitt Road about 8 km west of the highway.

East section

The section east of the Project Area is predominantly unsealed with three short sections of sealed road adjacent to residences (aiming to reduce noise and dust issues). The eastern end of the road is flat and straight but travelling westward becomes more curvilinear and follows a steady incline followed by a steep decline to the Project Area. This section of road is about 8 m wide at the eastern end narrows to 7 m at the western end. The verges were grassed with intermittent stands of native vegetation.

This section of Wokurna Road forms part of the preferred haulage route to the Project Area.

The road pavement is in generally good condition although the western section exhibits some corrugations and potholes especially around the curves and on the inclines/declines where loss of wearing course and even rutting was observed. These deficiencies appear due to a lack of effective drainage and use by large vehicles.

Several culverts exist along the route and two floodways were observed. These appeared to be in reasonable condition.

During the inspection a school (mini) bus was observed to turn left into the road from the Augusta Highway and stop to collect a student who was waiting in a car parked on the road. The bus travelled west along the road before stopping outside one of the residences for another student to board, performed a U-turn and then travelled east towards the Augusta Highway. Other observations included a road train which turned left into the road from the highway and travelled to an unknown destination and an oversize crane parked at the entrance to the Wind Farm further along the road. Clearly it is not unusual for large vehicles to use this road. A typical cross section of the straight section of road is shown in Figure 2.3 below.

Figure 2.3 Wokurna Road East (Augusta Highway – Hewitt Road)

West section

This section extends about 15 kms west from the Project Area (junction Hewitt Road) to the Upper Yorke Highway. It is generally straight and flat with several horizontal curves (delineated with guideposts) around the Wokurna township. The unsealed carriageway is about 8 m wide with vegetated verges ranging from stands of native trees to low-level shrubs and grasses. There are several driveway accesses to properties along the route. The condition of the road pavement is generally good but with some areas exhibiting corrugations and small potholes. There is only minimal drainage infrastructure evident.

An above ground cast iron water pipe follows the road alignment on the northern side. A typical cross section of the straight section of road is shown in Figure 2.4.

Figure 2.4 Wokurna Road west (Hewitt Road – Upper Yorke Road)

2.2.2.2 Barunga Top Road (Wokurna Road – Barunga Gap Road: 15 km)

This road extends about 15 km southwards from its junction with Wokurna Road to its junction with Barunga Gap Road. It comprises an 8–10 m wide and generally flat unsealed carriageway with a series of long straights connected by a small number of horizontal curves (delineated by guideposts) towards the southern end of the road. A 200 m section is sealed in vicinity of the access to the substation at the northern end. Long sections of the road exhibit native trees in the verge. Stobie poles carrying overhead power lines are located about 2 m from the western edge of the road for most of the length (branching off about 4 km from the southern end of the road).

The road provides access to eight properties and there are 4 junctions along the route. There is a disused rail level crossing about 15 m from the junction with Barunga Gap Road.

The pavement condition was generally good – reflective of the drainage provided by the pavement crossfall and table drains on both sides.

2.2.2.3 Hewitt Road (Wokurna Road – Barunga Top Road: 6.4 km)

Hewitt Road extends about 2.7 km between Barunga Top Road and Wokurna Road and provides access to the Snowtown Windfarm substation. It is an unsealed road having a slight incline from west to east. The road varies in width between 5 and 7 m with the widest section being immediately adjacent to the substation and sealed. The pavement and riding surface is otherwise fair to poor with the worst section halfway along the road appearing no more than a formed track and accessible only by FWD vehicles in wet weather. The pavement is generally lower than the grassed verges and there is no stormwater drainage. High voltage power lines on stobie poles run along both sides of the road and there is a 500 mm diameter above ground water pipe running along the northerns side of the road.

A cross section of the road is shown in Figure 2.5.

Figure 2.5 Hewitt Road

2.2.2.4 Barunga Gap Road (between Upper Yorke Road and Augusta Highway)

This sealed two-lane road connects the Augusta Highway with the Upper Yorke Road in the township of Bute. Barunga Gap Road is gazetted for 36.5 m road trains (GML) between Augusta Highway and Barunga Homestead Road (Viterra entry/exit).

2.2.3 Road junctions

Traffic movements generated by the Project construction activities are expected will make turning movements at several junctions. These junctions were assessed to determine whether Approach Sight Distance (ASD) on minor road approaches and Safe Intersection Sight Distance (SISD) on the major road approaches are being met.

In summary the SISD required varies from 260 to 350 m for an unsealed road (90–110 kilometres per hour [km/h] design speed with and without advisory junction signs on the approaches) and 330–370 m for a sealed road (110–120 km/h design speed, with and without advisory junction signs).

ASD on the minor roads has been reviewed based on 200 m requirement (based on 90 km/h design speed for unsealed roads).

2.2.3.1 Augusta Highway/Wokurna Road Junction

It is understood that this junction was upgraded in 2007 to accommodate the turn paths of heavy vehicles making deliveries of components and construction activities required for the development of the Snowtown I Wind Farm project. Refer intersection layout in Figure 2.6 below.

Wokurna Road approaches Augusta Highway at an angle of less than 90 degrees. The acute angle though does favour turns to and from the south which would be the majority of Project generated traffic movements. Windview Road, an unsealed local road forms a second junction on the eastern side of the Augusta Highway, slightly offset to the north from the Wokrurna Road junction.

Flaring of Wokurna Road at the junction provides effective Basic Left Turn (BAL) and Basic Right Turn (BAR) treatments to facilitate turning movements.

The ASD (Wokurna Road) and SISD (northbound approach) appear to be met. The SISD on the southbound approach to the junction is restricted by a vegetation and the horizontal curve in the road. The vegetation (located near the heavy vehicle rest area) can be trimmed to ensure the required SISD is provided. If this cannot be attained then a Stop sign may need to be erected on the Wokurna Road approach.

Wokurna Road approach is sealed for about 100 m, with a horizontal curve on the approach to Augusta Highway, however the give-way sign remains visible. A new hazard board opposite Wokurna Road would improve visibility of the intersection to motorists approaching Augusta Highway along Wokurna Road.

Source: MetroMap, 2025

Figure 2.6 Augusta Highway/Wokurna Road Junction

2.2.3.2 Barunga Top Road/Barunga Gap Road Intersection

Barunga Top Road together with Landslide Road forms a 4-way intersection with Barunga Gap Road. Barunga Gap Road exhibits an eastbound left-hand horizontal curve terminating about 190 m from the intersection and follows a straight alignment on a slight vertical curve east of the intersection. These curves combined with vegetation limit sight distance to approximately 270 m which is less than the required SISD. Junction ahead warning signs should be installed on each approach to the intersection and vegetation trimmed where possible. It is noted that this intersection may have been used by traffic during the construction of the Snowtown Wind Farm. Refer to Figure 2.7 for layout, and Figure 2.8 and Figure 2.9 for views looking west and east respectively, showing restricted sight distances.

Source: MetroMap, 2025

Figure 2.7 Barunga Gap Road/Barunga Top Road intersection

Figure 2.8 Barunga Gap Road/Barunga Top Road intersection – looking west

Figure 2.9 Barunga Gap Road/Barunga Top Road intersection – looking east

2.2.3.3 Wokurna Road/Upper Yorke Road

The intersection of Upper Yorke Road and Wokurna Road provides priority movements to Upper Yorke Road traffic with give-way controls to Wokurna Road. Wokurna Road is sealed on approach to Upper Yorke Road (60 m to the east and 140 m to the west. Sight distances to the north are restricted by a crest and a horizontal curve, and to the south by a horizontal curve. Refer to intersection layout in Figure 2.10.

(Source: MetroMap, 2025)

Figure 2.10 Upper Yorke Road/Wokurna Road intersection

2.2.3.4 Wokurna Road/Hewitt Road

The junction of Hewitt Road with Wokurna Road is at approximately 60°, with Hewitt Road on an incline when approaching Wokurna Road. Wokurna Road is unsealed, whereas Hewitt Road is sealed on approach to Wokurna Road. Both roads appear to be in satisfactory condition.

ASD is not met due to vegetation, horizontal geometry and grades along Hewitt Road. SISD appears to have been met along Wokurna Road. Refer to Figure 2.11 for view of the junction looking west.

Figure 2.11 Wokurna Road/Hewitt Road junction

2.2.3.5 Barunga Top Road/Hewitt Road

Barunga Top Road/Hewitt Road forms a Y-junction with angle of approximately 70°. Both roads are unsealed and are in poor condition, corrugations, minor potholes, and loose material present. A farm access is located at the junction opposite Hewitt Road. Both SISD and ASD appear to be met. Refer to intersection layout in Figure 2.12.

(Source: MetroMap, 2025)

Figure 2.12 Barunga Top Road/Hewitt Road junction

2.2.4 Other road network issues

The below summarises some other road network items that the Project will need to be aware of:

- Agricultural activities:
  - During certain times of the year (i.e. seeding and harvest times), large plant may use local roads which may at times restrict access to the site.
  - Movement of livestock is understood to occur along and across the road; it is recommended that the construction contractor undertaken liaison with adjacent farms may to understand timing of livestock movements and educate workers and delivery drivers of the possibility of stock movements which may at times restrict access
- Road pavements are sealed along several residences along Wokurna Road; highlighting that noise and dust may be an issue to residents. Sealing of these sections may have been undertaken during.
- Any native vegetation that requires removal and/or trimming to improve access and sight lines may require separate approvals.
- School buses: it is understood that a local school bus travels along Wokurna Road, including undertaking a u-turn. Liaison with the local school to determine timings of the bus movements should be undertaken. School bus warning signs should be installed at the bus stop locations

2.3 Traffic volumes

Traffic volumes on the road network have been sourced from the Wakefield Regional Council (for the unsealed local roads) and the SA Location Viewer Website (n.d.) (for sealed roads managed by DIT). The most recent counts are summarised in Table 2.1 and are compared with those recorded in the 2017 SNSF TIA Report. Note that these roads have been subjected to the traffic movements generated by the construction of the nearby windfarm and substation so some variability in volumes is not unexpected.

Table 2.1 Existing traffic volumes

Road	AADT (%CV)	Year of count	AADT	Year of count	Source
Augusta Highway	3,400 (29.5%)	2021	3700 (21.5%)	2016	Location SA Viewer
Barunga Gap Road	200 (15%)	2023	310 (19.5%)	2013	Location SA Viewer
Upper Yorke Road	1000 (18%)	2024	440 (11%)	2012	Location SA Viewer
Wokurna Rd (E)	180 (7%)	2021	22 (25%)	2013	Wakefield Council
Barunga Top Road	35-40 (7%)	2022/2023	18 (7%)	2009	Wakefield Council
Wokurna Rd (W)	-	-	91 (12%)	2013	Wakefield Council

Most recent counts on Wokurna Road and Barunga Top Road are estimated daily volumes averaged over a period of approximately 25 days.

By observation of these and previous traffic counts, it is clear that the local roads have been subjected to variable traffic demands over the years.

2.4 Crashes

Road crash statistics for the 5-year period 2019–2023 for each of the subject roads were derived from Location SA Viewer. Those of significance to this assessment include:

- *Wokurna Road (east of Hewitt Road)*
  - 2 casualties in a single vehicle roll over crash.
  - 2 property damage only (single vehicle hit object on road and 2 vehicle side-swipe)
- *Wokurna Road (west of Hewitt Road)*
  - no crashes recorded.
- *Junction Barunga Top Road and Barunga Gap Road*
  - 1 single vehicle hit fixed object no casualties.
- *Junction Augusta Highway and Barunga Gap Road*
  - 1 single vehicle roll over no casualties.
- *Upper Yorke Road / Wokurna Road*
  - no crashes recorded.

Overall, there do not appear to be any safety issues of concern although the risk of crashes may increase with greater exposure to traffic movements.

3 Development proposal

The Project proposes both permanent and temporary infrastructure. Permanent site infrastructure will comprise:

- BESS with capacity of up to 100 MW with up to 4-hour duration, including Battery Pack Containers, inverters, inverter transformers and associated control, monitoring, and protection equipment
- Ancillary infrastructure including auxiliary supply transformers
- Hardstand areas
- Drainage and erosion control
- Internal roads, access tracks and parking areas
- Water management infrastructure (water storage tanks, water supply, detention pond, water treatment)
- Onsite buildings (operations and maintenance, switchroom and control room, storage)
- Underground cabling
- Harmonic filter yard (if required)
- Lightning protection rods
- Communications tower (if required)
- Site fencing and security
- Business identification and safety signage.

Temporary site infrastructure will include:

- Construction compound
- Equipment laydown areas
- Fuelling stations
- Wash down bay (if required).

The Project also includes a proposed grid connection (underground cables) to an existing substation located directly east of the proposed BESS site; developed as part of the Snowtown I Wind Farm. The Project will tie into the substation behind the existing wind farm connection point. Modification works to the existing Snowtown Substation will be required as part of the Project to facilitate the connection of the BESS to the electricity grid. Substation works are expected to include:

- Installation of a new isolator and earth switch
- Installation of a 33 kilovolts (kV) conductor between the new isolator and the existing wind farm isolator
- 33 kV cable trench from the BESS Facility into the substation
- Associated protection, control and metering equipment to be installed in the existing Snowtown Wind Farm substation building.

Refer to Figure 3.1 for the preliminary Project layout provided by Tilt Renewables.

Legend

- Project Area
- Existing 132kV Transmission Line
- Existing 33kV Transmission Line
- Indicative Underground Cable
- Indicative Underground Substation Cable
- Indicative BESS Infrastructure
- Indicative Internal Road
- Indicative Bench
- Indicative Switchroom and Control Room
- Indicative Harmonic Filter
- Indicative O&M Building
- Indicative Detention Pond
- Indicative Water Tank
- Indicative Washdown Bay
- Indicative Spare BESS Infrastructure
- Indicative Fence
- Existing Substation
- Tilt Owned Land
- Cadastre

Note: Indicative layout and subject to change

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Snowtown BESS

Indicative Project Layout

renewables

4 Traffic generation and potential impacts

This section outlines the expected traffic generated during the construction phases and the normal operation phase of the BESS facility. Post the normal operation phase, the eventual decommissioning phase will need to be investigated at the time of decommissioning and has not been considered as part of this assessment.

4.1 Construction

4.1.1 Construction philosophy

The assessment uses the following basis for construction philosophy, based on information from Tilt Renewables:

- 14-month construction duration comprising:
  - Phase 1 Civil Works (site establishment, site civil works and concreting), and
  - Phase 2 Installation (Equipment delivery, installation and commissioning of electrical and mechanical).
- Transportation of BESS components and construction materials to the Project Area and vehicle access for construction workers assumed to be residing in Snowtown will be via the Augusta Highway and Wokurna Road.
- Readymix concrete will be sourced from Port Broughton and transported to site via Wokurna Road (west).

The site will have the main construction access point located on Wokurna Road, approximately 200 m north of the intersection with Hewitt Road, which will cater for a majority of movements to and from the site. A secondary access point is located on Hewitt Road intended as an emergency access and secondary access point to the facility.

4.1.2 Estimated traffic movements

Estimated traffic movements during the two phases of the Project delivery have been derived from information provided by Tilt Renewables as well as assumptions based on previous projects of a similar nature and scale. These are shown in Table 4.1.

Table 4.1 Estimated traffic movements for construction Phases 1 and 2

Construction phase / activity	Duration	Vehicle type	Frequency	Range of daily movements
Phase 1 site / civil works				
Site mobilisation	Week 0–1	Bulldozer, scraper, front end loader	Once	1 trip in 1 trip out
		Water truck, roller	Once	1 trip in 1 trip out
		Tray top and tipper truck	Daily – 2 in/out max	Up to 10 trips in/out
		Cars/utes and construction workers (estimate 18 max)	Assume 1.2 persons per car – 15 trips in and 15 trips out per day	15–20 in/out

Construction phase / activity	Duration	Vehicle type	Frequency	Range of daily movements
Earthworks (Includes importing rubble from Bute quarry)	Week 1–4	Bulldozer, scraper, front end loader	On site from	
		Water truck, roller	Mobilisation	
		Tray top and tipper trucks; 2,500 m^3 – 250 trucks – 50/week	Average daily 10 trips in 10 trips out	5–15 in/out
		Cars/utes and construction workers (estimate 21 max)	17 trips in and 17 trips out per day	15–20 in/out
Civil and structural (assumes concrete comes from Port Broughton)	Week 4–16	Earthmoving equipment – backhoe, pile driver,	Once	1 trip to site and 1 trip out
		Mobile crane/lifting equipment	Once	2 units travel to site and from site
		Tipper trucks	5 trucks per day	4–6 in/out
		Ready-mix concrete trucks (estimate 2,000 m^3 concrete footings for buildings and BESS)	6 concrete trucks on 30 days over 60 days	0–8 per day on concrete pour days
		Cars/utes and construction workers (estimate 43 max)	35 trips in and 35 trips out per day	30–40 in/out
Phase 2 – Installation				
Mechanical and electrical – buildings, inverters/ transformers	Week 16–45	Low loaders (OSOM)	2 per day over 12 weeks	2–3 in/out
		Semi trailers	2 per day over 2 weeks	1–2 in/out
		Mobile crane/lifting equipment	2 times in/out	1–2 in/out
		Small trucks and tipper trucks	4 per day	3–5 in/out
		Cars/utes and construction workers (estimate 50 max)	42 trips in and 42 trips out per day	40–50 in/out
Commissioning and reliability testing	Week 45–56	Utes and vans	Daily	5–8 in/out
		Cars/utes and construction workers (estimate 40 max)	33 trips in/out per day	33 trips in/out per day

4.1.3 Traffic distribution and impacts

It is expected that the construction traffic will access the site via either of the 2 routes below:

- Traffic generated from the south (general deliveries, quarry materials, personnel):
  - Augusta Highway – Wokurna Road (east).
- Traffic generated from the north (concrete):
  - Upper Yorke Road – Wokurna Road (west).

Due to the restricted sight distances at the intersection, and additional travel distance along unsealed roads, travel along Barunga Top Road/Barunga Gap Road should be discouraged, with travel along Augusta Highway and Upper Yorke Road the preferred routes to the site.

Based on the above traffic forecasts developed for the project; the below is the resulting likely distribution of traffic accessing the site, which are not expected to have a significant impact upon the nominated roads with increases on Wokurna Road (east) between 30-60% increases in daily traffic, and on Wokurna Road (west) increases in daily traffic of up to 20%. Increases in traffic volumes along Augusta Highway are estimated to be up to 2–4% of daily traffic volumes. Estimated traffic distribution is shown in Table 4.2.

Table 4.2 Estimated traffic distribution for construction Phases 1 and 2

Phase	Stage	Access route	Daily movements
Phase 1 Civil	Mobilisation (week 0–1)	Augusta Highway – Wokurna Road	25–30 trips per day (in and out)
		Upper Yorke Road – Wokurna Road (west)	None expected
	Earthworks (weeks 1–4)	Augusta Highway – Wokurna Road	20–35 trips per day (in and out)
		Upper Yorke Road – Wokurna Road (west)	None expected
	Civil and structural (week 4–16)	Augusta Highway – Wokurna Road	30–40 trips per day (in and out)
		Upper Yorke Road – Wokurna Road (west)	0–8 trips per day (in and out)
Phase 2 installation	Mechanical and electrical – buildings, inverters/ transformers (weeks 16–45)	Augusta Highway – Wokurna Road	50–60 trips per day (in and out)
		Upper Yorke Road – Wokurna Road (west)	None expected
	Commissioning and reliability testing (Week 45–56)	Augusta Highway – Wokurna Road	35–45 trips per day (in and out)
		Upper Yorke Road – Wokurna Road (west)	None expected

4.1.4 Junction impacts

4.1.4.1 Augusta Highway/Wokurna Road intersection

The layout of the intersection will be able to cater for the number and types of expected vehicles expected to use the intersection, with construction related traffic travelling from the south turning left into Wokurna Road. The intersection was used for access for construction of an existing wind farm and has wide sealed aprons.

Sight distances are restricted and tree trimming to the north would be beneficial, as would installation of a hazard board sign on the east side of Augusta Highway opposite Wokurna Road to improve visibility of the highway.

4.1.4.2 Upper Yorke Road/Wokurna Road intersection

The layout of the intersection will be able to cater for the number and types of expected vehicles expected to use the intersection, with construction related traffic travelling from the north (Port Broughton) turning left into Wokurna Road. The intersection was likely used for access for construction of an existing wind farm and has wide sealed aprons.

Sight distances are restricted due to existing road geometry; however, tree trimming to the north and south would be beneficial and would provide marginal improvements, noting realignment of Upper Yorke Road would be cost prohibitive.

4.1.4.3 Hewitt Road/Wokurna Road intersection

The layout of the intersection will be able to cater for the number and types of expected vehicles expected to use the intersection, with Hewitt Road to be used for emergency and as a secondary access, and majority of construction traffic to enter site from Wokurna Road from the east and west. The intersection is un-sealed, hence regular maintenance is likely to be required at the intersection to ensure the pavement condition remains in a safe condition, given construction vehicles will be undertaking turning manoeuvres at the junction which will impact the unsealed pavement.

Vegetation on the north side of Hewitt Road will need to be trimmed to ensure the road width remains useable for two-way traffic during the project.

4.2 Operation

During normal operations, the BESS is expected to generate very small numbers of vehicles for ongoing operations and maintenance activities, forecast to be less than 1 vehicle per day which is not expected to result in significant impacts to the road network.

The Project is expected to be remotely operated and will not be regularly staffed. Inspections and maintenance activities are expected to typically up to two staff to be on site at any one time.

5 Management and mitigation measures

The following actions by the construction contractors and Tilt Renewables will assist in minimising the actual and perceived impacts of the construction traffic and operational traffic on the local road network and the community. The existing road network is able to cater for the expected types and volumes of vehicles forecast to access the site during construction without upgrades.

5.1 Construction

The below are the key mitigation measures to be employed during construction to reduce the impacts of the construction phase on roads accessing the site and nearby communities:

5.1.1 General

- The contractor will develop a Traffic Management Plan (TMP) to manage all aspects of the Project delivery. It is recommended that the TMP address the safe movement of vehicles associated with the Project to, from, and within the Project Area. This might include safety messages with respect to driving on the unsealed local road network including:
  - driving on narrow roads requiring drivers to move over when passing oncoming vehicles
  - driving on unlit unsealed roads at night
  - driving in proximity to oversize or over-mass vehicles
  - awareness of occasional presence of farm machinery.
- It is also recommended to establish and maintain communications with the local authority and local residents (and any other stakeholders) who use the roads regularly to keep them informed on every phase of the Project and what to expect in terms of vehicle traffic movements. Specifically, maintain regular contact and good relations with the residents of the properties located along Wokurna Road between Barunga Top Road and Augusta Highway, these being the most impacted of the sensitive receivers along the construction traffic route. This would also enable the contractor to be made aware of seasonal harvesting activities and use of the roads by large farming equipment, and school buses.
- Parking of vehicles along the local roads should be discouraged as a rule, with adequate parking for workers provided on-site during the construction phase and during normal operations.
- Where it is within the control of the construction contractor, encourage regular truck operators to use the same local roads to access the Project Area so that the local community becomes familiar with the changed traffic conditions.
- During major construction works, ensure plant / equipment / material deliveries are coordinated, ensuring there isn't a need for vehicles to queue on the local road network while waiting to access the site.
- Minimise (if not avoid) traffic-generating activities at night-time so as to avoid noise nuisance and travel along the unlit and unsealed sections of roads and junctions.
- If over-dimensional or over-mass vehicles are required, conduct a heavy vehicle assessment and act on the assessment findings prior to submitting an application for permits to operate over dimensional or over-mass vehicles along the required routes.

5.1.2 Wokurna Road

- It is understood that a local school bus travels along Wokurna Road, including undertaking a u-turn. Liaison with the local school to determine timings of the bus movements should be undertaken, and the TMP should consider the need for school bus warning signs to be installed at the bus stop locations.
- Wokurna Road varies in condition along its length but, in the main, is currently fit-for purpose. It is suggested that prior to the commencement of construction activities, Tilt Renewables through its delivery contractor arrange for condition surveys to be undertaken along the key access roads that may be used during the Project. This will provide a reliable basis for restoring any Project related damage to these roads when the Project is complete.
- During the Project construction, the contractor will need to ensure that the roads are maintained in an appropriate condition that provides for the safe movement along them. This will be undertaken in consultation with the local council and include:
  - routine maintenance to clear roads (especially around curves) and junctions of loose materials that might lead to drivers losing control of their vehicle repair potholes and sections of pavement that have worn through. Focus on ensuring that pavements at junctions where turning movements are taking place are maintained in good condition
  - ad-hoc maintenance to restore pavements following inclement weather. This includes dust suppression during dry periods not only to reduce the loss of fine materials from the road pavement and subsequent loss of aggregate but also to limit dust nuisance to residents and other road users.

5.1.3 Wokurna Road/Augusta Highway

- Monitor the condition of the road pavement along the Project transport route, and undertake maintenance as required to ensure the integrity of the riding surface.
- Installation of a new hazard board sign opposite Wokurna Road on the east side of Augusta Highway to improve visibility of the intersection should be considered in the TMP.
- Consult with DIT regarding the need for tree trimming to the north Augusta Highway to improve restricted sight distances at the Wokurna Road/Augusta Highway intersection.

5.1.4 Wokurna Road/Hewitt Road

- Monitor the condition of the road pavement along the Project transport route, and undertake maintenance as required to ensure the integrity of the riding surface.

5.1.5 Wokurna Road/Upper Yorke Road

- Monitor the condition of the road pavement along Project transport route, and undertake maintenance as required to ensure the integrity of the riding surface.
- Consult with DIT regarding the need for tree trimming on Upper Yorke Road immediately north and south of Wokurna Road intersection to improve restricted sight distances.

5.2 Operation

It is understood that during normal operations, there will be limited need for monitoring and maintenance activities. The below are the key mitigation measures to be employed during the normal operation phase of the Snowtown BESS to reduce the impacts of the construction phase on roads accessing the site and nearby communities:

- Ensure vehicles accessing the site for general operations/monitoring and maintenance park on-site to reduce impacts to other road users.
- Minimise (if not avoid) traffic-generating activities at night-time so as to avoid noise nuisance and travel along the unlit and unsealed sections of roads and junctions.

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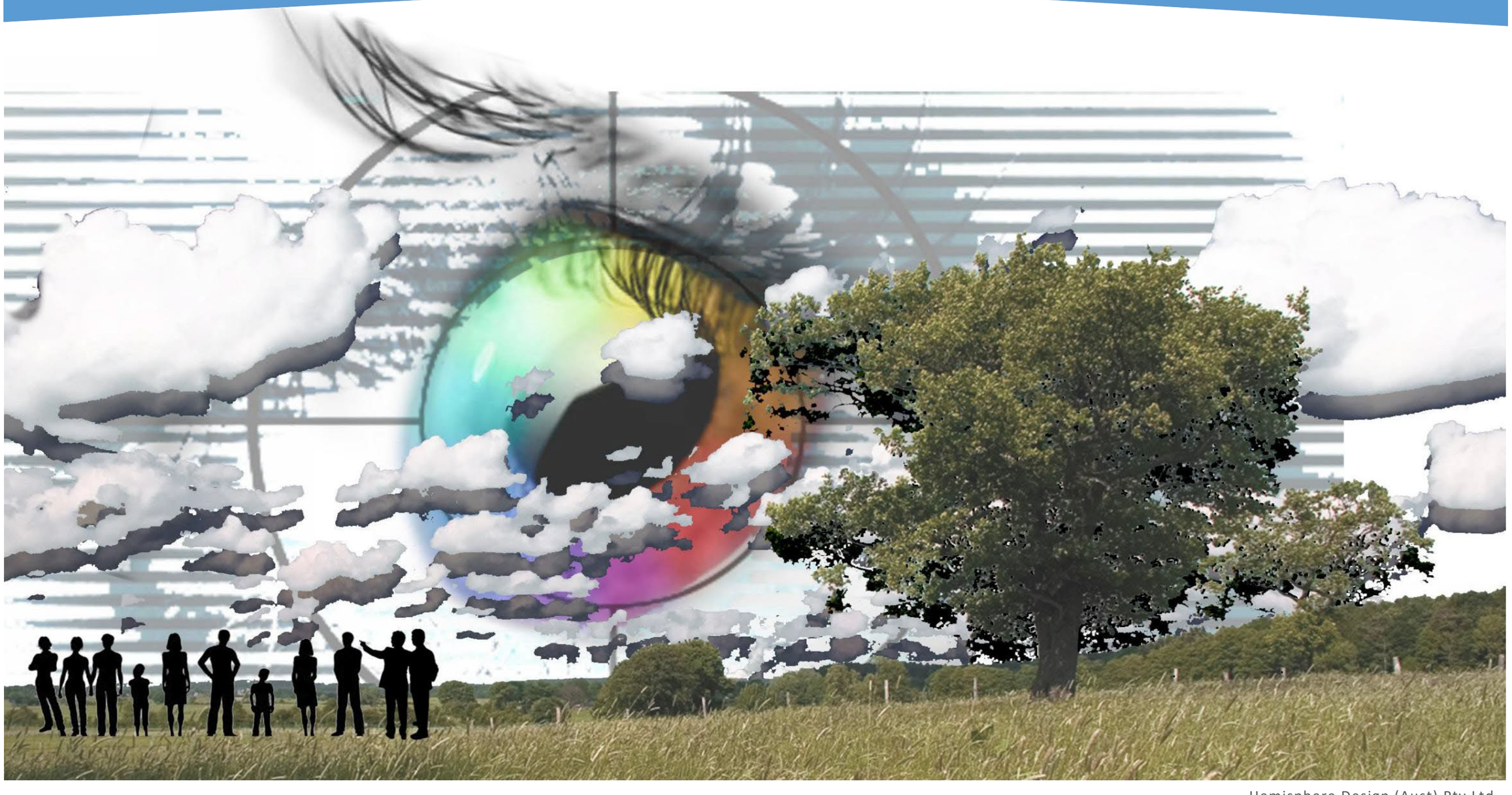
Appendix I

Landscape character and visual impact assessment

Snowtown Battery Energy Storage System (BESS)

Landscape Character and Visual Impact Assessment

July 2025



Hemisphere Design (Aust) Pty Ltd

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About the author

Stuart Heseltine, Principal, Hemisphere Design (Aust) Pty Ltd. Stuart is acknowledged as a leading practitioner in the area of landscape character and visual impact assessment. In considering each visual impact assessment exercise Stuart undertakes a qualitative landscape character assessment consistent with best practice as prescribed by the Guidelines for Landscape and Visual Impact Assessment (third edition), the Landscape Institute (UK) and Institute of Environmental Management and Assessment (NSW) 2013.

Stuart has successfully applied this methodology to major projects across South Australia, the Northern Territory, New South Wales, Victoria and Western Australia. Stuart has prepared assessments for the Adelaide, Kangaroo Island and Port Lincoln Desalination Plants (SA), the Lincoln Gap (Stage 3) and Barn Hill Wind Farm Developments (SA), the Chaff Mill (SA), Tailem Bend (SA) Stage Two, Frasers Solar Farm (Glengarry North, Victoria), Mid Murray and Berri Solar Farm developments (SA), the Clements Gap BESS (SA), Tyabb BESS (Mornington Peninsula, Victoria) and the Torrens Island Gas Power Station Expansion (SA). In addition, Stuart has recently undertaken visual impact assessments for Crown Development Applications to support the Whyalla Hydrogen Jobs Plan and the Northen Water Supply, initiatives which underpin the Government of South Australia's commitment to building a world leading renewable hydrogen power plant, electrolyser and storage facility near Whyalla.

Stuart provides regular advice on the likely visual impact pertaining to Development Applications lodged in numerous Adelaide metropolitan and regional council areas.

Stuart's particular expertise in undertaking visual assessments is highly sought after for the provision of expert evidence for the Environment, Resources and Development Court (SA).

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Glossary of terms

Term	Description
AIL	Associated Infrastructure Licence
BESS	Battery Energy Storage System
HD	Hemisphere Design
HRE Act	*Hydrogen and Renewable Energy Act 2023* (South Australia)
Landscape Assessment	An assessment of the elements that collectively make up the landscape, such as landform, vegetation, land-use and cultural influences
LCVIA	Landscape Character and Visual Impact Assessment
Location(s) / Locality	The position or site of something
MV	Medium Voltage
MW	Megawatt
PDC	PlanSA. Planning and Design Code
Receptor(s)	A place, route, viewer audience or interest group which may receive an effect and require assessment.
Sensitive Receptor (SR)	A Viewpoint or Viewpoint Locality where the observer is more susceptible to the visual impact of the development
Sensitive Receptor Locality (SRL)	An area where there are a number of collocated sensitive receptors
Viewpoint (VP)	A position providing a view of the proposed development from where an assessment is made to consider landscape character and the likely potential for visual impacts which may result as a consequence of the development.
Viewpoint Locality (VPL)	An area where there are a number of collocated viewpoints
Visibility shadow	Areas within the likely ZTVI where it is predicted that the proposed development will not be visible because there are a combination of ridgelines and depressions, specific blocks of vegetation and built form between the viewer and the proposed site that potentially blocks all views
Visual Exposure	A measure of the degree to which an observer at a location can see or potentially see the area to be affected by the proposed development. The visual exposure is subjectively classified as either none, low, moderate or high.
WSP	WSP environmental consulting company
WTG(s)	Wind Turbine Generator(s)
Zone of Theoretical Visual Influence (ZTVI)	The Zone of Theoretical Visual Influence (ZTVI) is the defined area within which modification to the contextual landscape as a result of the proposed development could be discernible to the naked eye. A nominated radius (e.g. 5km, 10km, 20km etc) from the centre of the proposed site is adopted as the likely furthest extent of the likely ZTVI.

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Issue Number	Date Issued	Author	Approved By	Date Approved	Revision Type	Issued to
#01	16 May 2025	Stuart Heseltine	Stuart Heseltine	16 May 2025	N/A	Tenille Anderson, WSP
#02	27 May 2025	Stuart Heseltine	Stuart Heseltine	27 May 2025	Response to client comments	Tenille Anderson, WSP
#03	18 June 2025	Stuart Heseltine	Stuart Heseltine	18 June 2025	Response to client comments	Tenille Anderson, WSP
#04	02 July 2025	Stuart Heseltine	Stuart Heseltine	02 July 2025	Response to client comments	Tenille Anderson, WSP

Executive summary

This Landscape Character and Visual Impact Assessment (LCVIA) has been prepared as one of several studies to support an Associated Infrastructure Licence (AIL) under the *Hydrogen and Renewable Energy Act 2023* (HRE Act) to construct a 100 megawatts Battery Energy Storage System (BESS) on agricultural land approximately 10km northwest of Snowtown, South Australia (herein referred to as The Project). The Project is proposed to be developed by Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust.

As with all new infrastructure developments the introduction of a BESS will potentially alter the character and visual qualities of the locality and wider contextual landscape. However, in a contextual landscape of **low scenic quality** with a **low sensitivity to change** where the existing substation, array of transmission lines mounted on monopoles and the Snowtown Wind Farm adjacent Snowtown Substation are notable visual features, the likely visual impact of the low profile, more prostrate BESS infrastructure of The Project will be inconsequential.

Based on this, the visual impact that is likely to be experienced by The Project both singularly and cumulatively within the Zone of Theoretical Visual Influence will be one of **no change.**

Outside the Zone of Theoretical Visual Influence the visual impact of The Project will be inconsequential.

It is the author's opinion that the proposed BESS will <u>not</u>:

- adversely affect or have irreparable consequences for the visual amenity of either the locality or the wider contextual landscape given the low scenic quality of the locality and contextual landscape and prostrate form of the development which is largely concealed from views within the locality;
- be at a variance with the relevant provisions of South Australian Planning and Design Code;
- require vegetative screening.

The locality is one characterised through the presence of highly visible renewable energy and utilitarian infrastructure, as such It is the authors opinion that The Project likely will be seen as a complementary feature of visual 'incident' in the locality.

1. Introduction

This Landscape Character and Visual Impact Assessment (LCVIA) has been prepared as one of several studies to support a Associated Infrastructure Licence (AIL) under the *Hydrogen and Renewable Energy Act 2023*[1] (HRE Act) by Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust to develop a 100 megawatt (MW) Battery Energy Storage System (BESS) on disused agricultural land 10km northwest of Snowtown, South Australia (herein referred to as The Project).

This LCVIA provides an analysis of:

- the existing landscape character and visual amenity of the contextual landscape and locality for the proposed location of The Project and associated infrastructure;
- the sensitivity of the landscape to change; and
- the likely degree of visual impact as a result of the introduction of The Project.

This assessment determines the likely visual impact of The Project as well as the likely cumulative visual impact when considered in conjunction with the adjacent land uses, Snowtown substation and Snowtown Wind Farm.

The procession of existing tall columnar stobie poles and powerlines and gantry structures of the existing substation are prominent and incongruous yet accepted integral visual features of the existing contextual landscape.

2. Project description

The Project is located in Wokurna, South Australia, about 170 kilometres northwest of Adelaide in the Wakefield Regional Council.

The proposed project site comprises of private land zoned rural under the South Australian *Planning, Development and Infrastructure Act 2016*.[2] It is currently used for cereal cropping and is situated adjacent to an existing substation and grid infrastructure. The proposed BESS would have a maximum capacity of 100 MW with up to 4-hour duration.

The BESS would connect to the adjacent existing substation via cables laid underground.

The Layout and General Arrangement Report[3] provided by Entura outlines the permanent infrastructure that is proposed for The Project.

- The project comprises of BESS Containers similar in appearance to shipping containers, finished in neutral colours and at a finished height approximately 3.8m above ground level. Each modular BESS will be arranged in rows as shown in Appendix A Site layout.
- The Project will include an approximately 15m tall communications tower and approximately 25m tall lightning protection mast both constructed of galvanised steel. Other operational built-form includes Inverters, Medium Voltage (MV) transformers and cooling systems.
- Associated site infrastructure includes but is not limited to a switchyard, operations and maintenance buildings, site office and associated amenities, storage sheds, cabling, fencing and water management infrastructure and car parking.
- Buildings will be mainly of colourbond with neutral finishes and colours and range between 5.5m to 7.5m (approximate) with an external perimeter fence approximately 2.1m high.
- After hours lighting directed internally to avoid glare will be installed for general maintenance purposes.

3. LCVIA considerations

The following inputs have been considered in the preparation of this assessment:

- Location drawings and indicative layout/construction plans provided by WSP;
- Aerial photography of the proposed site and wider locality;
- On-site photography of the locality and wider contextual landscape undertaken by Hemisphere Design and Convergen.
- The relevant objectives of the Planning and Design Code (PDC) South Australia.

[1] *Hydrogen and Renewable Energy Act 2023* (South Australia) https://www.legislation.sa.gov.au/lz?path=/c/a/hydrogen%20and%20renewable%20energy%20act%202023
[2] *Planning, Development and infrastructure Act 2016*. (South Australia) Version 19.9.2024. https://www.legislation.sa.gov.au/__legislation/lz/c/a/planning%20development%20and%20infrastructure%20act%202016/current/2016.14.auth.pdf
[3] Entura. *Snowtown Hybrid BESS. Layout and General Arrangement Report*. HTE006-1899870719-802. 24 April 2025.

4. LCVIA assumptions

The assessment was undertaken based on the aforementioned layout and general arrangements and design layout drawing.

5. Methodology for LCVIAs

The methodology employed for the LCVIA involves consideration of best practice guidelines in qualitatively considering the landscape character and the likely visual impact of a proposal. Relevant statutory policies and/or guidelines are also considered and assessed as part of the LCVIA process. The qualitative landscape character assessment is undertaken in a rigorous manner consistent with best practice, as prescribed by the *Guidelines for Landscape and Visual Impact Assessment* (Third Edition).[4]

Further to the visual impact assessment a cumulative visual impact assessment is also made. Cumulative visual impacts result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. Several developments with insignificant impacts individually may together have a cumulative effect. In order to assess the cumulative visual impact of a development, the process outlined by NatureScot[5] which has been developed in relation to assessing the cumulative landscape and visual impact of onshore wind energy developments is adopted.

Whilst the NatureScot guidance has been developed for assessment of cumulative visual impact of Wind Farms, the principles and considerations can be applied similarly to other developments where infrastructure elements such as battery energy storage systems, solar farms, transmission powerlines, desalination plants and other renewable energy developments are introduced into the landscape.

5.1. Desktop analysis

A preliminary desktop study is undertaken using 'Google Earth' to remotely analyse the geographical area within which the proposed project is located. During this phase, the Zone of Theoretical Visual Influence (ZTVI), Viewpoints and, where relevant, a Visibility Shadow are determined.

The ZTVI is the defined geographical area within which modification to the contextual landscape as a result of the proposal could be potentially discernible or visible.

Within the determined ZTVI, Viewpoints, being positions (and usually publicly accessible locations) providing a view of the proposed development from where an assessment is made, are identified to enable the character assessment of the contextual landscape and locality to be fully considered during the subsequent on-site visit. Viewpoints are selected where the assessor considers notable views of the development may, or are likely, to be received. Factors such as frequency or duration of visitation, whether a private dwelling/property or a publicly accessible location and other site-specific factors are taken into consideration when selecting the Viewpoint. The likely potential for visual impacts which may result as a consequence of the development are also assessed from each Viewpoint to prepare for the on-site visit.

Areas within the likely ZTVI where it is predicted that the proposed development will not be visible, for reasons that may include the presence of a combination of ridgelines and depressions, and/or specific blocks of vegetation and built form between the viewer and the proposed site that potentially blocks all views, enable a Visibility Shadow to be determined within the ZTVI.

The footprint of the Visibility Shadow, identified as relative percentage of the ZTVI, is validated through the on-site assessment.

5.2. On-site analysis

Following the desk-top analysis, one or more on-site visits are made to substantiate, corroborate and refine the assessments made remotely. Viewpoints and other general locations are visited with regard to the ZTVI, and the Visibility Shadow and also to underpin the visual impact assessment.

The on-site assessment identifies areas within the likely ZTVI where it is predicted that the proposed development will not be visible, for reasons that may include the presence of a combination of ridgelines and depressions, and/or specific blocks of vegetation and built form between the viewer and the proposed site that potentially blocks all views.

The on-site assessments also enable identification of Viewpoints that are considered to be Sensitive Receptors (SRs) or Sensitive Receptor Localities (SRLs) to be confirmed; that is, Viewpoints where the observer is more susceptible to the visual impact of the proposed development.

A qualitative assessment of the likely visual impact of the proposal is undertaken from the identified SRs/SRLs and the subsequent degree of likely visual impact of the proposal overall is determined.

Photographs are taken on-site from relevant Viewpoints and other general locations to facilitate graphic presentation of the likely development and are taken using a lens setting that most closely reflects the view as seen by the 'naked eye' (such that there are no changes to the apparent size or distance of the proposal site). The assessment is supported by photomontage imagery to enable visualisation of the

[4] Landscape Institute and Institute of Environmental Management and Assessment. *Guidelines for landscape and visual impact assessment (3rd ed.).* (2013). Routledge. https://doi.org/10.4324/9780203436295.

[5] NatureScot. (2021) *Guidance – Assessing the cumulative landscape and visual impact of onshore wind energy developments.* https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments

proposed development upon the site and Linewire/Photo-negative 'x-ray images' are also included for reference which depict the presence of proposed infrastructure in each photomontage without in-situ and contextual rendering.

5.3. Landscape assessment

Landscape assessment, in contrast to visual assessment, deals with the fabric, character and quality of the countryside. The landscape fabric consists of the elements that make up the landscape, such as landform, land-use and cultural influences. The way these elements fit together in terms of proportion, pattern, scale, etc., gives rise to a particular landscape character. Changes to the fabric and character of a particular landscape may affect the perceived value of that landscape, giving rise to changes in its quality.

The landscape character assessment encompasses both the wider contextual landscape and the locality, which is visually more difficult to define and within which the proposed development is located.

This characterisation process establishes a 'baseline' upon which judgments about the potential effects of the proposed development can be made. The following guiding definitions are applied to determine the landscape assessment:

Table 1: Landscape character definitions

High scenic quality	Areas and localities which exhibit an exceptionally strong positive character with valued features which combine to give an experience of unity, richness and harmony. Within this definition 'exceptional' could apply where an area is also deemed to be worthy of a legislative designation, e.g. a National Park.
Moderate scenic quality	Areas which exhibit a strong positive character with valued features with evidence of a visually acceptable level of alteration/degradation/erosion resulting in a location of more mixed character.
Low scenic quality	Areas with a generally positive character with fewer valued features with evidence of a visually acceptable level of alteration/degradation/erosion resulting in a location of more mixed character.
No scenic quality	Areas with a little or no positive character with few or no valued features with evidence of a visually unacceptable level of alteration/degradation/ erosion resulting in a highly modified location of little character.

5.4. Landscape sensitivity to change

The landscape characterisation process also enables an assessment of the landscape 'sensitivity to change', that is the ability of the landscape to accommodate the visual change associated with the proposed infrastructure, for both the wider contextual landscape and the locality.

> *"Landscape sensitivity may be regarded as a measure of the resilience, or robustness, of a landscape to withstand specified change arising from development types or land management practices, without undue negative effects on the landscape and visual baseline and their value."*[6]

For example, a landscape that displays a high 'sensitivity to change' would not be able to absorb a development of the nature proposed by the development without irreparable consequences and impacts on the inherent character and visual amenity.

The following definitions are applied to determine the landscape's sensitivity to change:

Table 2: Landscape sensitivity to change definitions

High sensitivity to change	Key characteristics and qualities of the landscape are highly sensitive to change from the development type. Development would significantly conflict with several of the assessment criteria with severe adverse impacts likely to arise.
Medium sensitivity to change	Some of the key landscape characteristics or qualities of the landscape are sensitive to change from the development type. There is some ability to accommodate development in some situations without widespread or severe changes to the landscape; the development type relates to some aspects of landscape character.
Low sensitivity to change	Fewer of the key characteristics and qualities of the landscape are sensitive to change from the development type. There are opportunities to accommodate the development type in most locations without widespread or severe effects on the assessment criteria; the development type relates to many aspects of landscape character.
Negligible sensitivity to change	Key characteristics and qualities of the landscape are unlikely to be adversely affected by the introduction of the development type. The development type relates well to the assessment criteria and change may be accommodated without widespread significant adverse impacts on the landscape.

The factors used to determine the landscape sensitivity include:

- Pattern (simple or complex) and scale of the landscape;
- Existing land use;

[6] Landscape Institute and Institute of Environmental Management and Assessment. Guidelines for landscape and visual impact assessment (3rd ed.). (2013). Routledge. https://doi.org/10.4324/9780203436295.

- Visual enclosure and openness of views;
- Scope for mitigation which would be in character with the existing landscape; and
- Value of the modified or natural visual landscape and 'sense of place'.

In general landscape sensitivity:

- Decreases when the viewing time is infrequent and becomes shorter; however, repetitive viewing even if of a short duration will increase sensitivity;
- Decreases as distance from the viewer to the development increases;
- Varies depending on the activity of the viewer, for example a resident within the confines of their dwelling at rest as compared to a rural hiker;
- Increases where a view is enjoyed and highly valued by the immediate community;
- Increases where a view is seen by many viewers;
- Increases if the view is seen from residences; and
- Increases if the visual landscape plays a part in tourist or recreational activities.

5.5. Likely visual impact assessment

Determining the likely visual impact of a development proposal in most regional locations presents obvious challenges where properties are often located some distance off major roads on private land away from publicly accessible locations. Where access is not sought to enter private land to obtain a view(s) that will best represent a potential visual impact, assumptions have to be drawn from views obtained from public locations that best typify the view and consequent visual impact that would likely be received from within the curtilage of the dwelling located on such 'remote' properties.

The following factors are considered when assessing the likely visual impact of the visual features of a proposed development on the SRs and SRLs:

- The visual qualities of the view and the duration and angle of the view in relation to the main activity of the viewer;
- The distance of the viewpoint from proposed visible infrastructure;
- The extent of the area over which the changes would be visible and the scale of the change in the view (loss or addition of features, changes in composition, proportion of view affected);
- The degree of contrast in form, scale, mass, line, height, colour and texture introduced into the view by the development where existing development is conspicuous;
- The duration and nature of the effect (temporary, permanent, intermittent);
- The numbers and types of viewers affected; and
- The potential for variety of infrastructure elements, their design or their layout close to each other, particularly when sited in an undulating landscape which has the potential to cause visual conflict, confusion and/or complexity.

The likely visual impact is determined before any potential mitigation is considered. The following criteria are applied to describe the likely visual impact of a proposed development at the SRs and SRLs:

Table 3: Likely visual impact definitions

Substantial adverse impact	where the scheme would cause a significant deterioration in the existing view
Moderate adverse impact	where the scheme would cause a noticeable deterioration in the existing view
Slight adverse impact	where the scheme would cause a barely perceptible deterioration in the existing view
No change	no discernible deterioration or improvement in the existing view
Slight beneficial impact	where the scheme would cause a barely perceptible improvement in the existing view
Moderate beneficial impact	where the scheme would cause a noticeable improvement in the existing view
Substantial beneficial impact	where the scheme would cause a significant improvement in the existing view

These criteria are also applied to the consideration of the cumulative visual impact.

5.6. Consideration of likely Cumulative Visual Impacts

The following widely accepted definition of cumulative impacts, presented by NatureScot[7], is adopted for the purpose of assessment of likely cumulative visual impact:

> *[An assessment of] 'the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together.'*

Factors that contribute to the cumulative impact of development on landscape and visual amenity include:

- the distance between individual developments;
- the distance and area over which they are 'intervisible';
- the overall character of landscape and its sensitivity to development;

[7] NatureScot. (2021) *Guidance – Assessing the cumulative landscape and visual impact of onshore wind energy developments.* https://www.nature.scot/doc/guidance-assessing-cumulative-landscape-and-visual-impact-onshore-wind-energy-developments

- the siting and design of the elements and the development themselves;
- the way in which landscape is experienced.

"The magnitude of cumulative change may be different from the magnitude of change brought about by the development when considered on its own. The aim of the cumulative assessment is to identify the magnitude of additional cumulative change which would be brought about by the proposed development when considered in conjunction with other wind farms in the wider contextual landscape."[8]

The cumulative visual impact assessment process advocates that the purpose of such an assessment is to identify the significant cumulative impacts arising from the proposed development and suggests the following parameters should be considered in assessing likely cumulative visual impact.

"Cumulative impacts on visual amenity can be caused by 'combined visibility' and/or 'sequential impacts':

Combined visibility occurs where the observer is able to see two or more developments from one viewpoint. Assessments should consider the combined effect of all [developments] which are (or would be) visible from relevant viewpoints. Combined visibility may either be in combination (where several [developments] are within the observer's arc of vision at the same time) or in succession (where the observer has to turn to see the various [developments]).

Sequential impacts occur when the observer has to move to another viewpoint to see different developments. Sequential impacts should be assessed for travel along regularly-used routes like major roads, railway lines, ferry routes, popular paths, etc. The magnitude of sequential effects will be affected by speed of travel and distance between viewpoints.

Two [developments] need not be intervisible – or even visible from a common viewpoint – to have impacts on the landscape experience for those travelling through, or living in an area. For example, it may be necessary to consider the cumulative impacts of [developments] on users of scenic road routes, or routes for walkers, cyclists and other recreational users, along their full length within the agreed study area."[9]

The likely cumulative visual impact assessment also considers the magnitude of the cumulative change, which depends on "the scale, nature, duration and frequency of combined and sequential views (glimpses or more prolonged views; oblique, filtered or more direct views; time separation between sequential views)". This requires assessment of:

- the number of other developments which would be visible in the landscape in each of the different scenarios (existing, consented or application stage);
- direction of view to each of the developments;
- distance to each of the developments;
- the number and height of infrastructure elements at each of the developments – which may also be expressed as the horizontal and vertical angle occupied by elements – and any access tracks and grid connections;
- identification of key routes and journey scenarios, including impacts on key recreation resources such as long-distance routes, coastal paths and core paths;
- duration of the change (i.e. age of constructed developments and the planning status of the other development projects).

In summary, Cumulative Visual Impact Assessments should be carried out where a proposed development may be seen in conjunction with other developments, to determine whether the introduction of additional infrastructure elements significantly alters the prevailing character of the contextual landscape and or the locality within which the development will be constructed.

6. Landscape Character Assessment of The Project

Prior to commencing the on-site assessment, a desktop study was undertaken that established a 2km radius from the centre of The Project for the likely Zone of Theoretical Influence (ZTVI) (refer to Figure 1 – Contextual Landscape with Viewpoints and Visibility Shadow).

The desktop study also identified areas from within the ZTVI where proposed infrastructure will likely fall within the visibility shadow. Using Google Earth aerial photography, Shuttle Radar Topography Mission (SRTM) data and where available Google Earth 'street view', a visibility analysis was undertaken to identify the visibility shadow within the 2km ZTVI where The Project, as part of a collocated collection, is likely to not be visible or will likely be only partially visible.

Viewpoints both within the ZTVI and further afield were identified for on-site consideration and assessment made to both define the landscape character of the contextual landscape and locality and to determine the likely presence of sensitive receptors within the ZTVI. The desk-top study identified a total

[8] NatureScot. (2021)
[9] NatureScot. (2021)

of four (VP 01 – VP 04) publicly accessible Viewpoints adjacent to private residences for consideration and assessment.

During the site visit undertaken on 21 February 2025 the weather was mostly fine and the visibility was acceptable. Photographs were taken at selected viewpoints to underpin the landscape character and visual impact assessment. Photographs have been taken using a 35mm Single Lens Reflex (SLR) camera with an approximate lens setting of 43mm.

From the Viewpoints and other general locations visited, the landscape character of the locality was reaffirmed, and preliminary consideration given to the potential visual impacts which may result as a consequence of The Project.

Assessment of aerial imagery and on-site photographs taken at the four Viewpoints, reaffirmed the findings of the desktop study with regard to the definition of both the ZTVI, the visibility shadow and the character assessment of the locality.

The four Viewpoints were each identified as SRs, as these were all locations where views of the more visually prominent infrastructure elements of The Project are potentially likely to be obtained from publicly accessible locations (shown in Figure 1: Contextual Landscape with Viewpoints and Visibility Shadow). Preliminary consideration was given to the potential visual impacts which may result because of The Project from each location.

During the desk-top analysis and site visit, all other potential viewpoints in and adjacent to the ZTVI were considered to be locations where the presence and likely visual impact of The Project will be either largely indiscernible or have low frequency of visitation and were hence not assessed in any further detail.

Preparation of photomontage imagery incorporating scaled representations of the proposed built form of the project was made by Convergen.

6.1. Locality and contextual landscape

The Project is to be located in a less frequented area of a contextual landscape that is defined by sweeping expansive vistas afforded across a modified agricultural landscape to the west of the Snowtown township.

It is a contextual landscape comprising of open pastural grazing land that has been visually transformed by the installation of the Clements Gap and Snowtown Wind Farms along the higher ridges and crests of the Barunga Range. The existing conglomeration of Wind Turbine Generators (WTGs) is a notable focal point, their presence and the resultant 'visual procession' enhances the travellers' north/south journey along the Augusta Highway to the east.

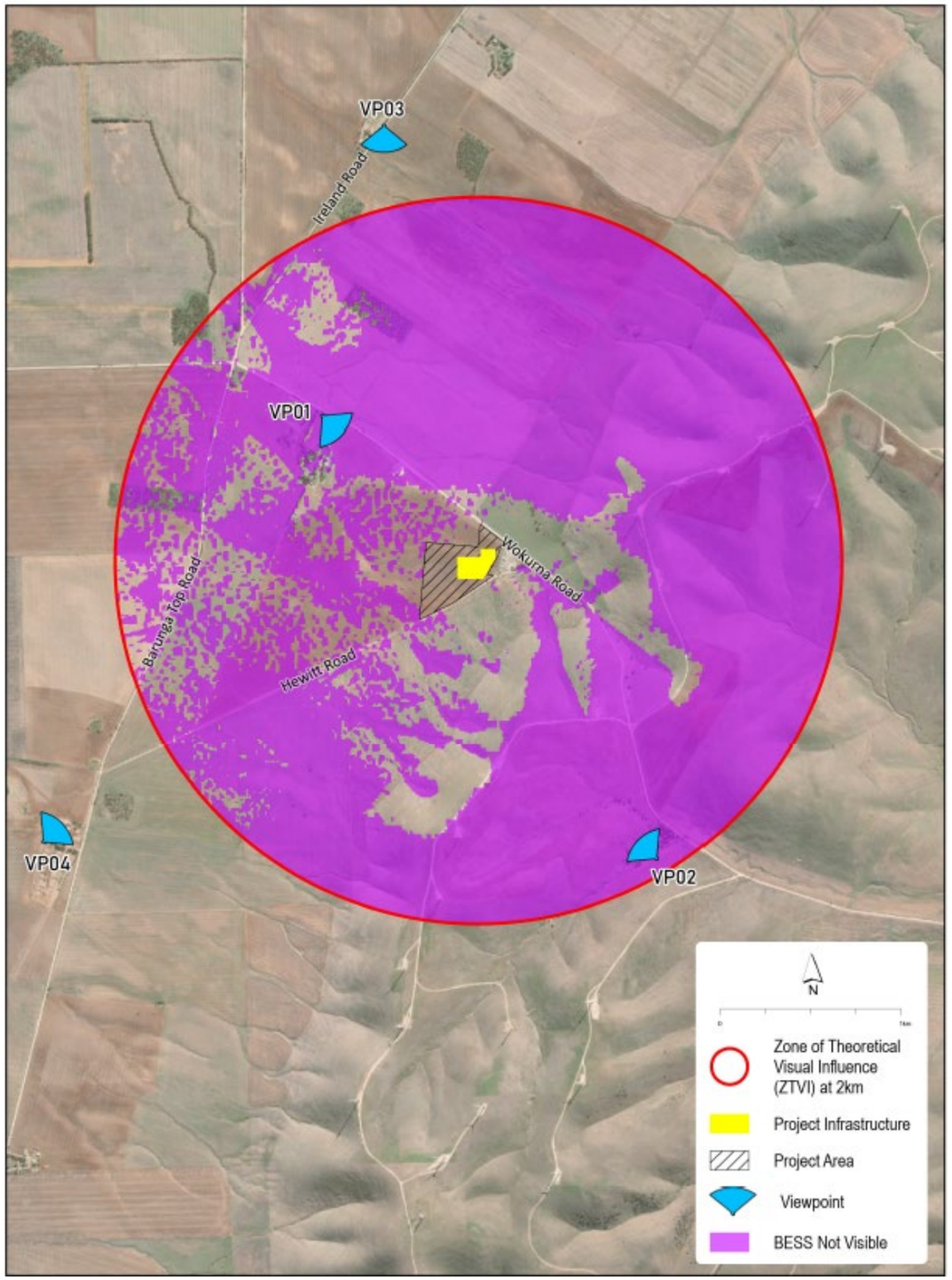

Figure 1: Contextual Landscape with Viewpoints and Visibility Shadow

The scale and proportion of the prominent WTGs, and 'procession' of mono poles and stobies strung with a catenary of transmission lines dissecting the visual plane in all directions in a visually simple landscape is appropriate; they are notable and generally accepted visual features which silhouette the expansive horizon.

The 'monumentality' of the contextual landscape, defined by the open planar fields devoid of expansive copses of mature vegetation is one which readily absorbs large prominent visual elements as evidenced by the presence of the existing Snowtown 'wind farm conglomeration' and distant Clements Gap Wind Farm. The vertical forms of the ever-present WTGs spread out over the landform in 'dendritic' like fashion and provide visual cues which narrate the traveller's journey. The asymmetrical motion of turning blades has a symbiotic relationship with the undulating nature of the contextual landscape, accentuating the folds and creases of the enveloping ranges on which the WTGs are positioned.

6.2. Immediate setting and locality

The Project's more immediate locality is defined by a north-south visual 'corridor' bounded by the Barunga Range. It is a rural locality generally devoid of the massing of large trees and a locality where the visual expanse, uniformity and regularity of rectangular pastural and cropping fields with repetitive textures and colours create a visually underwhelming experience.

To the west where the undulating land rises to the foothills of the range, the ochre-coloured compacted gravel pavement of Wokurna Road draws the eye of the observer across a panorama where the foreground is marred by the columnar forms of the existing substation gantry infrastructure only partially screened by a copse of medium sized trees and shrubs.

Vehicular movement along the network of non-bituminised roads within the locality would be undertaken mostly by locals and residents who are accessing their property; as a result, whilst The Project will likely be a notable feature of the immediate visual landscape, locations other than those adjacent to the existing residential properties are not considered to be Sensitive Receptors.

It is the author's opinion that the landscape character is one of a **low scenic quality** and has a **low sensitivity to change**.

7. Likely Visual Impact Assessment

Access was not sought to enter private land to obtain a view(s) that will best represent a potential visual impact from a private dwelling, thus assumptions are drawn from views obtained from public locations that best typify the likely view experienced by property occupants. As highlighted in the methodology, this presents assessment challenges; however, it is the author's opinion this LCVIA assessment is an accurate and fair presentation of the potential likely impacts given these obvious constraints.

The Viewpoints identified as SRs were assessed in detail to consider the likely visual impact on each viewpoint, particularly as these are also representative of other similar views in the wider locality.

The assessment of character and likely visual impact at the four pre-selected Viewpoints are described below.

7.1. Assessment of likely visual impact from selected viewpoints

Viewpoint 01 (VP 01): No. 953 Wokurna Road – north

Image 1: Viewpoint 01 adjacent 953 Wokurna Road looking southeast

- Approximately 1.1km northwest of The Project
- View 180-degrees southeast

This Viewpoint is considered to be a Sensitive Receptor due to the proximity of the residential property to The Project.

Views to The Project across rising cropping land and unsealed roads to a horizon defined by the imposing silhouetted forms of WTGs. The absence of large vegetation flanking the road verges affords open and expansive views towards The Project site from the nearby dwelling.

The locality and surrounding areas fall within the ZTVI 'visibility shadow' and given the low prostrate form of the BESS containers, The Project will be largely anonymous within a planar landscape. Likely views of the proposed infrastructure will be indiscernible when juxtaposed against the expansive hills face and horizon, including the mid to higher aspects of the proposed slender lightning mast.

Both singularly and cumulatively where the nearby WTGs are prominent visual features of the locality, the likely visual impact will be one of **no change.**

Image 2: Photomontage of The Project from Viewpoint 01 adjacent 953 Wokurna Road looking southeast

Image 3: X-ray image of The Project from Viewpoint 01 adjacent 953 Wokurna Road looking southeast

Viewpoint 02 (VP 02): No. 631 Wokurna Road – south

Image 4: Viewpoint 02 adjacent 631 Wokurna Road looking northwest

Visual Impact Assessment

- Approximately 1.75km southeast of The Project
- View 180-degrees northwest

This Viewpoint is considered to be a Sensitive Receptor due to the proximity of the residential property to The Project.

The absence of vegetation flanking the road verges affords open and expansive views across the immediate foreground of undulating grazing and cropping land and unsealed roads. The view draws the eye of the observer north and east across the Barunga Range which largely conceals views to The Project and the existing substation.

The locality and surrounding areas fall within the ZTVI 'visibility shadow' and given the low prostrate form of the BESS containers The Project will be largely anonymous within this landscape which includes the residential dwelling at No. 631 Wokurna Road.

Both singularly and cumulatively where the existing wind farms are prominent visual features, the likely visual impact will be one of **no change**.

Image 5: Photomontage view of The Project from Viewpoint 02 adjacent 631 Wokurna Road looking northwest

Image 6: X-ray view of The Project from Viewpoint 02 adjacent 631 Wokurna Road looking northwest

Viewpoint 03 (VP 03): No. 127 Ireland Road

Image 7: Viewpoint 03 adjacent 127 Ireland Road looking south

Visual Impact Assessment

- Approx 2.2km northwest of The Project
- View 180-degrees south

This Viewpoint is considered to be a Sensitive Receptor due to the proximity of the residential property to The Project.

Views across unsealed single lane road pavements and open pastural and cropping fields. The panoramic views are punctuated by the occasional copse of medium sized native trees and large shrubs that draw the eye of the observer to the procession of WTGs across the undulating Barunga Range. The imposing form of the expansive array of turbines dominates the horizon.

A remote landscape unlikely to be patronised by visitors and accessed only by local residents accessing property. The adjacent residential dwelling is heavily screened by mature native evergreens which restrict views from the property towards The Project.

Given the low prostrate form of the BESS containers The Project, including the mid to higher aspects of the proposed slender lightning mast, will be largely anonymous from this location and the adjacent residential property.

The locality and residential property fall outside the Theoretical Zone of Visual Influence, as such both singularly and cumulatively where the existing wind farms are prominent visual features the likely visual impact will be one of **no change**.

Image 8: Photomontage view of The Project from Viewpoint 03 adjacent 127 Ireland Road looking south

Image 9: X-ray view of The Project from Viewpoint 03 adjacent 127 Ireland Road looking south

Viewpoint 04 (VP 04): No. 1185 Barunga Top Road

Image 10: Viewpoint 04 adjacent 1185 Barunga Top Road

Visual Impact Assessment

- Approximately 2.5 km southwest of The Project
- View 180-degrees northeast

This Viewpoint is considered to be a Sensitive Receptor due to the proximity of the residential property to The Project.

From this viewpoint the eye of the observer is drawn along an unsealed road pavement and procession of stobie poles across a foreground vista where cropped and grazing fields give way to the undulating form of the enveloping Barunga Range. Similar to many viewpoints within the locality the visual impact of the prominent WTGs is immediate, drawing the eye of the observer along an expansive north-south panorama. The copse of mature native trees and shrubs to the north will conceal the prostrate form of the BESS including the higher aspects of the proposed lightning mast.

The locality and surrounding areas fall outside the ZTVI visibility shadow and given the low prostrate form of the BESS containers The Project will be largely anonymous from this location and the adjacent residential property.

Singularly and cumulatively where the array of WTGs are prominent visual elements across the contextual landscape, the likely visual impact of The Project at this site will be one of **no change**.

Image 11: photomontage view of The Project from Viewpoint 04 adjacent 1185 Barunga Top Road

Image 12: X-ray view of The Project from Viewpoint 04 adjacent 1185 Barunga Top Road

7.2. Likely visual impact during construction phase

During the construction phase temporary changes to visual amenity will occur. Construction works at the site *per se* are not anticipated to affect visual amenity apart from the potential short-term presence of a crane structure. These changes will be due mainly, but not limited to the presence of construction equipment, earthworks activities and an overall increase in the number of people and large vehicles at each site and at roadside locations. Dust clouds created by earth moving activities during construction will require appropriate management by the contractor to mitigate all likely visual impacts.

Given the inability to predict the timing and programming of construction until a contractor has been appointed and commences work on site and the degree of temporary change in the visual environment that will likely occur, but which cannot thus be determined, the visual impact during construction phase is not considered in detail in this assessment.

The changing visual environment and activity during construction will be temporary and as the number of individuals impacted will likely be low, is not considered further in the visual impact assessment.

8. Mitigation considerations

The use of vegetative screening is not considered necessary given the existing visual quality of the locality and contextual landscape and relative remoteness of the locality.

Where practicable, The Project infrastructure such as buildings should be painted in muted colours appropriate to the setting to blend in with the surrounding landscape.

9. Relevant provisions of the Planning and Design Code

The SA Government Planning and Design Code,[10] (PDC) is not a statutory instrument under the HRE Act, and as such, the Project is not required to strictly comply with the planning policies applicable to The Project site. However, in lieu of specific guidance on certain environmental matters, the *Environmental Impact Assessment Criteria Guidelines*[11] established under the HRE Act allows that a project can be considered against legislation or policies under other legislation or industry practice, including the PDC.

The PDC contains a number of Assessment Provisions which refer to Desired Outcomes (DO) and Performance Outcomes (PO) which apply to the Project site and hence are considered relevant where they pertain to issues of visual amenity of the Project site.

Infrastructure and Renewable Energy Facilities

DO 1 *(requires the)* Efficient provision of infrastructure networks and services, renewable energy facilities and ancillary development in a manner that minimises hazard, is environmentally and culturally sensitive and manages adverse visual impacts on natural and rural landscapes and residential amenity.

General

PO 1.1 Development is located and designed to minimise hazard or nuisance to adjacent development and land uses.

Visual Amenity

PO 2.1 The visual impact of above-ground infrastructure networks and services (excluding high voltage transmission lines), renewable energy facilities (excluding wind farms), energy storage facilities and ancillary development is minimised from townships, scenic routes and public roads by:

a) utilising features of the natural landscape to obscure views where practicable
b) siting development below ridgelines where practicable
c) avoiding visually sensitive and significant landscapes
d) using materials and finishes with low-reflectivity and colours that complement the surroundings
e) using existing vegetation to screen buildings
f) incorporating landscaping or landscaped mounding around the perimeter of a site and between adjacent allotments accommodating or zoned to primarily accommodate sensitive receivers.

PO 2.2 Pumping stations, battery storage facilities, maintenance sheds and other ancillary structures incorporate vegetation buffers to reduce adverse visual impacts on adjacent land.

PO 2.3 Surfaces exposed by earthworks associated with the installation of storage facilities, pipework, penstock, substations and other ancillary plant are reinstated and revegetated to reduce adverse visual impacts on adjacent land.

Electricity Infrastructure and Battery Storage Facilities

PO 5.1 Electricity infrastructure is located to minimise visual impacts through techniques including:

a) siting utilities and services:
    i. on areas already cleared of native vegetation
    ii. where there is minimal interference or disturbance to existing native vegetation or biodiversity

[10] Department for Housing and Urban Development. PlanSA. (2023). *Planning and Design Code Version 2025.9. 15 May 2025.* Department for Housing and Urban Development, South Australia, Australia.
[11] Department for Energy and Mining. (2024) *Environmental Impact Assessment Criteria Guidelines.* Hydrogen and Renewable Energy Regulatory Guidelines HRERG002. Department for Energy and Mining, South Australia, Australia.

b) grouping utility buildings and structures with non-residential development, where practicable.

Renewable Energy Facilities

PO 7.1 Renewable energy facilities are located as close as practicable to existing transmission infrastructure to facilitate connections and minimise environmental impacts as a result of extending transmission infrastructure.

10. Summary and recommendations

As with all new infrastructure developments, the introduction of The Project will potentially alter the character and visual qualities of the locality and wider contextual landscape. However, in a landscape of **low scenic quality** with **low sensitivity to change** where the likely singular and cumulative visual impact of the low profile, more prostrate BESS infrastructure of The Project will be inconsequential.

Based on this, the likely singular and cumulative visual impact that is to be experienced by The Project is one of **no change,** and one where no visual mitigation through landscape screening is required.

Outside the ZTVI, The Project will have no discernible impact.

It is the author's opinion that The Project will <u>not</u>:

- adversely affect or have irreparable consequences for the visual amenity of either the locality or the wider contextual landscape given the low scenic quality of the locality and contextual landscape and prostrate form and compact nature of the development;
- be at a variance with the relevant provisions of South Australian Planning and Design Code;
- require vegetative screening.

The locality is one characterised through the presence of highly visible renewable energy infrastructure and more utilitarian services infrastructure which includes the existing Snowtown Substation and Snowtown Wind Farm. As such, it is the author's opinion that The Project will likely be seen as a complementary visual feature within the landscape.

Appendix A: Site layout

Legend

- Project Area
- Existing 132kV Transmission Line
- Existing 33kV Transmission Line
- Indicative Underground Cable
- Indicative Underground Substation Cable
- Indicative BESS Infrastructure
- Indicative Internal Road
- Indicative Bench
- Indicative Switchroom and Control Room
- Indicative Harmonic Filter
- Indicative O&M Building
- Indicative Detention Pond
- Indicative Water Tank
- Indicative Washdown Bay
- Indicative Spare BESS Infrastructure
- Indicative Fence
- Existing Substation
- Tilt Owned Land
- Cadastre

Note: Indicative layout and subject to change

Date: 23/05/2025
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0 50 100 Meters

Snowtown BESS

Indicative Project Layout

Appendix J

Preliminary hazard assessment

Design
for a better
future /

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

Snowtown BESS

Preliminary Hazard Assessment

July 2025

Question today
Imagine tomorrow
Create for the future

Snowtown BESS
Preliminary Hazard Assessment

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

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	Name	Date	Signature
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Approved by:	Segar Manoharan	4/07/2025	

WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Abbreviations

A	ampere
AC	Alternating current
AEP	Annual Exceedance Probability
AESCSF	Australian Energy Sector Cyber Security Framework
Ah	Ampere-hour
AIL	Associated Infrastructure Licence
ALARP	As Low As Reasonably Practicable
APZ	Asset Protection Zone
AS	Australian Standard
BESS	Battery Energy Storage System
BMS	Battery Management System
CCTV	Closed Circuit Television
DC	Direct current
FAT	Factory Acceptance Test
HRE Act	*Hydrogen and Renewable Energy Act 2023*
HV	High voltage
Hz	Hertz
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IP	Ingress Protection
Km	Kilometres
kV	Kilovolts
kVA	Kilovolt-ampere
kW	Kilowatt
kWh	Kilowatt-hour
LFP	Lithium Iron Phosphate
Li-ion	Lithium-ion
LiFePO4	Lithium Iron Phosphate
LiNiMnCoO2	Lithium Nickel Manganese Cobalt Oxide
LV	Low voltage

MVA	Megavolt-ampere
MW	Megawatts
MWh	Megawatt-hour
NMC	Nickel Manganese Cobalt
Noise Policy	*Environment Protection (Commercial and Industrial Noise) Policy 2023*
°C	Degrees Celsius
OEM	Original Equipment Manufacturer
PHA	Preliminary Hazard Analysis
PPE	Personal Protective Equipment
Project	All proposed activities for the Snowtown BESS project
Project Area	Land on which the Project is located
SCADA	Supervisory Control and Data Acquisition
SOC	State of Charge
Tilt Renewables	Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust
TR	Thermal Runaway
UL	UL Solutions
V	Volt
WSP	WSP Australia Pty Limited

Executive summary

Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables) is developing the Snowtown Battery Energy Storage System (BESS) project (the Project); a 100-megawatt (MW) BESS with up to 4-hour duration located approximately 10 kilometres (km) northwest of Snowtown in South Australia.

WSP has undertaken a Preliminary Hazard Analysis (PHA) and prepared this document to support the Associated Infrastructure Licence (AIL) application. This PHA outlines potential design and operational risks of the Project, and mitigation measures to be considered during the Project's detailed design.

WSP undertook a hazard identification works to determine the potential incidents and hazards associated with the Project. WSP then qualitatively assessed each risk by assigning a *Likelihood of occurrence* and a *Severity of consequences* score to each hazard.

The Summary of the risk assessment is outlined in Table ES.1 below. The risks identified in the table are prior to the implementation of mitigation measures and hence are not reflective of risks relating to the final design of the Project.

Table ES.1 Summary of initial risks to inform development of mitigation measures

Hazardous Incident	Consequence	Likelihood	Risk
Electric Shock	4 – Critical	2 – Unlikely	8 – Moderate
Thermal Runaway	2 – Medium	4 – Likely	8 – Moderate
Bushfire	2 – Medium	2 – Unlikely	4 – Low
Flooding	2 – Medium	2 – Unlikely	4 – Low
Noise	1 – Minor	3 – Possible	3 – Low
Pollutant release	2 – Medium	1 – Rare	2 – Low
Seismic Event	3 – Severe	1 – Rare	3 – Low
Lightning strike	3 – Severe	1 – Rare	3 – Low
Vehicular Impact	3 – Severe	1 – Rare	3 – Low
Physical Security Breach	3 – Severe	1 – Rare	3 – Low
Cybersecurity Breach	3 – Severe	1 – Rare	3 – Low

WSP provided several recommendations to further reduce the risk:

- 12 items which are to be considered during the design phase of the Project
- 3 items which are to be considered during the Construction and Operational phase of the Project.

1 Introduction

1.1 Project overview

Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables) is developing the Snowtown BESS project (the Project); a 100-megawatt (MW) Battery Energy Storage System (BESS) with up to 4-hour duration located approximately 10 kilometres (km) northwest of Snowtown in South Australia.

The Project proposes both permanent and temporary infrastructure. Permanent site infrastructure will comprise:

- BESS with capacity of 100 MW with up to 4-hour duration[1], including Battery Pack Containers, inverters, inverter transformers and associated control, monitoring and protection equipment
- Ancillary infrastructure including auxiliary supply transformers
- Hardstand areas
- Drainage and erosion control
- Internal roads, access tracks and parking
- Water management infrastructure (water storage tanks, water supply, detention pond, water treatment)
- Onsite buildings (operations and maintenance, switchroom and control room, storage)
- Underground cabling
- Harmonic filter yard (if required)
- Lightning protection rods
- Communications tower (if required)
- Site fencing and security
- Business identification and safety signage.

Temporary site infrastructure will include:

- Construction compound
- Equipment laydown areas
- Fuelling stations
- Washdown bay (if required).

The Project also includes a proposed grid connection (via underground cables) to an existing substation located directly east of the proposed BESS site; developed as part of the Snowtown I Wind Farm. The Project will tie into the substation behind the existing wind farm connection point. Modification works to the existing Snowtown Substation will be required as part of the Project to facilitate the connection of the BESS to the electricity grid. Substation works are expected to include:

- Installation of a new isolator and earth switch
- Installation of a 33 kilovolts (kV) conductor between the new isolator and the existing wind farm isolator

[1] Note that in order for the Project to have up to 100MW input/output capacity to the grid, the installed battery capacity may be higher than 100MW.

- 33kV cable trench from the BESS Facility into the substation
- Associated protection, control and metering equipment to be installed in the existing Snowtown Wind Farm substation building.

The Project constitutes a *regulated activity* under the *Hydrogen and Renewable Energy Act 2023* (HRE Act) and will seek licencing under an Associated Infrastructure Licence (AIL). WSP Australia Pty Limited (WSP) have been engaged to prepare an Environmental Impact Report, Statement of Environmental Objectives and technical studies to support the AIL application.

1.2 Project Area

The Project will be located on an approximate 13-hectare site (the Project Area) located directly west of an existing ElectraNet substation; at the junction of Wokurna Road and Hewitt Road, Wokurna. The Project Area is shown below in Figure 1.1 (provided by Tilt Renewables).

The Project Area has two road frontages; Wokurna Road along the northern boundary and Hewitt Road along the southern boundary. The primary access point to the Project Area will be created off Wokurna Road and will be used to support the construction phase as well as the operation phase of the Project. Hewitt Road will be used as emergency and secondary access to the facility.

The Project Area is currently used for cropping and has been cleared of native vegetation.

Legend

- Project Area
- Existing 132kV Transmission Line
- Existing 33kV Transmission Line
- Indicative Underground Cable
- Indicative Underground Substation Cable
- Indicative BESS Infrastructure
- Indicative Internal Road
- Indicative Bench
- Indicative Switchroom and Control Room
- Indicative Harmonic Filter
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- Indicative Fence
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- Tilt Owned Land
- Cadastre

Note: Indicative layout and subject to change

Date: 23/05/2025
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Snowtown BESS

Indicative Project Layout

renewables

1.3 Scope of report

WSP has undertaken a Preliminary Hazard Analysis (PHA) and prepared this document to support the AIL application under the HRE Act. This PHA outlines potential design and operational risks of the Project, and mitigation measures to be considered during the Project's detailed design.

The assessment is limited to the construction, operation and maintenance of the Project and the associated connection assets.

The objective of this assessment is to assess potential hazards and risks associated with the Project and focusses on potential high consequences – low likelihood incidents that may affect the health and safety to people and the environment inside and outside the Project Area.

The following risks are included in the assessment:

- Risk of fire associated with the electrical infrastructure and flammable material, including but not limited to Thermal Runaway (TR)
- Environmental risks from spills causing land contamination
- Risks from exposure to electromagnetic fields
- Risks associated with Electrical Shock and Electrical energy, such as Arc Flash Incident
- Risks associated with Flooding
- Risks associated with Bushfires external to the Project
- Risks associated with Noise Emissions
- Risks associated with Cybersecurity and communications.

The identification and assessment process includes qualitative methods to assess and recommend controls with the aim to determine if the Project can be developed with the associated hazards kept As Low As Reasonably Practicable (ALARP).

1.4 Legislative and policy requirements

WSP has outlined key standard documents that the Project (being a BESS) is expected to be compliant with in Table 1.1.

Table 1.1 Key standards

Standard Number	Title
AS/NZS 3000	Electrical Installations – Wiring Rules
AS/ NZS 2067	Substations and high voltage installations exceeding 1 kV a.c.
AS/ NZS 5139	Electrical installations – Safety of battery systems for use with power conversion equipment
AS 1670	Automatic fire detection and alarm systems
AS 61439	Low voltage switchgear and control gear assemblies
IEC60364	Low Voltage Installation
AS60076	Power Transformer
NFPA855	Standard for the installation of stationary energy storage system
UL9540A	Test Method for Battery Energy Storage Systems

Standard Number	Title
UL1973	Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications
N/A	Design Guidelines and Model Requirements for Renewable Energy Facilities [1]

1.5 Assessment methodology

WSP followed the following steps for the PHA:

- Step 1 – Identify risks associated with the proposed system and the aspects of the system to be investigated.
- Step 2 – Assign a *Likelihood of occurrence* rating for each risk.
- Step 3 – Assign a *Severity of consequences* rating for each risk.
- Step 4 – Calculate risk category – risks are categorised by their severity (consequence) and their probability (likelihood).
- Step 5 – Identify possible mitigation strategies and costs.
- Step 6 – Reassess the risk rating based on the mitigations implemented.

As the design and system information regarding the Project has only been developed to a concept level, this assessment will stop at Step 5.

1.5.1 Risk criteria

Risk categories are calculated based on the product of the *severity of consequences* and *the probability of occurrence* and will be enumerated on a scale from 1 to 20, where 1 represents a low level of risk and 20 would represent an extreme level of risk. Refer Figure 1.2 for summarised qualitive risk scale.

Likelihood of occurrence

Likelihood of occurrence will be assessed on a Likert scale, enumerated as 1 to 5, and expressed as Rare, Unlikely, Possible, Likely, to Almost Certain. Refer Table 1.2 for details.

Table 1.2 Likelihood ratings (from AS5139 [2])

Likelihood rating	Definition
5 – Almost Certain	Probability of occurrence > 90% Expected to occur whenever the system is accessed or operated The event is expected to occur in most circumstances
4 – Likely	Probability of occurrence: 60–89% Expected to occur whenever the system is accessed or operated under typical circumstances There is a strong possibility the event may occur
3 – Possible	Probability of occurrence: 40–59% Expected to occur in unusual instances when the system is accessed or operated The event may occur at some time

Likelihood rating	Definition
2 – Unlikely	Probability of occurrence: 20–39% Expected to occur in unusual instances for non-standard access or non-standard operation Not expected to occur, but there is a slight possibility it may occur at some time
1 – Rare	Probability of occurrence: 1–19% Highly unlikely to occur in any instances related to coming in contact with the system Highly unlikely, but it may occur in exception circumstances, but probably never will

Severity of Consequences

Severity of consequences will be assessed on a Likert scale, enumerated as 1 to 4, and expressed as Minor, Medium, Severe, to Critical. Refer to Table 1.3 for details.

Table 1.3 Severity rating categories (AS5139)

Severity rating	Definition
4 – Critical	Any Fatality of Staff, contractor or Public Long term or widespread impact to sensitive environment Breach of Licences, legislation or regulations which lead to prosecution Equipment destruction, repair costs greater than original cost of works
3 – Severe	Non-recoverable occupational illness or permanent injury Substantial impact requiring emergency services attendance. Recovery of environment likely nut not necessarily to pre-incident state. Breach of legislation or regulations leading to Court order or fine greater then $1000 Equipment damaged repaired at a cost of between 50% to 100% of original cost of works
2 – Medium	Injury or illness requiring medical treatment by a doctor Spill or emission not contained on site with clean up needed. Environment likely to recover to pre-incident state in short to medium term Breach of legislation or regulations leading to Enforceable undertaking or fine up to $1000 Equipment damaged repaired at a cost of between 15% to 50% of original cost of works
1 – Minor	Injury requiring first aid Spill or emission not contained on site. Environment expected to fully recover to pre-incident state Breach of legislation or regulations leading to an administrative resolution Equipment damaged repaired at a cost of between 2% to 15% of original cost of works

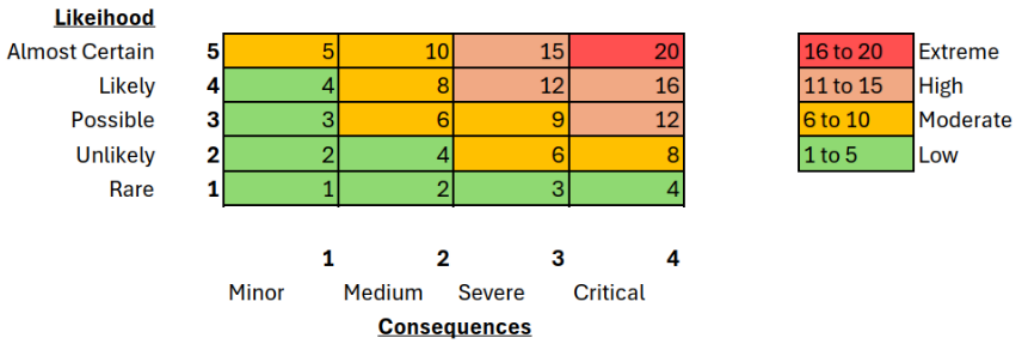

Figure 1.2 Risk matrix

1.5.2 *Project Safety Management*

It is expected that the Project will utilise the following Safety Management process and procedures:

- The Operation of the proposed BESS will be automatic and will be remotely monitored from a central control room via Supervisory Control and Data Acquisition (SCADA) system.
- Emergency Procedures, including but not limited to Fire, Flood, Electric shock incidents will be developed and documented in the emergency management plans. This plan will be developed in consultation with the relevant Authorities.
- All personal working within the project would be adequately competent in the specific works or activity and will be provided with relevant Personal Protective Equipment (PPE) and site-specific training.
- Protective systems will be routinely inspected and testing to ensure that they remain functional. Protective devices include Battery Management Systems, Trips and Alarms and relief devices.
- The Project will be developed and constructed to comply with all codes and statutory requirements.

1.5.3 *Exclusions, limitations, and assumptions*

This study excludes the following:

- Commissioning risks
- Decommissioning risks.

This study assumes the following:

- The probability of occurrence will assume that industry standard design practises, safety procedures and work methodologies are applied at all times.
- It is assumed that equipment and systems are always well maintained.
- Unless otherwise stated extreme environmental events, terrorist acts and other rare events will not be considered.
- The risk assessment will assume a worst-case scenario for all consequences considered.
- The BESS design will be based on the Tesla Megapack 2 XL unit or the Sungrow Power Titan 2.0 unit reticulated to the point of connection as described in [3].

This study is limited by the following:

- This assessment was undertaken on concept design and some results depend on the future design development and risk mitigations recommended by this study.

2 Project details

2.1 Proposed BESS site

The proposed Snowtown BESS is situated at the intersection of Hewitt and Wokurna Roads approximately 10 km northwest of Snowtown in South Australia. The BESS yard is to be laid out on the west side of the existing Snowtown I Wind Farm substation.

The final location and layouts of the BESS will be dependent on a complete topographical investigation to determine accessibility constraints, terrain gradients, geological and environmental constraints, and any major stormwater or surface drainage hazards, and consultation with landowners.

An area of approximately 2.8 hectares has been laid out for the proposed yard [4].

The proposed BESS site is flat agricultural land (see Figure 2.1) and should not present any special or unique risk for BESS siting and construction. The preliminary layout [4] shows an area set aside for a retention pond to accommodate contaminated water from the site, detail of size and drainage and control will need to be addressed in the detailed design, but this is a typical arrangement for BESS of this size and should not present a significant risk.

Figure 2.1 Proposed BESS site location [5]

2.2 BESS Components

The BESS will comprise of the following Components:

- Lithium-ion (Li-ion) batteries inside battery enclosures. Each enclosure will be installed in an open yard. Enclosures will include doors but will not allow operators to enter.
- Ancillary infrastructure including auxiliary supply transformers
- Inverters (note: some BESS Original Equipment Manufacturers (OEMs) embed inverters in the BESS enclosures)
- Step Up Transformers (note: for the purpose of this assessment these have been assumed to be oil filled with a natural ester oil)
- Hardstand areas
- Drainage and erosion control
- Internal roads, access tracks and parking

- Water management infrastructure, including detention basin for firewater retention
- Onsite buildings (operations and maintenance, switchroom and control room, storage)
- Harmonic filter yard (if required)
- Lightning protection rods
- Communications tower (if required)
- Site fencing and security, including Closed Circuit Television (CCTV) and lighting.

2.3 Design parameters

The BESS Design requirements are outlined in Table 2.1.

Table 2.1 Design parameters

Design parameters	Value
BESS Power Capacity	100 MW
BESS Storage Capacity	400 megawatt-hour (MWh)
BESS Battery Chemistry	Lithium Iron Phosphate (LFP)
BESS OEM	Tesla OR Sungrow (to be confirmed)
Project Components	— 120 Tesla Megapacks or 95 Sungrow Power Titan 2.0 Units — Set Up Transformers (33/ 0.690 kV) — 33 kV reticulation and Switchboards — Connection into the existing Snowtown Substation at 33 kV.
BESS Dimensions	Approximately 2.8 hectares
Ambient Conditions	-5 Degrees Celsius (°C) to 50°C [6]
Transmission Connection	33 kV connection into the existing Snowtown Substation

2.4 BESS modules

BESS modules utilised for the Project have not yet been confirmed. This risk assessment considers two options for the BESS Enclosure Original Equipment Manufacturer (OEM):

— Option 1 – Tesla Megapack 2XL units

— Option 2 – Sungrow Power Titan 2.0 units.

2.4.1 Tesla Megapack 2XL units

A Tesla Megapack 2XL unit consists of 24 inverter battery modules connected in parallel to a common AC bus at 480-volt (V) AC (see Figure 2.2). The 24 Battery modules combine to provide a unit of 1320 kilovolt-ampere (kVA), 979 kilowatt (kW), and 3916 kilowatt-hour (kWh) capacity in a 4-hour configuration. Sizing calculations have not been made available to WSP, however based on past project in the order of 120 Megapack 2XL units will be required to achieve the required BESS site capacity.

Each inverter battery module is equipped with a dedicated Battery Management System (BMS). The BMS provides cell and module monitoring of voltage, current, temperature, and state of charge (SOC) for each battery module. The BMS also provides overcharge and over-discharge protection, cell balancing, and TR protection. The battery module is the smallest isolatable unit in the Megapack. Tesla do not publish the exact number of cells per module; however, it is known that Tesla use the prismatic CATL cells, assuming a 204 ampere-hour (Ah) cell there would be 214 cells per battery module.

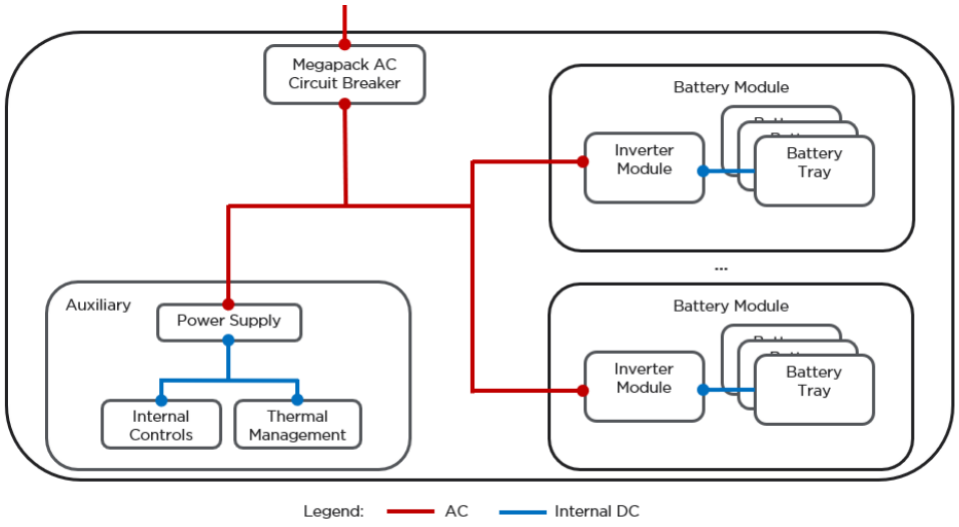

Figure 2.2 Megapack internal architecture

2.4.2 *Sungrow Power Titan units*

The Sungrow Power Titan 2.0 consists of up to 6 built in inverters connected in parallel to 6 Terminal Boxes at 690 V AC. The 48 Battery modules combine to provide a unit of 1260 kVA and 5015 kWh capacity in the 4-hour configuration. Sizing calculations have not been made available to WSP and instead the assessment has assumed that 95 Power Titan 2.0 units will be required to achieve the required BESS site capacity.

Each inverter module is equipped with a dedicated BMS. The BMS provides cell and module monitoring of voltage, current, temperature, and SOC for each battery module. The BMS also provides overcharge and over-discharge protection, cell balancing, and TR protection.

The BESS unit is equipped with an automatic fire alarms and control system, including pressure relief devices, combustible gas detection, smoke detection, temperature sensor with the optional water-based fire suppressions and exhaust venting systems. Refer Figure 2.3 [7] for further details.

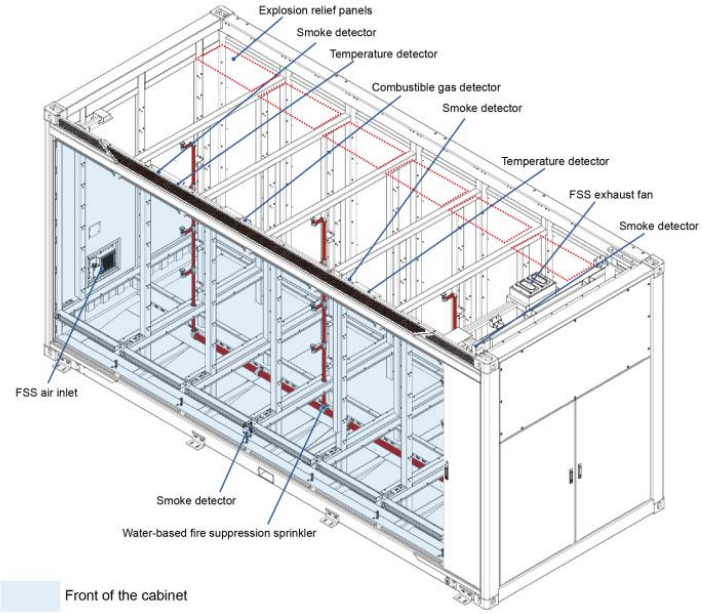

Figure 2.3 Power Titan 2.0 Fire Detection and Suppression Systems

2.5 33 kV reticulation

The single line diagram [3] shows the BESS yard serviced by 4 x 33 kV feeders, WSP estimate max feeder load at around 34.5 megavolt-ampere (MVA) or 660 ampere (A), assuming 0.9 pu voltage, at this loading there is a low risk that the feeder cables will be constrained and a fifth feeder will be required. With only 4 33kV feeders a single failure of the BESS 33kV reticulation will cause the loss of 34.5 MVA, this level of risk should be evaluated against the value of lost generation to determine if this is appropriate strategy.

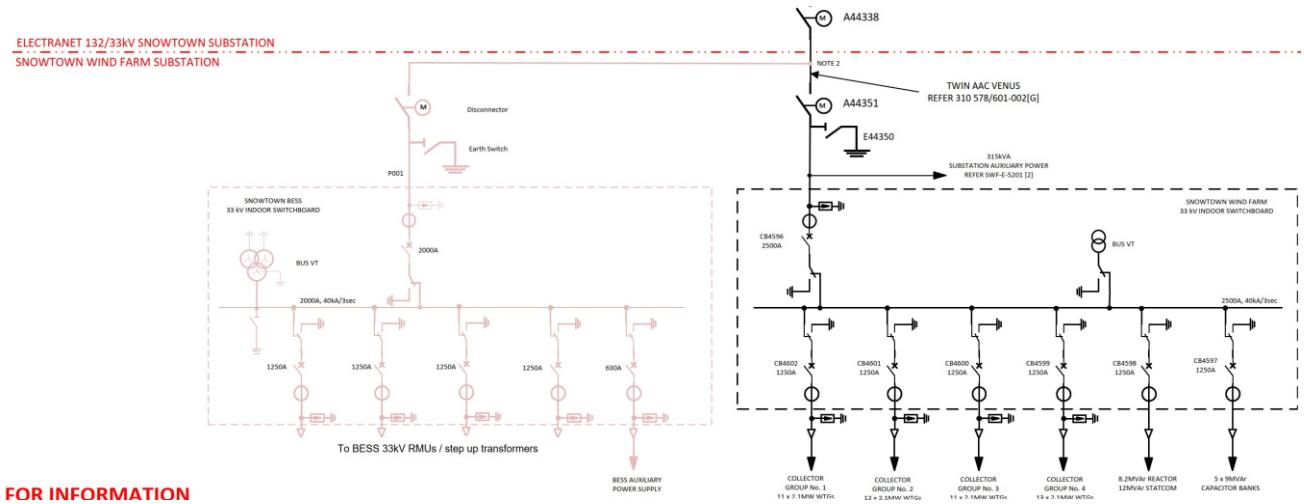

Figure 2.4 Proposed BESS 33kV reticulation feeders

2.6 Grid connection

It is proposed to connect the BESS 33kV systems in parallel with existing Wind Farm via the existing 132/33 kV Transformer (see Figure 2.5). It should be noted that the export capacity of the BESS will always be constrained when the wind farm is also exporting power from the site.

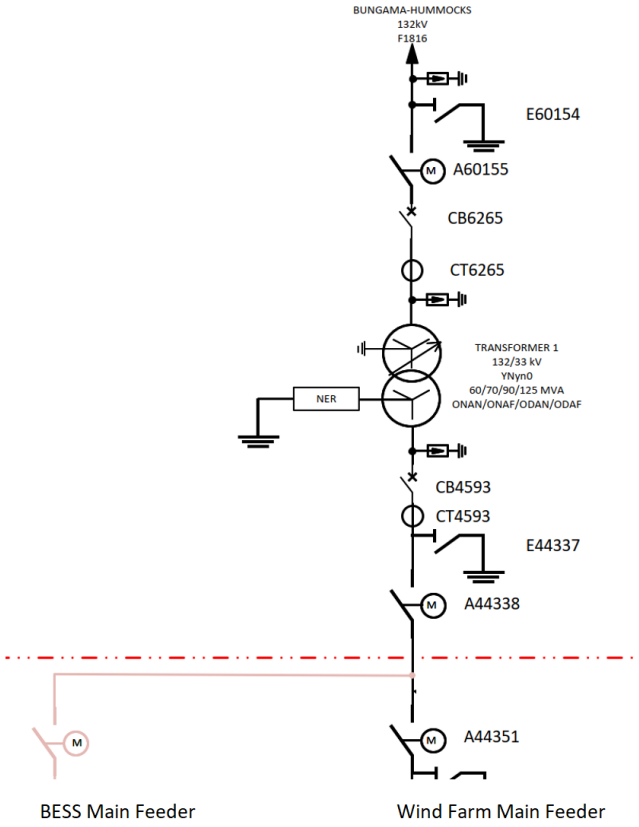

Figure 2.5 BESS 33kV connection through to POC

3 Risk analysis and assessment

WSP considered the potential hazardous incidents during the operations of the BESS, this assessment was undertaken by three BESS specialists:

1. Bill Schmidt – Principal Engineer
2. Segar Manoharan – Senior Electrical Engineer
3. Furkan Syed – Senior Electrical Engineer.

Once the hazards were identified, WSP undertook an assessment of the potential likelihood and consequences of the risks associated with each hazard, scoring based on the risk criteria described in Section 1.5.1. A summary of the assessment is included in Table 3.1. The risks identified in the table are prior to the implementation of mitigation measures and hence are not reflective of risks relating to the final design of the Project.

Table 3.1 Summary of initial risks to inform development of mitigation measures

Hazardous Incident	Consequence	Likelihood	Risk	Comments
Electric Shock	4 – Critical	2 – Unlikely	8 – Moderate	Refer 3.1
Thermal Runaway	2 – Medium	4 – Likely	8 – Moderate	Refer 3.2
Bushfire	2 – Medium	2 – Unlikely	4 – Low	Refer 3.3
Flooding	2 – Medium	2 – Unlikely	4 – Low	Refer 3.4
Noise	1 – Minor	2 – Unlikely	2 – Low	Refer 3.5
Pollutant release	2 – Medium	1 – Rare	2 – Low	Refer 3.7
Seismic Event	3 – Severe	1 – Rare	3 – Low	Refer 3.6
Lightning strike	3 – Severe	1 – Rare	3 – Low	Refer 3.6
Vehicular Impact	3 – Severe	1 – Rare	3 – Low	Refer 3.9
Physical Security Breach	3 – Severe	1 – Rare	3 – Low	Refer 3.10
Cybersecurity Breach	3 – Severe	1 – Rare	3 – Low	Refer 3.11

3.1 Electrical shock/inadvertent contact

The risk of electrical shock through inadvertent contact is an ever-present risk in all electrical equipment. The severity level of the shock is associated with a number of factors that all contribute to determine the current level the subject might receive. Current levels above a nominal threshold of 30mA may indue cardiac fibrillation with death following shortly if intervention is not provided.

In addition to the hazard of electrical shock, high energy electrical systems, DC, LV AC, and HV AC, provide the additional hazard of flash burns from arc flash. This will be considered separately below.

Design standards such as AS3000, AS2067, AS5139 and Electrical Safety legislation mandate minimum levels of protection against this hazard and when applied appropriately should remove the hazard entirely. Australian electrical safety standards are closely aligned to international standards as published by the International Electrotechnical Commission (IEC) and the Institute of Electrical and Electronics Engineers (IEEE).

AS3000 is applied through legislative requirements in each state and territory for the safety of electrical installations, and sets out the requirements for the design, construction, and verification of electrical installations, including the selection and installation of electrical equipment forming part of such electrical installations.

In addition to the design precautions instigated by this regime of regulation and standards, the various state Occupational Health & Safety acts require plant Operators to provide and maintain systems of work that are, so far as is reasonably practicable, safe and without risks to health. Including ensuring systems of work and procedures are developed, communicated, and implemented to ensure electrical systems are isolated and safe to work upon.

Utility scale BESS systems involve multiple opportunities for electrical insulation system breakdowns, leading to possible shock events. These may occur at the primary plant level or at the secondary system level.

Current design practise is to provide layers of protection to a) minimise the likely hood of insulation failure, b) minimise the consequences of the failure. Examples of such strategies include the application of double insulated system, floating systems, redundant high speed fault detection and clearance systems.

The risk of electrocution increases with the progressive failure of the systems put in place to prevent the event, and the increase in opportunities to contact. Utility scale systems through the large numbers of electrical circuits required to deliver the system, provide increasing opportunities for system failures and inadvertent contact. Hazard mitigation is achieved by procedural controls such as, the use of qualified staff, isolation, PPE and tag out lock out systems. We conclude the likelihood of such an event, considering all mitigation, is unlikely.

The worst-case assumption for the consequence of an electric shock is death, hence a critical level is assigned.

3.1.1 Recommendations

WSP has assessed this risk as high but consider this appropriate given the current stage of the development. WSP recommends the following actions to reduce risk levels:

- Safety in Design workshops to be held during detailed design to address this risk across the various components of the BESS, with controls and mitigations implemented and installed as appropriate.
- Ongoing monitoring of electrical safety compliance during construction and operations.
- The instigation of safe work procedures throughout the project development, including but not limited to:
  - Lockout/Tagout (LOTO) Procedures
  - Isolation of Electrical Equipment
  - Use of PPE
  - Electrical Hazard Assessment
  - Training and Competency.

3.2 Thermal runaway

TR is a risk associated with the characteristics of all battery technologies. TR is a positive-feedback loop initiated due to physical damage or overheating. Physical damage can lead to internal short circuit, which in turn leads to high current flow and overheating, overheating in turn triggers temperature-dependent decomposition reactions which add to the overheating. A point is reached where the temperature and heat generation spike greatly, typically the battery catches fire and the reactant material is largely burned off.

As well as physical damage, chemical degradation of the battery anode, associated with aging, i.e., the number of discharge/charge cycles, the battery endures increase the probability of TR. Chemical degradation leads to increase internal battery resistance, which in turn leads to higher heat levels for the same current discharge/charge cycle.

Modern BESS systems tend to be based on Lithium-ion battery chemistries. There are six commercially available Lithium-ion chemistries, with Lithium Nickel Manganese Cobalt Oxide ($LiNiMnCoO_2$) and Lithium Iron Phosphate ($LiFePO_4$) being the two most common deployed. Initial utility scale projects in Australia utilised Lithium Nickel Manganese Cobalt (NMC), but the industry now appears to be settling on $LiFePO^4$. $LiFePO_4$ batteries have a 50-degree higher TR initiation temperature compared to Lithium NMC making them slightly less vulnerable to TR. It should be noted that of the two utility scale BESS fires in Australia one occurred in a Lithium NMC battery while the other occurred with a $LiFePO_4$ battery. Final investigation into these fires have not been completed, however the trigger sequences for each system appear to be unique and unrelated to the battery chemistry.

The current industry practise for a safe design strategy is to reduce the probability of TR occurring, a two-pronged approach is taken: 1) detection and isolation and 2) containment.

The basic of detection and isolation involve monitoring cell temperature and instigating cell isolation upon reaching a threshold. In addition, control algorithms and switching are used to monitor and maintain charging and discharging rates to prevent heat build-up.

The containment approach is to ensure that when a cell goes into thermal runaway cell may burn without triggering surrounding cells into thermal runaway. TR does not automatically entail propagation to adjacent cells, the probability of propagation is a function of inter-cell heat transfer, which in turn is a function of cell and battery module design, affording designers the opportunity to address the problem at the root cause. If TR propagation cannot be prevented by design, then the next level is to ensure heat and exhaust gases do not propagate from the battery module to the adjacent battery modules. If inter module propagation cannot be prevented, then rack and unit isolation levels are next addressed. This policy forms the basis to the UL 9540A, Test Method For Evaluating Thermal Runaway Fire Propagation in BESS. The UL 9540A test the battery system at the cell, module and until level to ascertain the likely hood of TR fire propagation at and across each level.

The approach to thermal runaway minimisation is via complex electrical control system monitoring and isolation schemes implemented as Battery Monitoring Systems (BMS). A typical 100 MW/400 MWh BESS is composed of just over five hundred thousand cells[2] making it almost certain that over the 20-year life of the plant several of the class will go into TR[3], via random failure hence WSP have assessed the likelihood of occurrence to be **4 – Likely**.

The consequence of TR is varied, under UL 9540A unit level test conditions, it is quite common to find that TR does not propagate from one cell to the next. Under real world conditions both the Victorian Big Battery [8] and Bouldercombe [9] TR events produced cells TR that propagated within the battery module, and then between battery modules. Again, while the UL 9540A unit tests indicated the fire should not propagate to adjacent units this occurred at the VBB fire. Investigators concluded unit to unit propagation was the result of high local winds not anticipated in the UL testing procedure. Similarly, the Bouldercombe fire in Queensland resulted in an adjacent Megapack being impacted to the extent that both the initiating unit and the adjacent unit were replaced by Telsa.

In the case of both TR events there was no loss or threat of loss of life with consequence being limited to damage to equipment. As the number of units in each case represented about 3% of the installed capacity, we assess the consequences of TR as **2 – Medium**.

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[2] Tesla does not provide full details for the Megapack 2XL. AN estimate assuming CATL 240Ahr $LiFePO_4$ cells suggests approximately 4,352 cells per Megapak, allowing 120 units gives 522,240 cells on site.

[3] $LiFePO_4$ cell failures generally follow a bathtub curve. Random failure is estimated at between 0.001% to 0.01% per year per cell [11] , assuming proper usage and thermal management. Based on these figures, the number of TR events that should be expected over a 20-year life are between 1 and 10, which is why we rate a TR event likely. As already noted, a TR event does not equate to a conflagration.

3.2.1 Fire detection/suppression

The current industry consensus is that battery fires involving TR cannot be extinguished, except with copious amounts of water, the addition of such water to the fire creates hazards associated with control of collection of contaminated runoff from the fire site and the possibility that water spray will causes short circuits and additional TR events in adjacent units. Consequently, the fire strategy for BESS at present is to contain the fire and prevent propagation where possible.

BESS OEMs are divided on recommendations regarding both detection and suppression systems. Tesla have concluded that detection and suppression systems are not required. In support of this position Tesla argue that their BMS will provide early warning and location of faults to the BESS operator making the installation of a fire detection system redundant. Recent experience suggests this is an optimistic approach and WSP would recommend the strong consideration of installing a standalone fire detection system, compromising smoke detectors and or infra-red heat sensors.

WSP are also aware of BESS OEMs that offer detection and gas suppression systems. It should be noted that the gas suppression system strategy is aimed at preventing auxiliary equipment fires within the battery container from establishing and causes a subsequent thermal runaway event. To date the validity of this strategy remains untested, all know BESS fires have been restricted to systems that did not provide suppression systems.

All BESS seen by WSP use redundant communication networks for monitoring and control within the BESS facility.

3.2.2 Recommendations

WSP has assessed this risk as **Moderate** but consider this appropriate given the current stage of the development. WSP recommends the following actions:

- Design and installation of an independent, to the BMS, fire detection system.
- Control and monitoring network communications within BESS yards should be redundant, secure and reliable. Any reliance on public communication networks to support fire detection and BESS management systems should be avoided or hardened to ensure high service reliability.
- Completion of a fire safety study to determine the required safety clearances, radiant heat flux withstand requirements and firefighting methodologies during detailed design.
- BESS modules should be certified to UL1973 (or equivalent) and BESS units tested to UL9540A system level tests, allowing for the use of UL9540A test data from similar BESS modules, where any deviations in equipment are minor and do not impact thermal runaway characteristics.

3.3 Bushfire

The risk of bushfire is ever-present in Australia and the risk of Bushfire at the proposed Snowtown site is considered elsewhere. The risk assessed here is the risk that if a bushfire occurs in the vicinity of the BESS embers and other fire products from the fire will propagate the fire into the yard.

A detailed yard design and fire risk management plan has not yet been developed but it is typical for buildings and structures to comply with ministerial standards for building in bushfire prone areas. Typical mitigation strategies include:

- Non-combustible surface that will not support fire spread through vegetation accumulation
- SCADA monitoring systems to alert monitoring centre
- BESS unit compliance with UL9540A
- A fire break width of 10 m or greater, based on radiant heat flux (output) as an ignition source around the perimeter of the facility.

WSP considers the likelihood of embers falling in the BESS yard and subsequently trigger a BESS fire to be **4 – Unlikely** noting the compliance requirements above and the Project's general bushfire risk overlay.

All BESS OEMs specify Ingress Protection (IP) ratings of 66 or greater for the cell modules, this is done to reduce the risk of contamination of inter cell connections leading to TR. BESS battery unit containers have an IP rating of IP 55 or greater.

The IP standard does not specifically deal with ember ingress however:

- IP55 – protection against harmful deposits of dust, dust cannot enter in an amount sufficient to interfere with operation of the machine. No harm will occur if water jets against the enclosure from any direction.
- IP66 – complete protection against the ingress of dust. No harm will occur if a powerful water jets against the enclosure from any direction.

It seems unlikely that embers would be able to accumulate inside a closed battery container in sufficient quantities to trigger TR. As noted above the consequence of an ember attack event is rated as **2 – Medium**.

3.3.1 Recommendations

WSP has assessed this risk as **Low** and consider this appropriate given the current stage of the development. WSP recommends the following actions:

- Completion of the Fire Safety Study to determine Asset Protection Zone (APZ) and radiant heat flux withstand requirements.

3.4 Flooding

The BESS site is located within a flow path with catchment area of approximately 1 km^2 (1,000,000 m^2). The Project siting and design are required to consider the potential overland flooding from the upslope catchment and its flow path. A preliminary assessment indicates that the 1% AEP design discharge for the catchment upstream of the BESS site is approximately 11 m^3/s, using the BoM 2016 IFDs.

Detailed hydrologic and hydraulic modelling including the climate change effects, informed by survey or high-resolution topographic data, will be required to define the flood extent, depths and velocities along this flow path across the BESS site to assess the flood conditions and potential impacts of the Project.

Typical BESS design practises to mitigate against flood damage include:

1. Locating the BESS yard surface at the 1/100-year flood level.
2. Locating control boxes, cable terminations and other electrical interfaces at least 300 mm above the 1/100-year level
3. BESS unit modules are rated at IP66 or greater.

With these typical mitigation measures in place WSP assess the likelihood of site flooding impacting the BESS electrical equipment as **2 – Unlikely**.

The worst-case consequence of water ingress into the BESS would be equipment malfunction leading to Thermal Runaway and limited access to site for emergency management personal. WSP consider the consequence of flooding impacting the BESS electrical equipment as **2 – Medium**.

3.4.1 Recommendations

WSP has assessed this risk as **Low** and consider this appropriate given the current stage of the development. WSP recommends the following actions:

- completion of further hydrology studies to define the flood extent, depths and velocities along this flow path across the BESS site to assess the flood conditions and potential impacts of the Project.

- compliance with the industry best practice with respect to relative levels (300 mm freeboard over the 1% Annual Exceedance Probability (AEP) as a minimum) and IP ratings as nominated above.

3.5 BESS noise emissions

The main transformers, step up transformers and BESS inverters will all generate noise around the fundamental electrical frequency of 50 Hz.

An Environmental Noise Assessment has been undertaken by Sonus [10] to review compliance with the noise goals established in the *Environment Protection (Commercial and Industrial Noise) Policy 2023* (Nosie Policy). The assessment considered a worst-case-scenario noise model, which considered the noisiest BESS model under consideration and units located at the closest part of the site boundary to the nearest sensitive receiver.

The assessment concluded that:

- Based upon 24-hour operation of the BESS, the nighttime (10:00pm to 7:00am) goal noise level will be the most relevant assessment criterion for the assessment.
- Predicted noise levels from the BESS will comply with the Noise Policy goal noise levels for each of the nearest sensitive receiver locations regardless, of if an adjustment for tonal noise character is applicable
- The proposed BESS can satisfy the general environmental duty under Section 25 of the *Environment Protection Act 1993*.

As the Project is expected to be compliant with the goal noise levels established under the Noise Policy, it is envisaged that no noise mitigation will be required.

The Project Area is predominantly surrounded by lands used for agriculture and other existing wind farms.

Under normal operating conditions, WSP assess the likelihood of noise from the BESS yard as **2 – Unlikely**. The worst-case consequence of unexpected noise generation would be the implementation of additional sound mitigation measures and consider the potential for harm to operators and nearby communities to be **1 – Minor**.

3.5.1 Recommendations

WSP has assessed this risk as **Low** and consider this appropriate given the current stage of the development. WSP recommends the following actions:

- Revision of noise emission studies following confirmation of OEM suppliers and equipment to confirm compliance with required emission levels, if required
- Compliance to the industry best practice with respect to PPE and noise exposure levels.

3.6 Seismic event

A Seismic event (Earthquake, landslide) may have a potential to damage plant or cause injury to personnel. The damage may also result in thermal runaway, arc flash or release of pollutants. WSP consider the consequences of an unmitigated Seismic event strike to be **3 – Severe**.

The site is in a low-risk region of Australia for Seismic events[4]. WSP expects that the Project will be compliant with national building codes and will consider Seismic forces in the detailed design of the footings. WSP consider the likelihood of a Seismic event causing injury to personnel or damage to Plant to be **1 – Rare**.

[4] https://geoscience-au.maps.arcgis.com/apps/mapviewer/index.html?webmap=490e068f37494dbc997a2f7e55d4cc4d

3.6.1 Recommendations

WSP has assessed this risk as **Low** and consider this appropriate given the current stage of the development. WSP recommends the following actions:

- Confirm compliance with the National Construction Code
- Consider the seismic forces during the detailed design of the footings.

3.7 Pollutant release

The Project plant will utilise chemicals during operation which may cause pollution if not managed appropriately. WSP has identified two key potential contaminants:

- Transformer Oil, typically in Set Up Transformers and Main Power Transformers (Mineral oil)
- BESS coolant, typically in every BESS enclosure (Glycol).

A loss of containment of these chemicals into the ground and potential run-off into the local water course can lead to significant environmental pollution and possible injury from exposure to the local community, it is expected that quantities that are likely to be spilled will be small and the Project infrastructure will be designed to capture and detain runoff. WSP consider the consequences of a pollutant release to be **2 – Minor**.

The Project will include preventative measures to limit the likelihood of pollutant release, including rigorous equipment selection and Factory Acceptance Test (FAT) testing, condition monitoring and inclusion of built in bunds (BESS modules) or external bunds (Main Power Transformers, Step Up Transformers). It is also expected that the project will develop management plans and safe handling procedures for the storage, transport and installation of hazardous chemicals. WSP consider the likelihood of a Pollutant release event causing injury or damage to the environment to be **1 – Rare**.

3.7.1 Recommendations

WSP has assessed this risk as **Low** and consider this appropriate given the current stage of the development. WSP recommends the following actions:

- Confirm design compliance to AS2067 and AS1940
- Confirm Coolant leak FAT testing for the BESS Module
- Consider the inclusion of isolation valve on stormwater detention ponds to limit release outside of the Project Area.

3.8 Lightning strike

A direct lightning strike on the Project buildings or infrastructure may result in injury to operators and/or damage to plant. Specifically, a lightning strike to the BESS modules may result in thermal runaway of the cells. It is also expected that the Operations & Maintenance building and the Switch room buildings may be occupied during a lightning strike, resulting in severe injury if not adequately mitigated. WSP consider the consequences of Lightning strike to be **3 – Severe.**

The site is located in a low-risk region of Australia for lightning strikes (see Figure 3.1).

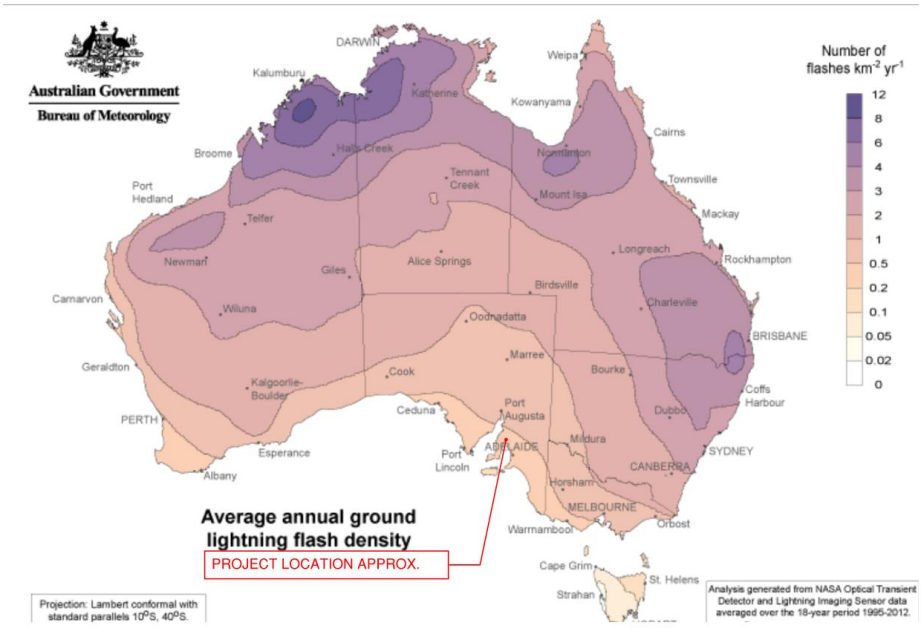

Figure 3.1 Lightning strike risk map

BESS projects typically include several mitigations and controls including:

- Lighting Protection study detailing:
  - AS1768 risk assessment and tolerable levels
  - Recommended installation of lighting arrestors and earth wires
  - Lighting protection coverage models.

WSP consider the likelihood of a lightning strike causing injury to personnel or damage to Plant to be **1 – Rare**.

3.8.1 Recommendations

WSP has assessed this risk as **Low** and consider this appropriate given the current stage of the development. WSP recommends the following actions:

- Lightning protection study including lighting coverage models be undertaken during detailed design stage.

3.9 Vehicular impact

The Project is expected to have significant traffic movements during construction and limited traffic during operations. An onsite vehicular impact can lead to serious damage to the Project infrastructure which can result in a hazardous incident such as BESS TR, electrical arc flash or release of pollutants. WSP consider the consequences of vehicular impact to be **3 – Severe**.

BESS projects typically include several mitigations and traffic controls including:

- 6 m wide perimeter roads
- dedicated access roads
- traffic management plans
- reduced speed limits within the site
- mandatory inductions for staff.

WSP consider the likelihood of a vehicular impact to be **1 – Rare**.

3.9.1 Recommendations

WSP has assessed this risk as **Low** and consider this appropriate given the current stage of the development. WSP recommends the following actions:

- Risk assessment be undertaken during detailed design stage, including consideration of speed limits and impact protection
- Traffic management plan be developed prior to construction considering the required inductions, training and procedures during construction for heavy vehicles.

3.10 Physical security breach

Detailed proposals for the Snowtown BESS CCTV, fencing and security have not yet been developed. It is however expected that the BESS will conform to the planning approval and industry best practice. WSP expects the Project Area to operate under established security and access controls, such as

- 2 m high security fencing around the Project
- Locks installed on all enclosures
- CCTV cameras and intruder alarms.

WSP consider the likelihood of a physical security breach to be **1 – Rare**.

The consequence of such a breach could include personnel hazards, asset damage, incidents resulting in fire or release of pollutant material. WSP consider the consequences of physical security breach to be **3 – Severe**.

3.10.1 Recommendations

WSP has assessed this risk as **Low** and consider this appropriate given the current stage of the development. WSP recommends the following actions:

- Appropriate security training for staff members
- Design Compliance with industry practice in relation to security, fencing and secure area access controls.

3.11 Cybersecurity breach

Detailed proposals for the Snowtown BESS communications system and infrastructure, as well as Cybersecurity planning have not yet been made available.

Cybersecurity is yet to be addressed; however, it is assumed that as with all utility scale BESS, the site will conform to the Australian Energy Sector Cyber Security Framework (AESCSF) and complete cyber security training of staff to mitigate cyber threats. On the assumptions presented above WSP consider the likelihood of cybersecurity breach to be **1 – Rare**. The consequence of such a breach to be **3 – Severe**, as it is possible that safety controls can be deactivated.

3.11.1 Recommendations

WSP has assessed this risk as **Low** and consider this appropriate given the current stage of the development. WSP recommends the following actions:

- Development of the BESS communications systems and infrastructure design and conformance to the ASECSF requirements
- Appropriate cybersecurity training for staff members.

4 Summary and recommendations

4.1 Risk assessment

WSP assessment of the hazards relevant to the Project identified **Inadvertent Electric Shock** and **Thermal Runaway** were the only risks assigned a rating of moderate. These two risk items must be closely reviewed and assessed during the detailed design stage of works to ensure appropriate mitigation is in place for construction and operations.

The remaining risks were assigned a low rating, However WSP has put forward several recommendations for the management of all risks that were identified and assessed.

4.2 Design

The following has been recommended by this assessment for the Design Phase of the Project:

1. Safety in Design Workshops should be held during detailed design phase to address the risks across the various components of the BESS, with controls and mitigations implemented and installed as appropriate (refer Section 3.1 and 3.9)
2. A fire safety study should be undertaken to determine the required safety clearances, APZs, radiant heat flux withstand requirements and firefighting management protocols for a Thermal Runaway event (refer Sections 3.2 and 3.3).
3. Consideration should be given to the inclusion of an independent fire detection system for the BESS modules (refer Section 3.2).
4. BESS modules should be certified to UL1973 (or equivalent) and BESS units tested to UL9540A system level tests, allowing for the use of UL9540A test data from similar BESS modules, where any deviations in equipment are minor and do not impact thermal runaway characteristics. (refer Section 3.2).
5. A detailed hydrology study should be undertaken to define the flood extent and velocities of the flow path across the indicative BESS site. The design should consider a minimum 300 mm freeboard for the installation of electrical equipment (refer Section 3.4).
6. It is recommended that noise emission studies are revised following confirmation of OEM suppliers and equipment to confirm compliance to the noise emission levels (refer Section 3.5).
7. Consideration should be given to the seismic forces on the equipment during detailed design of footings. The design should confirm compliance with the National Construction Code (refer Section 3.6).
8. The design should confirm compliance to AS2067 and AS1940 with relation to the bunding of transformer oil (refer Section 3.7).
9. FAT testing on the BESS modules should include a test for Coolant leaks (refer Section 3.7).
10. Consideration should be given to the inclusion of isolation valves on stormwater detention ponds to limit release outside of the Project Area (refer Section 3.7).
11. A lighting protection study to be undertaken to determine the lighting coverage and protection requirements (refer Section 3.8).
12. The design should be compliant in industry best practice in relation to security, fencing and controls for secure area access (refer Section 3.10).

4.3 Construction and operation

The following has been recommended by this assessment for the Construction and Operation Phase of the Project.

1. Safe work procedures should be developed prior to construction, including isolation procedures, Lockout/Tagout (LOTO) Procedures, Electrical Hazard Assessment, use of PPE, and training and competency (refer Section 3.1).
2. A Traffic Management Plan should be developed prior to construction considering the required inductions, training and procedures during construction for heavy vehicles (refer Section 3.9).
3. Working methodology for personal should comply with industry best practice with respect to PPE and noise exposure levels (refer Section 3.5).
4. Staff members should be routinely trained on appropriate physical and cyber security matters (refer Sections 3.10 and 3.11).
5. An Emergency Management Plan should be developed and implemented for the construction and operation of the Project (refer Section 1.5.2).

5 Limitations

This Report is provided by WSP Australia Pty Limited (*WSP*) for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal dated 28 August 2024 and agreement with the Client dated 28 November 2024 (*Agreement*).

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Appendix K

Social and community assessment

Design
for a better
future /

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

Snowtown BESS

Social and Community Assessment

June 2025

Question today
Imagine tomorrow
Create for the future

Snowtown BESS
Social and Community Assessment

Prepared for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust

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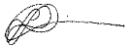
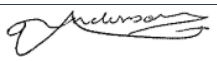
Reviewed by:	Felicity Richards	26 June 2025	
Approved by:	Tenille Anderson	26 June 2025	

WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Abbreviations

ABS	Australian Bureau of Statistics
AIL	Associated Infrastructure Licence
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
HRE Act	*Hydrogen and Renewable Energy Act 2023*
IRSAD	Index of Relative Socio-economic Advantage and Disadvantage
Km	Kilometres
kV	Kilovolt
LGA	Local Government Area
MW	Megawatts
P&D Code	Planning and Design Code
PDI Act	Planning, Development and Infrastructure (PDI) Act 2016
Project	All proposed activities for the Snowtown BESS project
Project Area	Land on which the Project is located
RDAYMN	Regional Development Australia Yorke and Mid North
SA	South Australia
SA2	Statistical Area Level 2
SAL	Statistical Area Level
SIA Guideline	New South Wales Social Impact Assessment Guideline
Tilt Renewables	Tilt Renewables Australia Pty Ltd as trustee for Snowtown BESS Project Trust
TMP	Traffic Management Plan
WSP	WSP Australia Pty Limited

1 Introduction

1.1 Project overview

Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (Tilt Renewables) is seeking approval to develop the Snowtown Battery Energy Storage System (BESS) Project (the Project); a 100-megawatt (MW) BESS with up to 4-hour duration located approximately 10 kilometres (km) northwest of Snowtown in South Australia.

The Project proposes both permanent and temporary infrastructure. Permanent site infrastructure will comprise:

- BESS with capacity of 100 MW with up to 4-hour duration, including Battery Pack Containers, inverters, inverter transformers and associated control, monitoring and protection equipment.
- Ancillary infrastructure including auxiliary supply transformers
- Hardstand areas
- Drainage and erosion control
- Internal roads, access tracks and parking
- Water management infrastructure (water tanks, water supply, retention pond, water treatment)
- Onsite buildings (operations and maintenance, switchroom and control room, storage)
- Underground cabling
- Harmonic filter yard (if required)
- Lightning protection rods
- Communications tower (if required)
- Site fencing and security.

Temporary site infrastructure will include:

- Construction compound
- Equipment laydown areas
- Fuelling stations.
- Washdown bay (if required).

The Project includes a proposed grid connection (via underground cables) to the existing substation located directly east of the proposed BESS site; developed as part of the Snowtown I Wind Farm. The Project will tie into the substation behind the existing wind farm connection point. Modification works to the existing Snowtown Substation will be required as part of the project to facilitate the connection of the BESS to the electricity grid. Substation works are expected to include:

- Installation of a new isolator and earth switch
- Installation of a 33 kilovolt (kV) conductor between the new isolator and the existing wind farm isolator
- 33 kV cable trench from the BESS Facility into the substation
- Associated protection, control and metering equipment to be installed in the existing Snowtown Wind Farm substation building.

The construction period is approximately 14 months, with a preliminary estimated workforce of 50 full time workers at the peak of the construction. Once operational, the proposed facility is expected to be remotely operated and normally unmanned, requiring infrequent inspections and maintenance activities with typically up to two staff on site at any one time.

The Project constitutes a *regulated activity* under the *Hydrogen and Renewable Energy Act 2023* (HRE Act) and will seek licencing under an Associated Infrastructure Licence (AIL). WSP Australia Pty Limited (WSP) have been engaged to prepare an Environmental Impact Report, Statement of Environmental Objectives and technical studies to support the AIL application.

1.2 Project Area

The Project will be located on an approximate 13-hectare site (the Project Area) adjacent to the existing ElectraNet substation; at the junction of Wokurna Road and Hewitt Road, Wokurna. The Project Area is shown overleaf in Figure 1.1 (provided by Tilt Renewables).

The Project Area has two road frontages; Wokurna Road on the northern boundary and Hewitt Road on the southern boundary. The primary access point to the Project Area will be created off Wokurna Road and will be used to support the construction phase as well as the operational phase of the Project. Hewitt Road will be used as emergency and secondary access to the facility.

The Project Area is currently used for cropping and has been cleared of native vegetation.

Legend

- Project Area
- Existing 132kV Transmission Line
- Existing 33kV Transmission Line
- Indicative Underground Cable
- Indicative Underground Substation Cable
- Indicative BESS Infrastructure
- Indicative Internal Road
- Indicative Bench
- Indicative Switchroom and Control Room
- Indicative Harmonic Filter
- Indicative O&M Building
- Indicative Detention Pond
- Indicative Water Tank
- Indicative Washdown Bay
- Indicative Spare BESS Infrastructure
- Indicative Fence
- Existing Substation
- Tilt Owned Land
- Cadastre

Note: Indicative layout and subject to change

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Snowtown BESS

Indicative Project Layout

renewables

1.3 Purpose of this document

The purpose of this Social and Community Assessment is to identify, assess, and manage the social impacts resulting from the construction and operation of the Snowtown BESS project to support the AIL application under the HRE Act.

The objectives of the assessment are to:

- Determine the local and regional social area of influence (Section 2.1)
- Identify key communities and potentially affected stakeholders (Section 2)
- Identify and assess the potential social impacts, both positive and negative, that may result during construction and operation of the Project (Section 3)
- Identify appropriate measures to avoid, mitigate and manage negative impacts, and opportunities to enhance positive impacts (Section 4).

1.4 Legislative requirements

The following legislation is relevant to the social and community assessment for the proposed Project:

- *Hydrogen and Renewable Energy (HRE) Act 2023 s.4 (3)*
- A reference to the *environment* in this Act includes:
  - Land, air, water (including both surface and underground water and sea water), organisms, ecosystems, flora, fauna and other features or elements of the natural environment; and
  - Buildings, structures and other forms of infrastructure, and cultural artefacts; and
  - existing or permissible land use; and
  - public health, safety and amenity; and
  - the heritage, aesthetic, Aboriginal, social and cultural values of an area; and
  - the social or economic effects associated with regulated activities.
- *Planning, Development and Infrastructure (PDI) Act 2016.*

The Project Area is covered by the PDI Act. The Planning and Design Code (P&D Code) is developed under the PDI Act and aims to establish comprehensive policies for the assessment of development. The P&D Code is not a statutory instrument under the HRE Act but can still be used as a tool to identify and assess environmental and social impacts of the proposed Project.

1.5 Assessment methodology

This assessment has been conducted using a desktop research approach. It draws on statistical information from the Australian Bureau of Statistics, State and Local Government websites, and Regional Development Australia Yorke and Mid North (RDAYMN) and analysis of the stakeholder and community engagement Tilt Renewables have carried out to date.

This Report adopts a proportionate level of assessment for the Project guided by the New South Wales Social Impact Assessment Guideline (SIA Guideline) and Technical Supplement as the current leading practice methodology for scoping and assessing impacts in Australia (NSW Government, 2023). This methodology also meets the requirements for a scoping-level of assessment detailed in PlanSA guidance for Impact Assessed development under the PDI Act (PlanSA, 2022). This methodology is considered sufficient at the DA stage.

This Report defines the social area of influence by considering stakeholders most likely to experience direct and indirect socio-economic impacts, and their geographic location.

This Report provides baseline data for the current socio-economic conditions for the social area of influence.

The significance of each social impact is assessed based on likelihood (Table 1.1) and magnitude (see Table 1.2 and Table 1.3).

Qualitative and quantitative sources were used to identify and evaluate the potential impacts that the Project may have on the communities and people in the social area of influence during construction and operation of the BESS and associated infrastructure. Social impacts identified in this assessment are categorised according to: community, way of life, access, culture, health and wellbeing, surroundings, livelihoods, and decision-making.

Table 1.1 Defining likelihood levels of social impacts

Likelihood level	Definition
Almost certain	Definite or almost definitely expected (e.g., has happened on similar projects)
Likely	High probability
Possible	Medium probability
Unlikely	Low probability
Very unlikely	Improbable or remote probability

Source: Technical Supplement to SIA Guideline (DPIE, 2023)

Table 1.2 Defining magnitude levels for social impacts

Magnitude criteria	
Transformational	Substantial change experienced in community wellbeing, livelihood, amenity, infrastructure, services, health, and/or heritage values; permanent displacement or additional of at least 20% of a community.
Major	Substantial deterioration/improvement to something that people value highly, either lasting for an indefinite time, or affecting many people in a widespread area.
Moderate	Noticeable deterioration/improvement to something that people value highly, either lasting for an extensive time, or affecting a group of people.
Minor	Mild deterioration/improvement, for a reasonably short time, for a small number of people who are generally adaptable and not vulnerable.
Minimal	Little noticeable change experienced by people in the area of influence.

Source: Technical Supplement to SIA Guideline (DPIE, 2023)

Table 1.3 Social impact significance matrix

Magnitude		1 Minimal	2 Minor	3 Moderate	4 Major	5 Transformational
Likelihood level	**A** Almost certain	Low	Medium	High	Very high	Very high
	B Likely	Low	Medium	High	High	Very high
	C Possible	Low	Medium	Medium	High	High
	D Unlikely	Low	Low	Medium	Medium	High
	E Very unlikely	Low	Low	Low	Medium	Medium

Source: Technical Supplement to SIA Guideline (DPIE, 2023)

2 Existing social conditions

2.1 Social area of influence

The Project is located in the Wakefield Local Government Area (LGA), in the Yorke Mid North Region.

The Project is situated in a rural area with scattered residences and no densely populated areas nearby. The closest township is Snowtown, approximately 10 km away from the Project Area. Additionally, the nearest residence to the project site is 700 m from the work area, and it belongs to the owner of the Project property. The social area of influence is the geographical area expected to experience impacts (positive and negative) as a result of the Project, and is composed by a local and regional areas of influence.

The local area of influence comprises the communities and landholdings that will directly experience impacts. This includes Wokurna, Snowtown, and Mundoora ABS Suburbs and Localities (SAL).

The regional area of influence is formed by the communities expected to experience indirect social impacts, particularly regarding employment and accommodation. This area is compromised by Wakefield - Barunga West and Clare ABS Statistical Area Level 2 (SA2s). Clare is included as it is assumed that some workers will be accommodated there (refer to Figure 2.1).

The Project proposes to use the Augusta Highway to transport materials from the Port of Adelaide, located 150 km to the south. The transport corridor and surrounding communities have been considered in terms of traffic safety impacts but are not considered part of the regional area of influence.

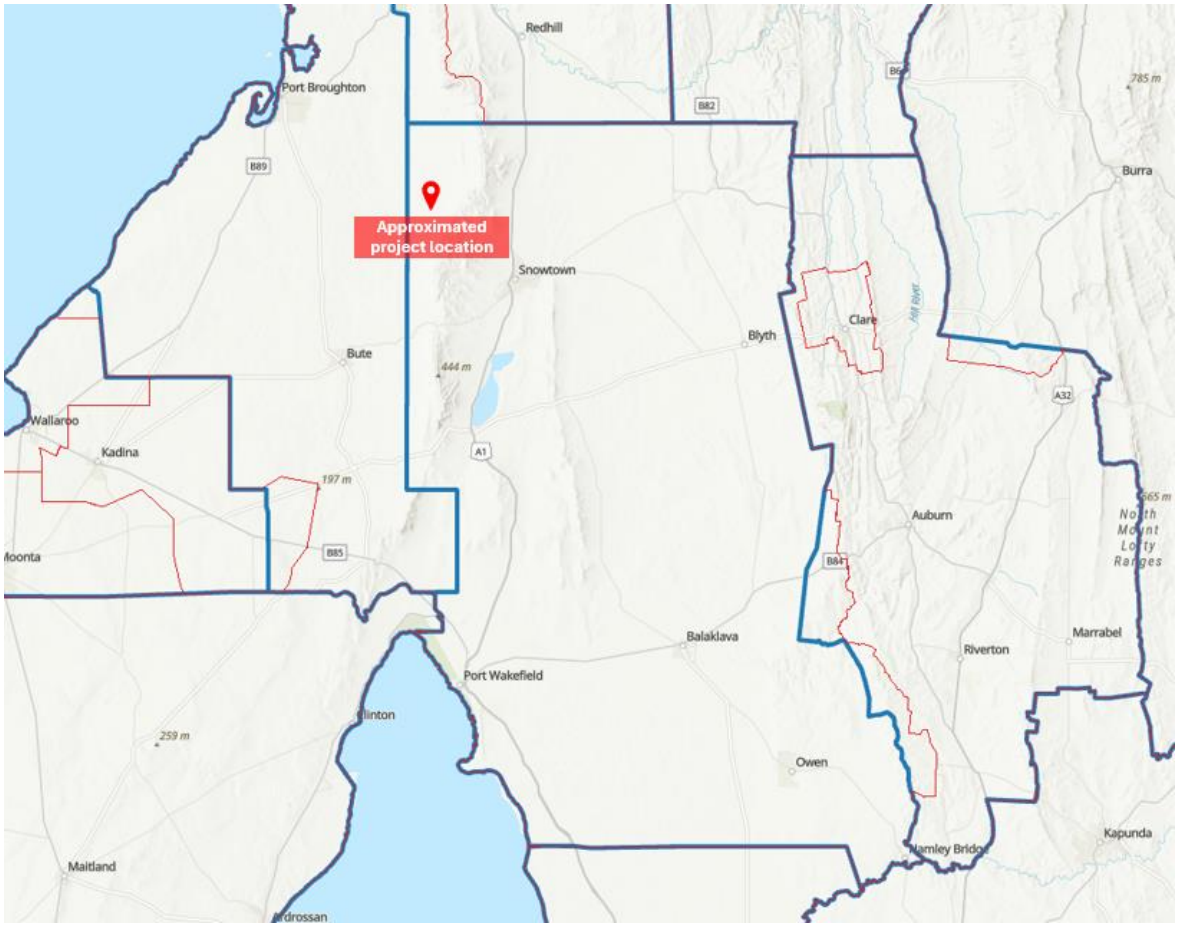

Figure 2.1 Social area of influence (presenting SA2 levels)

2.2 Stakeholder and community sentiment and perception

The Yorke and Mid North Regional Plan is currently being developed by the South Australian Government. Reports on the consultation to date indicate that communities are supportive of renewable energy production in this region.

Consultation findings so far indicate that communities support:

- community generated energy solutions with free renewable power for residents.
- integrated renewable energy approaches that are compatible with agricultural land use, environmental land management, industry development and responsive to community expectations.
- development of energy storage solutions and batteries for offshore wind, hydrogen and solar (PlanSA, 2024).

Wakefield Regional Council is supportive of renewable energy projects, as a host to existing wind and solar farms. Council aims to attract renewable energy projects and establish itself as a renewable energy leader in the region (Wakefield Regional Council, 2023).

The Project consultation plan is in development as of April 2025.

Tilt Renewables is engaging with Wakefield Regional Council, neighbouring residents, and Traditional Owners. Community information sessions are planned to be held in April and May 2025.

On 3 April 2025, door knocks were conducted with surrounding residents to provide information about the proposed project, gather feedback, and inform them about the drop-in session, which was held in Snowtown on 29 April 2025. Local residents raised key issues and queries such as whether the BESS would improve energy reliability during blackouts, concern regarding local road conditions and maintenance, and the overall safety of the BESS.

2.3 Community profile

The community profile within the Project's social area of influence highlights a small, aging population with limited cultural diversity and notable socio-economic disadvantage. The local area – encompassing Snowtown, Wokurna, and Mundoora – has a combined population of just 620 people, with median ages well above the state average, suggesting a predominantly retired demographic. Aboriginal and Torres Strait Islander representation is higher than the South Australian average, while non-Indigenous cultural and linguistic diversity remains low. Household incomes vary significantly across the area, and Snowtown, in particular, falls within the most disadvantaged quintile on the Index of Relative Socio-economic Advantage and Disadvantage (IRSAD), indicating heightened vulnerability within the community.

This demographic context is critical in understanding how the Project may interact with and impact on the local and regional population. The older, less mobile population may benefit from tailored engagement approaches, while the socio-economic challenges suggest that even modest economic contributions – such as local employment or procurement – could deliver meaningful benefits. However, the aging population may also limit the availability of a local workforce, potentially necessitating recruitment from the broader regional area, where the median age is lower and workforce participation may be higher.

This section provides a detailed description of the communities within the social area of influence and provides a demographic overview of their populations.

2.3.1 Demographic overview

The regional area of influence (made up of the Wakefield - Barunga West and Clare ABS SA2s) have a total combined population of 13,596 people (see Table 2.1). In contrast, the population of the local area of influence (made up of Snowtown, Wokurna and Mundoora SALs) is 602, making up just 4.6% of the broader regional area of influence. These three SALs have a low population and limited influence on the demographic profile of the region.

Family structures were similar across the local and regional areas of influence. Wakefield-Barunga West and Clare have a higher proportion of families with children (33.2%) than SA as a whole (28.4%). Families without children and one parent families were less common when compared with the State as a whole (see Table 2.1).

The median ages across Wakefield-Barunga West and Clare were older than the median of 41 years for SA. Snowtown and Wokurna notably had older median ages, of 51 and 54 respectively. The populations of Snowtown, Wokurna, and Mundoora are proportionately older and are likely to have more retirees.

Table 2.1 Demographic overview of the social area of influence

	Local area of influence				Regional area of influence			State
	Snowtown	Wokurna	Mundoora	Total	Wakefield – Barunga West	Clare	Total	South Australia
Population								
All people	425	61	134	620	9,500	4,096	13,596	1,781,516
Male	218	30	68	316	4821	1937	6758	878,592
Female	205	32	67	304	4683	2160	6843	902,924
Families								
Couple family without children	14.4%	42.9%	16.3%	18.1%	23.5%	23.1%	23.4%	28.3%
Couple family with children	28.7%	39.3%	44.9%	33.7%	32.8%	34.1%	33.2%	28.4%
One parent family	9.7%	17.9%	6.1%	9.8%	9.6%	9.1%	9.4%	11.5%
Median age	54	51	49	-	48	45	-	41

Source: ABS Census, 2021

2.3.2 Population change

The population of Wakefield-Barunga West and Clare has seen a 1.6% increase of 216 people in the five years to 2023, a slower rate of growth compared with a 5.7% for SA (ABS, 2024).

Wakefield-Barunga West and Clare are projected to have an increase of around 7.8% in the ten years to 2031, approximately an additional 770 people in Wakefield-Barunga West, and 400 people in Clare on the 2021 population. This is in line with the projected population increase of 7.4% for SA between 2021 and 2031 (Data SA , 2020).

2.3.3 Cultural diversity

Wakefield-Barunga West has a higher proportion of Aboriginal and Torres Strait Islander residents (2.7%) compared with SA (2.4%). Clare had a lower proportion at only 1.9%. Snowtown, Wokurna and Mundoora notably have a higher average proportion of Aboriginal and Torres Strait Islander residents (6.3%) compared with the regional social area of influence and SA (see Table 2.2).

The social area of influence is generally less culturally and linguistically diverse than SA. Only 3.3% of households speak a language other than English at home. In the local area of influence the proportion is close to zero, except for Snowtown where it is 1.7% of households. The most common languages spoken at home aside from English are Filipino, Tagalog, and Mandarin.

Table 2.2 Cultural and linguistic diversity in the social area of influence

	Local Area of influence				Regional Area of influence			State
	Snowtown	Wokurna	Mundoora	Total	Wakefield – Barunga West	Clare	Total	South Australia
Aboriginal and/or Torres Strait Islander	5.2%	9.8%	8.2%	6.3%	2.7%	1.9%	2.5%	2.4%
Household where non-English language is spoken	1.7%	-	-	1.13%	3.2%	3.5%	3.3%	17.8%

Source: ABS Census, 2021

2.3.4 Household income and socioeconomic advantage and disadvantage

The median weekly household income varied between $771 in Snowtown and $1,937 in Wokurna, revealing stark inequalities across the social area of influence.

The IRSAD is another indicator used for understanding the socio-economic conditions in which people live. A low IRSAD score shows higher levels of disadvantage, while a high score indicates low levels of disadvantage (and, consequently, higher levels of advantage).

Wakefield-Barunga West has a score of 907 and is in the first quintile (highest levels of disadvantage) while Clare West has a higher score (970) and is in the second quintile, meaning it has slightly lower level of disadvantage. Overall, high levels of disadvantage are experienced across the region compared with other parts of SA and Australia. Snowtown SAL has a low score (809) and is in the first quintile while Wokurna and Mundoora fall in the third quintile, having lower levels of disadvantage (see Table 2.3). Higher levels of disadvantage mean that that these communities may require assistance in accessing benefits or addressing impacts.

Table 2.3 Household income and socio-economic disadvantage in the social area of influence

	Local of influence			Regional Area of influence		State
	Snowtown	Wokurna	Mundoora	Wakefield – Barunga West	Clare	South Australia
Median weekly household income	$771	$1,937	$1,075	$1,092	$1,076	$1,455
IRSAD	809	973	970	907	970	N/A
SEIFA Quintile	1	3	3	1	2	N/A

Source: ABS Census, 2021

2.4 Way of life

Wakefield-Barunga West and Clare are proud rural and regional communities, offering their residents safe, healthy and natural environments. The predominant values across the three Councils' visions for their regions are inclusive and connected communities, environmental sustainability and economic development to protect the regions' viability. Both Wakefield and Barunga West Councils characterise their populations as resilient, with agricultural communities having experienced challenges from drought and changes in the agricultural sector (Wakefield Regional Council, 2023; Barunga West Council, 2023). Clare and Gilbert Valleys Council recognises the importance of the Council's strategy and community in protecting the rural lifestyle of the region and resilience as the region experiences challenges with water scarcity and extreme weather events (Clare and Gilbert Valleys Council, 2023).

Communities are involved in the development of their region through volunteering, community initiatives and consultation within their Council. Volunteering is a strong pillar but there are concerns that the number of volunteers will drop as people in volunteering roles enter older age (Wakefield Regional Council, 2023; Barunga West Council, 2023).

Communities and Councils in the region are generally supportive of and positive about renewable energy initiatives especially to support their economic development.

2.5 Access

Access to infrastructure, services, and facilities in the Project area is limited, reflecting the rural nature of the region. Housing availability is constrained, with very few rental properties – only three in Clare as of March 2025 – highlighting a tight accommodation market. Short-term accommodation is similarly limited outside of Clare, which, as a regional tourism hub, offers the most options. This has implications for the Project's construction workforce, which is expected to rely heavily on Clare for accommodation. Essential services such as grocery stores, petrol stations, and healthcare are sparse in smaller towns like Snowtown and Mundoora, requiring residents to travel to larger centres like Clare or Port Pirie for more comprehensive amenities.

Transport and education infrastructure also present challenges. The region is primarily serviced by road, with the Princes/Augusta Highway acting as the main freight and commuter route. Public transport is minimal, consisting mainly of bus services with limited coverage. Given the reliance on regional roads for construction logistics, the Project may need to implement robust traffic management measures to ensure road safety – particularly along routes shared with local residents, agricultural vehicles, and tourists.

Educational facilities in the local area are limited to a primary school and preschool in Snowtown, with no nearby tertiary institutions. This raises the need for the Project to consider how it can support equitable access to employment – potentially through tailored roles or training initiatives that align with the community's existing skill levels.

This section details how the communities access and use infrastructure, services and facilities.

2.5.1 Housing and accommodation

The South Australian housing market is experiencing significant pressures due to limited housing supply, especially in regional areas (Department of Treasury and Finance, 2023). There is very limited rental housing supply within the region, with only three properties available for rent, all located in Clare, at March 2025 (RealEstate.com.au, 2025). While Wakefield Regional Council has targets for new housing developments, the actual growth is about half of the target of 50 new homes per year (Wakefield Regional Council, 2023).

Given the demand for wine tourism, short-term accommodation providers are primarily concentrated in Clare, with limited options in the other towns in Wakefield-Burunga West. Clare is a larger town and is situated in the Clare and Gilbert Valleys wine region, offering more accommodation options but these are oriented towards local tourism. It is expected that the construction workforce will also be primarily accommodated in Clare. Table 2.4 details the nearest towns and their accommodation offering.

Table 2.4 Short-term accommodation providers

Town	Distance from the Project Area (approximate time)	Short term accommodation
Snowtown	11-minute drive	— one hotel, two caravan parks
Clare	42-minute drive	— five hotels/ motels — one caravan park — boutique B&B accommodation
Bute	22-minute drive	— one caravan park

Town	Distance from the Project Area (approximate time)	Short term accommodation
Mundoora	15-minute drive	— one caravan park
Port Broughton	25-minute drive	— five hotels/motels — one caravan park
Crystal Brook	38-minute drive	— one hotel — one caravan park
Alford	31-minute drive	— one caravan park

2.5.2 Services and amenities

The services and amenities within proximity to the local and regional areas of influence are generally limited. Councils acknowledge that the regional nature of their communities mean they experience challenges in access to services, meaning residents must travel to larger towns such as Clare or Port Pirie.

Snowtown is classified as a Local Service Centre in the Yorke Peninsula and Mid North Regional Plan (Regional Plan), primarily supporting the local population and low numbers of people passing through. Services include an independent grocery shop, petrol station, newsagency and community gym.

Port Broughton is a Supporting Service Centre, offering a higher level of services than Snowtown, with an independent grocery shop, chemist, one hardware shop, one mechanic, one petrol station, local takeaway food outlets and one gym.

Clare is the largest town in the region and a Major Service Centre under the Regional Plan, and a regional tourist destination, offering a higher level of services including major supermarkets, hardware shops, mechanics, petrol stations, chemists, restaurants, gyms and recreational services.

2.5.3 Health services in the region

Health services are provided through the Yorke and Northern Local Health Network which covers the Cape Yorke and Mid North regions, including Wakefield-Barunga West and Clare SA2s. The Snowtown Hospital services the local area of influence and is the closest hospital to the Project Area. It has 24-hour accident and emergency services staffed by nurses, outpatient services, general medical care, and residential aged care with 31 beds (three medical and 28 aged care). There are no resident doctors in Snowtown, and services are supported by visiting doctors. Patients requiring a higher order of care may be transferred to other larger hospitals in Port Pirie, Clare and Adelaide. The hospital also provides a range of occupational therapy, podiatry and speech pathology and educational services.

Other hospitals within the Wakefield-Barunga West include the Port Broughton (20 beds) and Balaklava Memorial Hospital (22 beds) which provide a similar level of care as Snowtown Hospital. The Clare Hospital provides a broader range of services for the region including surgery facilities, cancer treatments, diagnostic imaging and maternity services, amongst others (SA Health, 2021).

Other community health services for the region are provided through the Country Health Connect network.

2.5.4 Transport infrastructure

Road network

Major roads and highways in the region include the Princes/Augusta Highway running north/south from Adelaide to Snowtown. The smaller rural towns are connected by both sealed and unsealed rural roads. The Major roads and highways are maintained by the Department for Infrastructure and Transport, with the smaller roads generally maintained by local councils. The Project proposes to use the Princes Highway as the main freight route from the Port of Adelaide.

The road network is the primary form of transport used by the communities of Wakefield-Barunga West and Clare regions.

Rail network

Rail is primarily used for freight in the Yorke and Mid North Region, with the Adelaide–Port Augusta railway line and the Crystal Brook–Broken Hill railway line servicing the region (RDAYMN, 2017). The Ghan and Indian Pacific passenger services use the same rail network, but passengers do not board or alight these trains in the region. There is a station in Snowtown, however it is not active for passenger use.

Port infrastructure

There are no major ports in the social area of influence. The Project proposes to bring materials from the Port of Adelaide, located 145 km to the south of the Project Area.

Airports

There are no major airports in the region.

Public transport

Public transport options within the social area of influence are limited and primarily provided by bus services. Stateliner bus services operates buses from Adelaide with stops at Port Wakefield, Snowtown and Redhill.

2.5.5 Education

Education and training facilities are limited in the local area of influence. Snowtown has a primary school and preschool.

Other education facilities in Wakefield-Barunga West include: one childcare centre, five preschools, seven primary schools and one high school. Facilities in Clare include one each childcare centre, primary school and high school (Department for Education, 2025). There are no special educational facilities in the region.

There are no tertiary level educational facilities in Wakefield-Barunga West or Clare. The closest facilities are TAFE campuses in Port Pirie and Kadina, outside of the regional social area of influence (TAFE SA, 2025).

Educational attainment in the regional social area of influence were lower than the rates for the State, with 12.1% of residents holding a bachelor's degree or higher, compared with 23.6% of SA. There were comparable levels of residents with Certificate Level qualifications. Mundoora had the lowest proportion of residents with a bachelor's degree or higher, with 5.8% (see Table 2.5).

Table 2.5 Education in the social area of influence

	Local Area of influence				Regional Area of influence			State
	Snowtown SAL	**Wokurna SAL**	**Mundoora SAL**	**Total**	**Wakefield – Barunga West**	**Clare**	**Total**	**South Australia**
Highest level of educational attainment								
Bachelor's degree level and above	7.3%	9.3%	5.8%	**7.2%**	9.5%	18.3%	**12.1%**	**23.6%**
Advanced Diploma and Diploma Level	6.5%	5.6%	2.9%	**5.6%**	6.6%	8.7%	**7.2%**	**9.0%**
Certificate Level	18.8%	24.1%	30.8%	**21.9%**	23.7%	24.2%	**23.8%**	**21.6%**
Year 12	25.2%	37.0%	28.8%	**27.2%**	36.5%	45.1%	**39.1%**	**54.9%**
Year 10	22.6%	14.8%	26.0%	**22.5%**	22.3%	17.7%	**20.9%**	**15.6%**

Source: ABS Census, 2021

2.6 Culture

2.6.1 The Traditional Custodians of the Land

Aboriginal cultural heritage surveys will be completed at various stages of Project development. A desktop heritage assessment was completed to support a Development Application for a previously proposed Solar Farm within the Project Area in 2017.

This was supported by engagement with the Adjahdura Narungga Heritage Group, finding no registered Aboriginal heritage sites or objects identified within the Project Area (Aboriginal Cultural Heritage Assessment).

As part of the preparation of the Aboriginal Cultural Heritage Assessment for this Project, engagement with the Narungga Nation Aboriginal Corporation and a site walkover is proposed to support the heritage surveys.

The Aboriginal Cultural Heritage Assessment determined that Native Title does not exist across the Project Area.

2.7 Health and wellbeing

Residents in the social area of influence experience higher rates of long-term health conditions compared to the general population of SA.

In Wakefield-Barunga West and Clare, a lower proportion of the population reported having no long-term health conditions (52.1%), compared with 57.9% of SA. Residents of Snowtown reported higher levels of arthritis (17.4%), diabetes (11.1%) and mental health conditions (13.6%) compared with the other areas. Snowtown also had the lowest proportion of residents reporting that they had no long-term health conditions (43.5%).

Mental health conditions were reported by 11.3% of the population of Wakefield-Barunga West and Clare, higher than for SA (9.8%) except for Mundoora SAL, where it was slightly lower (7.5%). Higher levels of mental health conditions should be considered in the context of the population's ability to interact with the Project and vulnerability to impacts.

The high levels of health issues and higher median age of residents in the regional area of influence suggest that the population may be more susceptible to age related health conditions.

Table 2.6 Health in the social area of influence

	Local Area of influence				Regional Area of influence			State
	Snowtown	Wokurna	Mundoora	Total	Wakefield – Barunga West	Clare	Total	SA
Arthritis	17.4%	11.5%	17.9%	16.9%	14.3%	11.5%	13.5%	10.1%
Asthma	14.6%	14.8%	10.4%	13.7%	11.2%	9.5%	10.6%	8.9%
Diabetes	11.1%	0.0%	6.7%	9.0%	7.4%	5.9%	6.9%	5.7%
Mental health condition	13.6%	11.5%	7.5%	12.1%	11.5%	11.0%	11.3%	9.8%
Any other long term health condition	8.7%	0.0%	3.0%	6.6%	9.5%	7.8%	9.0%	8.8%
Two conditions	13.2%	8.2%	7.5%	11.5%	9.5%	6.9%	8.7%	6.9%
No long-term health condition stated	43.5%	47.5%	53.7%	46.1%	50.6%	55.1%	52.1%	57.9%

Source: ABS Census, 2021

2.8 Surroundings

Wakefield-Barunga West and Clare are characterised by agricultural landscapes used primarily for cropping, grazing and windfarms. The landscape is primarily cleared agricultural land, shrubland and pockets of remnant eucalypt and other forests. The area surrounding the Project Area is characterised by low hills and windfarms which are visible across the landscape. These have come to be a part of the landscape and are an attraction for people passing through the region.

The region is scattered with rural properties and small towns, connected by the main Princes/Augusta Highway and rural roads.

The area experiences drought and isolated bushfires, including at the Project Area in 2019.

2.9 Livelihoods

2.9.1 Key economic drivers and occupations of employment

The gross regional product for Wakefield-Barunga West and Clare was estimated at $2.3 billion, representing 0.75% of South Australia's gross state product for the 2021-22 financial year (REMPLAN, 2022). Agriculture, forestry and fishing (ABS category) represents 23% of the economic output (gross revenue) for Wakefield-Barunga West and Clare, contributing approximately $530 million in the 2021-22 financial year.

Regional Development Australia Yorke and Mid North's (RDAYMN) Strategic Plan 2021-2026 notes that the region provides 57.1% of South Australia's installed wind generation and 40.6% of South Australia's grain output (RDAYMN, 2023). RDAYMN and Wakefield Council highlight their focus on promoting renewable energy projects in the region. In June 2024 RDAYMN reported that renewable energy projects for the broader Yorke and Mid North Region were estimated at $9.8 billion, with some of these in the Wakefield-Barunga West region (RDAYMN, 2024).

The top industry of employment across Wakefield-Barunga West and Clare is agriculture, forestry and fishing (ABS category), followed by health care and social assistance (see Table 2.7). Snowtown, Wokurna and Mundoora are predominantly areas of agricultural production, where between 20% and 69.7% of the population are employed in this industry.

Table 2.7 Top industries of employment

	Local Area of Influence			Regional Area of influence		State
	Snowtown	**Wokurna**	**Mundoora**	**Wakefield – Barunga West**	**Clare**	**SA**
Top industries of employment						
Agriculture Forestry and Fishing	20.0%	69.7%	27.1%	25.6%	-	-
Retail Trade	19.2%	-	-	-	9.8%	9.7%
Health Care and Social Assistance	15.8%	-	27.1%	11.6%	13.4%	16.4%
Education and Training	-	15.2%	-	8.6%	-	8.8%
Transport Postal and Warehousing	-	-	15.2%	-	-	-
Accommodation and Food Services	-	-	-	-	9.3%	-

Source: ABS Census, 2021

2.9.2 Tourism

The main tourism destination in the regional area of influence is Clare, which is part of the Clare Valley wine region, attracting 226,000 overnight visitors in 2023 (South Australian Tourism Commission, 2023). Wakefield-Barunga West is the gateway to the Yorke Peninsula, which attracted approximately 530,000 overnight visitors in 2023 (South Australian Tourism Commission, 2023).

Tourism in Wakefield is oriented at capturing overnight stays of caravaning tourists passing through the region. The Princes/Augusta Highway is a main route through the region for tourists travelling through the region. The "Big Blade", a display wind turbine blade is displayed in Snowtown, symbolising the region's connection with renewable energy as the host of South Australia's largest wind farm. Lake Bumbunga, approximately 12 km southeast of the Project Area is a large salt lake and attraction for visitors passing through. Wakefield Regional Council details plans for capturing these stays through developing an attractive tourism corridor in their Wakefield 2030 Community Plan (Wakefield Regional Council, 2023).

Barunga West Regional Council primarily attracts recreational fishing and caravaning visitors with local scale events hosted in Port Broughton throughout the year.

2.10 Decision-making

The Wakefield, Barunga West and Clare and Gilbert Valleys Councils engage with their communities in development of their strategic plans and visions for the region. Public submissions on the most recent Yorke Peninsula and Mid North Regional Plan led by the South Australian Government are under review at the time of writing this report (May 2025).

2.11 Cumulative considerations

Construction and operation of other infrastructure projects have been considered in terms of their cumulative impacts on the areas of influence identified for this project. Cumulative impacts are those social impacts that are consecutive or combined and exacerbated by other nearby projects. The following operational renewable energy projects are considered, including wind farms operated by Tilt Renewables:

- Two operational Snowtown wind farms (Snowtown I Units 1 to 47, and Snowtown II consisting of Stage 2 North and Stage 2 South).
- Clements Gap Wind Farm, located in Port Pirie LGA, accessed via Wakefield Highway, north of the Project Area.
- Brinkworth Solar Farm, located in Wakefield LGA, 20 km north-east of the Project Area.

The following projects under development are also considered:

- Clements Gap BESS, located adjacent to the Clements Gap Wind Farm mentioned above.
- Koolunga BESS, located in Wakefield LGA, 20 km north-east of the Project Area, will have a construction workforce of 110 people.
- Brinkworth BESS, located in Wakefield LGA, 20 km north-east of the Project Area.
- Blyth BESS (under construction), located in Wakefield LGA, 20 km east of the Project Area.

Other BESS projects within the social area of influence are likely to require a small construction workforce and minimal operational workforce.

3 Potential social impacts

The following section details the potential positive and negative impacts that could be expected during the construction and operational phases of the Project.

The assessment has identified the following potential positive impacts which may emerge as a result of the Project. The positive social impacts are primarily related to livelihoods and economic benefit for the businesses, industry and communities in Wakefield-Barunga West and Clare SA2s. Negative impacts are related to changes to sense of safety, amenity, access to short-term accommodation and culture. Table 3.1 and Table 3.2 present the potential social risk from Project activities, the impact caused by the risk, stakeholders affected, assessment of the significance prior to any mitigation or enhancement measure being implemented, and the expected residual impact significance after mitigation and management measures have been applied.

Table 3.1 Social impacts during construction phase

Social impact category	Social risk	Social impact	Stakeholder affected	Likelihood	Magnitude	Significance rating	Residual significance rating
Livelihoods	Procurement of local goods and services by Project.	Increased spending at select local businesses positively contributing to local economy, temporarily increasing income for business owners during the period of construction.	Businesses in Wakefield, Barunga West and Clare communities.	Likely	Minor	Medium (+)	Medium (+)
Livelihoods	Construction of the Project will require a peak construction workforce of approximately 50 people for 14 months. A proportion of which would be sourced from the regional area of influence.	Increased employment opportunities for regional labour force, positively contributing to local and regional economy, social wellbeing during period of construction.	People seeking employment in Wakefield-Barunga West and Clare. Snowton, within the local area of influence, may be impacted too.	Likely	Minor	Medium (+)	Medium (+)

Social impact category	Social risk	Social impact	Stakeholder affected	Likelihood	Magnitude	Significance rating	Residual significance rating
Livelihoods	Influx of non-local workers during the Project's construction phase. A proportion are expected to reside temporarily in Clare and Snowtown during construction.	Increased demand for local short-term accommodation from non-resident workforce, positively contributing to economy of regional area of influence, increasing economic livelihood for accommodation providers.	Positive impact for short-term accommodation providers, primarily in Clare and Snowtown.	Likely	Minor	Medium (+)	Medium (+)
			Negative impact for tourism market if capacity of short-term accommodation providers is constrained.	Likely	Minor	Medium (-)	Low (-)
Livelihoods	Increased traffic on roads between the Project area and accommodation in Clare, and the Port of Adelaide	Increased traffic reducing local producers ability to conduct livestock activities and harvesting.	Agricultural producers in the regional area of influence.	Possible	Minor	Medium (-)	Low (-)
Livelihoods	Increased traffic on roads between the Project area and accommodation in Clare, and the Port of Adelaide	Increase risk to public safety from poor driving behaviours exhibited by workforce travelling between the Project area and accommodation in Clare as quickly as possible.	Road users within Wakefield-Barunga West, Clare and Snowtown.	Possible	Minor	Medium (-)	Low (-)
Way of Life	Increased traffic between Project Area and Clare on Condowie Plain Road or Magpie Creek Road. Transportation of materials using heavy vehicles from Port of Adelaide to the Project Area via the Princes/Augusta Highway.	Temporary increased heavy vehicle traffic impacting people's daily routines, and sense of road safety.	Communities of Snowtown and Clare, tourists, visitors, Wakefield, Barunga West and Clare and Gilbert Valleys Regional Councils.	Possible	Minor	Medium (-)	Low (-)

Social impact category	Social risk	Social impact	Stakeholder affected	Likelihood	Magnitude	Significance rating	Residual significance rating
Way of Life	Influx of non-resident population during the Project's construction phase. The Project will have an estimated peak workforce of 50 people during construction. It is expected that the majority of these roles will be fulfilled by non-resident workers.	Impact on sense of safety within the community due to increased non-resident population and potential for anti-social behaviour.	Wakefield-Barunga West, Clare and Snowtown communities.	Possible	Minor	Medium (-)	Low (-)
Surroundings	Potential amenity impacts (noise, air and visual impacts) during construction activities during the day over a period of 14 months including movement of vehicles and materials, vegetation clearing, excavation.	Reduced sense of place due to construction activities (noise, air and visual impacts).	Neighbouring landowner (closest 700 m from Project Area) – Associated landowner	Possible	Minor	Medium (-)	Low (-)
Cumulative – Sense of place	Transportation of materials to and from project sites.	Cumulative impact of increased traffic including accelerated deterioration of roads damage to road infrastructure, impact on safety and perceived safety.	Communities along the Princes and Augusta Highways, Snowtown, Clare, tourists, visitors, Wakefield, Barunga West and Clare and Gilbert Valleys Regional Councils.	Possible	Moderate	Medium (-)	Low (-)
Cumulative Livelihoods	Increased demand for services due procurement needs of the project and the influx of workers.	Cumulative economic stimulus due to project procurement opportunities and increased demand for goods and services	Businesses in Wakefield, Barunga West, Clare and Snowtown.	Possible	Moderate	Medium (+)	Medium (+)

Table 3.2 Social impacts during operational phase

Social impact category	Social risk	Social impact	Stakeholder affected	Likelihood	Magnitude	Significance rating	Residual significant rating
Surroundings	Community perception of an increased risk of bushfire due to changes to land use and operation of BESS. The BESS is located on *Bushfire – General Risk* zoned land.	Community stress due to perceived increased risk of bushfire impacting on safety and deterioration of natural environment.	Neighbouring landowners, Wakefield-Barunga and Clare communities, Country Fire Service.	Unlikely	Moderate	Medium (-)	Low (-)
Grid stability	Operation of the BESS would increase reliability of the electricity grid for the region.	Supporting reliable delivery of electricity to communities across the region.	Residents of regional area of influence.	Almost certain	Minor	Medium (+)	Medium (+)
Livelihoods	Tilt Renewables has committed to a Benefit Sharing Plan of $60,000 (+CPI) per annum for the operational life of the BESS. The plan will focus on education and training, social impact, energy and environmental projects. Tilt Renewables will seek to co-design the plan with the Wakefield Regional Council, Narungga Nation Aboriginal Corporation and local community groups such as the Snowtown Progress Association.	Enhanced community social and economic livelihoods through the Benefit Sharing Plan.	Communities within Wakefield (including Snowtown township), Narungga Nation Aboriginal Corporation and local community groups such as the Snowtown Progress Association.	Almost certain	Minor	Medium (+)	Medium (+)

Social impact category	Social risk	Social impact	Stakeholder affected	Likelihood	Magnitude	Significance rating	Residual significant rating
	The plan will be split as follows: — 75% ($45,000 + CPI) for initiatives that benefit the local or regional community — 25% ($15,000 + CPI) for initiatives that benefit the Narungga people.						

4 Management measures

Table 4.1 below provides details the key social impact mitigation measures recommended to avoid, minimise or mitigate negative impacts and to maximise the positive impacts identified.

Table 4.1 Recommended mitigation and enhancement measures

Ref	Impact	Mitigation / enhancement	Summary
1	Procurement of local goods and services resulting in increased spending at local businesses. Increased employment opportunities for local and regional labour force.	Create employment opportunities for local workers and communities Stakeholder engagement Goods and Services Register	It is recommended that Tilt Renewables identifies opportunities for employment of local and regional workforce, as well as promoting the engagement of regional suppliers on the Project. This should be discussed with the contractor to be engaged. A Goods and Services Register should be established and maintained to allow local businesses to register their interest in providing goods and services for the Project during the construction phase. Registered businesses should be invited to 'meet the contractor' sessions. These sessions would provide information about Project opportunities, pre-qualification requirements, and allow businesses to provide feedback on how to maximise local participation.
2	Increased traffic impacting people's daily routines, travel, public safety and sense of road safety.	Traffic management planning and stakeholder engagement with landowners and Councils Complaints Handling Procedure	Implementation of the Traffic Management Plan (TMP) and community consultation to ensure adequate notification of works and traffic changes. Implementation of traffic mitigation measures identified in the traffic impact assessment. Implementation of traffic mitigation measures identified through community consultation where fair and reasonable (for example to avoid impact on stock movements along the Project transport route). Implement the proponent's Complaints Handling Procedure for the Project.
3	Impact on sense of safety, community due to increased non-resident population.	Workforce code of conduct management and stakeholder engagement Complaints Handling Procedure	Developing and implementing a workforce code of conduct and expectations for behaviour will mitigate impacts of an increased non-resident population. For example, not wearing hi-vis clothing when in communities when off-shift. Implement the proponent's Complaints Handling Procedure for any complaints related to the Project.
4	Reduced sense of place due to construction activities (noise, air and visual impacts).	Management measures outlined in technical studies related to noise, air and visual impacts Stakeholder engagement Complaints Handling Procedure	Management measures for noise, air, and visual impacts would be developed as part of the Construction Environmental Management Plan (CEMP) and in consultation with the affected landowner. Nearby landowners would be promptly informed about the overall construction schedule and any road closure (if needed). The Complaints Handling Procedure should be clearly explained to ensure timely responses to concerns and updates on solutions.

Ref	Impact	Mitigation / enhancement	Summary
5	Negative impact for tourism market if capacity of short-term accommodation providers is constrained.	Construction workforce accommodation and employment planning.	The non-local workforce is expected to primarily be accommodated in Clare, located approximately 40-minute drive from the Project Area. Some workers may also be located at Snowtown given its close location just 10 km from the Project Area. It is recommended that the contractors are required to identify the most suitable options to accommodate non-local workers to minimise potential shortages of accommodation in Clare and Snowtown, which could be addressed in the CEMP (or sub-plan), and may involve consultation with the Council and other relevant stakeholders.
6	Community stress due to perceived increased risk of bushfire impacting on safety and deterioration of natural environment.	Incorporation of relevant design measures (e.g., on-site water tanks). Construction and Environmental Management Plan Bushfire assessment and hazard management plan Stakeholder engagement	Thorough assessment to avoid and minimise risk of bushfire is recommended. It is recommended that contractor engages with local councils, communities, and the CFS to inform the bushfire management measures included in the Project's Emergency Management Plan.
7	Cumulative impact of increased traffic including accelerated deterioration of roads damage to road infrastructure, impact on safety and perceived safety.	Preparation of Traffic Management Plan and stakeholder engagement with other project proponents and Councils.	To support traffic management planning, engagement with other project proponents regarding nearby projects is recommended to support regional coordination on traffic management and minimise cumulative impacts on communities. A TMP is proposed to be prepared for the project, as outlined in the Traffic Impact Assessment (WSP, 2025)

5 Conclusion

The potential positive social and community impacts identified in this assessment during the construction phase are:

- increased spending at select local businesses positively contributing to local economy, temporarily increasing income for business owners during the period of construction;
- increased demand for local short-term accommodation from the non-resident workforce will boost the regional economy, benefiting short-term providers in Clare and Snowtown. However, this could strain the tourism market if capacity is limited, resulting in a medium negative impact.
- increased employment opportunities for regional labour force, positively contributing to local and regional economy, and social wellbeing during project construction.

The potential negative social and community impacts identified in this assessment during the construction phase are:

- increased traffic reducing local producers' ability to conduct livestock activities and harvesting.
- temporary increases in heavy vehicle traffic may disrupt daily routines and compromise road safety. Additionally, an influx of non-resident workers could heighten public safety concerns due to potential unsafe driving behaviours, impacting the community's overall sense of security. amenity impacts from construction activities (noise, air and visual impacts).

The potential social and community impact and benefits identified in this assessment during operation of the BESS include:

- positive impact via helping to maintain the reliability of the electricity grid for the region;
- a negative impact related to community stress due to perceived increased risk of bushfire potentially impacting on safety and deterioration of natural environment.
- a significant positive impact for local and regional communities is the enhancement of social and economic livelihoods through the implementation of the Project's Benefit Sharing Plan during operations.

The potential cumulative social and community impact identified in this assessment are:

- a negative cumulative impact of increased traffic including accelerated deterioration of roads damage to road infrastructure, impact on safety and perceived safety.
- a positive cumulative impact of economic stimulus due to project procurement opportunities and increased demand for goods and services during construction.

A range of management measures are proposed to minimise adverse impacts and maximise benefits, as outlined in Section 4.

Following the successful implementation of the management measures outlined in this report, no negative social impacts were assessed as having a 'high' residual significance rating. All identified negative social impacts were rated as having a 'low' residual significance rating. Therefore, the adequate and consistent implementation of the management measures is key to effectively mitigate and manage potential negative impacts. This process should be planned and implemented in consultation with local landowners, Councils, and CFS to ensure alignment with community expectations and local conditions.

6 Limitations

This Report is provided by WSP Australia Pty Limited (*WSP*) for Tilt Renewables Australia Pty Ltd as trustee for the Snowtown BESS Project Trust (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal dated 28 August 2024 and agreement with the Client dated 28 November 2024 (*Agreement*).

SIA assumptions and limitations

The information presented in this report is based on desktop research and the ABS Census data 2021. It is proposed that further stakeholder consultation with key stakeholders is undertaken prior to the implementation of the project.

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