



Environmental Impact Statement

Battery Energy Storage System - Jindera

FOR: BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00001

Revision: 1.5

10 July 2025



Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
V1.0 FINAL for DPHI review	15 May 2025	Kale Langford / Clare Brennock	Clare Brennock / Melissa Thomas	Melissa Thomas / GDA
V1.5 Updated with DPHI lodgement RFI	10 July 2025	Kale Langford / Clare Brennock	Clare Brennock / Melissa Thomas	Melissa Thomas / GDA



Environmental Impact Statement Declaration

Project Details	
Project Name	Jindera BESS
Application Number	SSD-68815961
Address of the land in respect of which the development application is made	204 Ortlipp Road, Glenellen, NSW 2642 140 Ortlipp Road, Jindera, NSW 2642 Portion of Ortlipp Road and Lindner Road for water main works Portion of unformed Crown Riad
Applicant Details	
Applicant Name	BESS Atlantic Pty Ltd c/o Gransolar Development Australia (GDA) Pty Ltd
Applicant Address	Level 4, 307 Queen Street Brisbane QLD 4000
Details of Person by whom this EIS was Prepared	
Name	Kale Langford / Clare Brennock
Address	10 Kings Road, New Lambton, NSW 2305
Professional qualifications	Senior Project Planner / Principal Planner B. EnvSc. MPIA / B.Des (Arch), MURP, Grad.DRR, MPIA
Declaration by Registered Environmental Assessment Practitioner	
Name	Melissa Thomas
Registration number	9274
Organisation registered with	SLR Consulting
Declaration	
The undersigned declares that this EIS: • Has been prepared in accordance with the Environmental Planning and Assessment Regulation 2021; • Contains all available information relevant to the environmental assessment of the development, activity or infrastructure to which the EIS relates; • Does not contain information that is false or misleading; • Addresses the Planning Secretary's environmental assessment requirements (SEARs) for the project; • Identifies and addresses the relevant statutory requirements for the project, including any relevant matters for consideration in environmental planning instruments; • Has been prepared having regard to the Department's State Significant Development Guidelines - Preparing an Environmental Impact Statement; • Contains a simple and easy to understand summary of the project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development; • Contains a consolidated description of the project in a single chapter of the EIS; • Contains an accurate summary of the findings of any community engagement; and • Contains an accurate summary of the detailed technical assessment of the impacts of the project as a whole.	
Signature	
Date	10 July 2025





Executive Summary

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Executive Summary

Introduction

BESS Atlantic Pty Ltd (BESS Atlantic) seeks to establish a Battery Energy Storage System (BESS) facility with a connection to the electricity grid via an above ground transmission line (TL) to the existing Transgrid JINDERA 330/132 kilovolt (kV) Transmission Substation (TS) (herein referred to as the 'Project'). The site is within the Greater Hume Local Government Area (LGA), refer to Figure ES -1.

The BESS is proposed on a portion of Lot 204 DP 753342 at 204 Ortlipp Road, Glenellen New South Wales (NSW) 2642 (the 'BESS Site'). The existing JINDERA 330/132 kV TS is located on Lot 1 DP 588720, 140 Ortlipp Road, Jindera NSW 2642 (the 'Substation Site'), approximately 500m south of the BESS Site and the Project includes connection upgrade works. The TL from the TS to the BESS will traverse an area of unformed crown road. The existing Council watermain will be upgraded and extended along Lindner and Ortlipp Road. Collectively, these properties are hereafter referred to as the 'Subject Sites.'

The BESS has a capacity of approximately 250 Megawatts (MW) / 500 Megawatt Hours (MWh) and comprises of 200 lithium batteries, each contained individually within a modular container. A total of 100 inverters (one per every two batteries) will be located externally to the modular containers. Batteries and inverters are fixed to hardstand footings where they are accessible by an internal road.

Other physical features of the Project include a TL towers, control room/switchgear and auxiliary transmission, car parking, landscaping, security fencing/lighting, and a single storage structure.

The Project aims to add significant benefits to the NSW electricity grid because it allows for the dispatch of energy in accordance with market demand, to assist in load leveling and grid support to balance the natural fluctuations in electricity demand throughout the day and reduce congestion on the local grid. Additionally, the BESS will play an important role in providing stability to the NSW energy network by charging up during the day when renewable energy generation is high and then providing that power back to the grid at night to support high demand.

The BESS has been located along a major transmission route which is aligned with the Federal Government's Renewable Energy Target. The Project also aligns with The NSW Electricity Strategy and NSW Government's Net Zero Plan.



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Project Overview

Project Overview

The key aspects of the Project are summarised in Table ES-1.

Table ES-1 Project summary

Project Element	Description
Key Features	• Installation and operation of a 250 MW / 500 MWh BESS, including battery enclosures, inverters, and transformers on hardstand and minor earthworks to level the foundation for each project component. • The BESS will consist of 200 BESS containers (or enclosures), with each container having dimensions of 6m with an approximate weight of 35,000 kilograms (kg). The BESS will be supported by 100 inverters. • Connection and associated upgrades to JINDERA 330/132kV TS, including construction of overhead 330 kV TL to facilitate connection, associated high voltage steel poles, increase in hardstand area and establishment of easements. • Associated ancillary infrastructure including security fencing, landscaping, access and crushed rock internal road, water tank, temporary parking and tree removal. • Extension of council water main along a portion of Lindner and Ortlipp Road. • Sealing a portion of Ortlipp Road.
Proposed Development	The Project will generally involve the following components: • Transport of construction personnel, associated heavy and light vehicles, and materials to and from site on a day-to-day basis, dependent on construction schedule. • Site establishment works including vegetation clearing, earthworks, and temporary construction compound. • Road works to formalise internal site access road to accommodate heavy vehicles, construction of new access road from the BESS to connect to the existing access public road. • Construction of a pad and installation of operations and maintenance (O&M) building, battery enclosures, and inverter stations. • Construction of overhead 330 kV transmission cable and switch building to facilitate connection to the existing Transgrid 330kV substation in the south east portion of the site. • Construction of a 4 metre (m) acoustic barrier. • Construction of ancillary works including stormwater management infrastructure, emergency night lighting, and security fencing. • Removal of temporary construction facilities, and rehabilitation of disturbed areas following completion of construction of the Project.
Site Description	• Portion of Lot 204 DP753342 (BESS Site). • The substation land on Lot 1 on DP588720 (Substation Site). • An area of unformed Crown road reserve (part of proposed TL easement). • Portion of Ortlipp Road. • Portion of Linder Road.
Site Access	A crossover will be constructed from Ortlipp Road to the BESS Site.

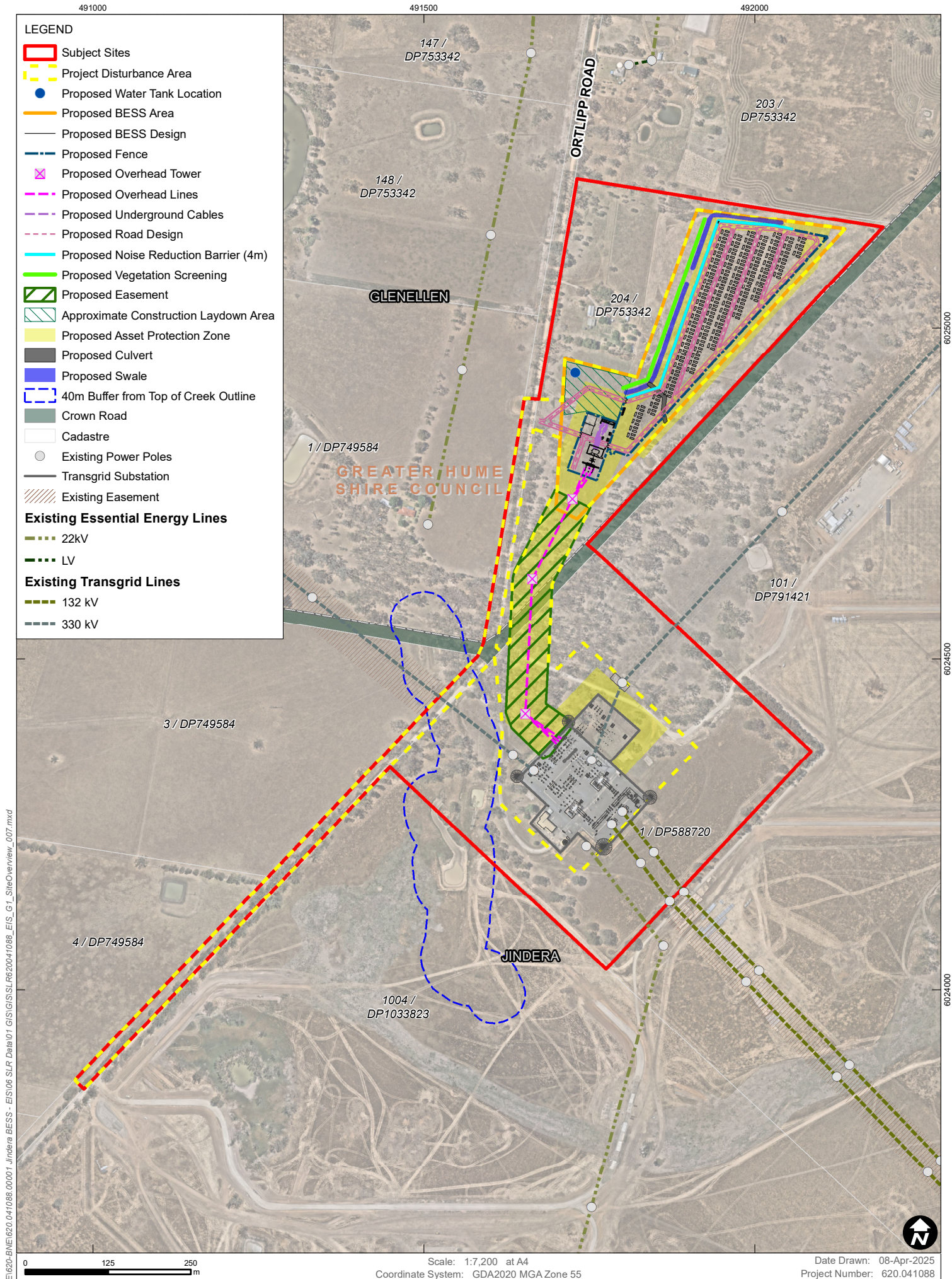


Project Element	Description
Grid Connection	Connection and associated upgrades to the existing Trangrid JINDERA 330/132kV TS, including construction of overhead 330 kV TL.
Tree and vegetation removal	Removal of trees and vegetation of 6.48 hectares (ha), including 2.88ha of native vegetation.
Construction Duration	Construction of the Project is anticipated to take approximately 10 months.
Operation Life Expectancy	The operational life of the Project is anticipated to be approximately 20 - 25 years.
Decommissioning	The Project would be decommissioned, and the infrastructure removed, returning the site to its original use following the approximate 25 year life expectancy.

The Project overview is shown in Figure ES-2 and Figure ES-3.

The general Project Constraints are shown in Figure ES-4 and Figure ES-5.





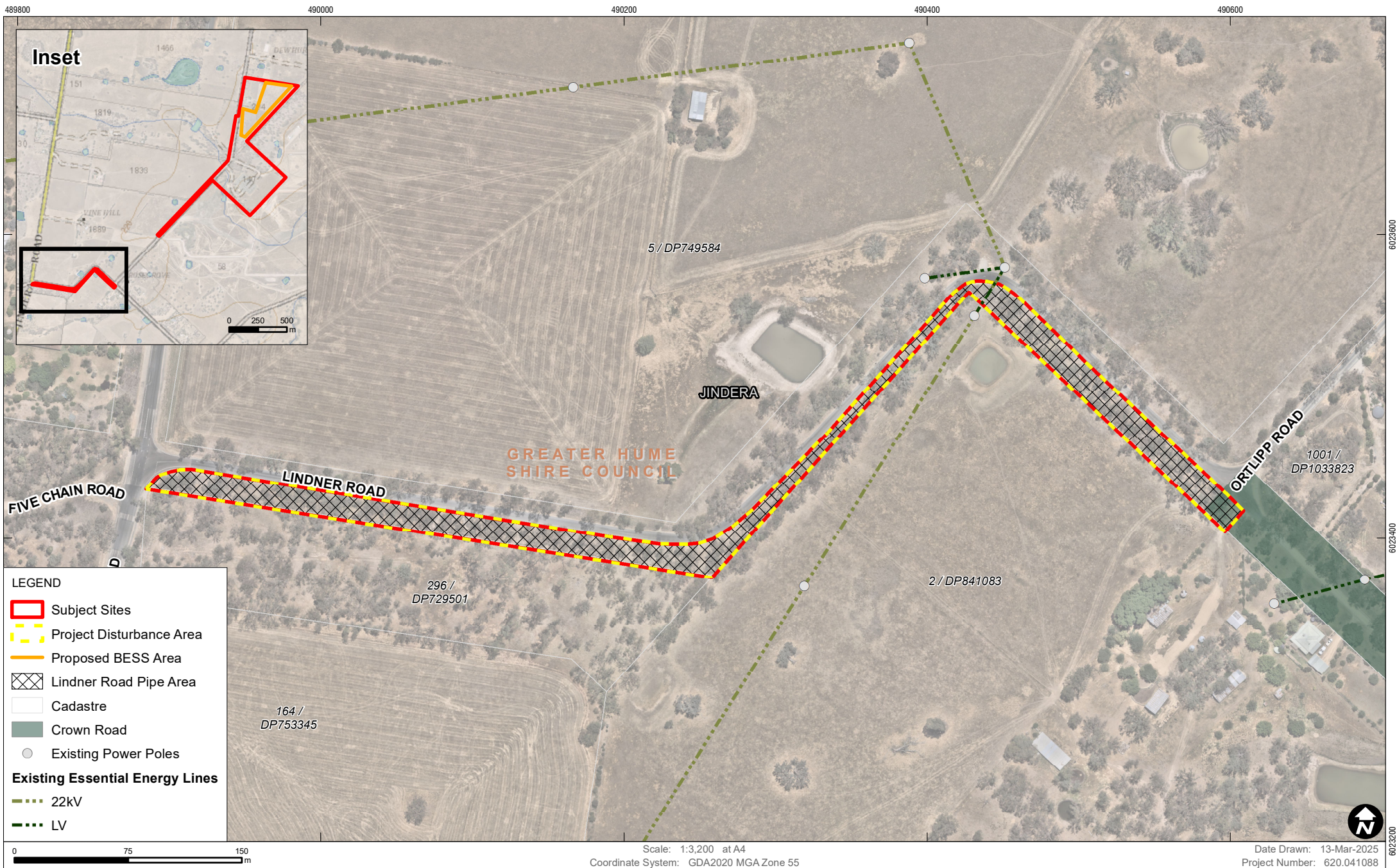
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Data Source: basedata supplied by NSW SS, June 2024
Aerial imagery supplied by Nearmap, November 2024
Other data sources include Gransolar Group, Look up & Live (LUAL)

Site Overview

FIGURE ES - 2



Data Source: basedata supplied by NSW SS, June 2024
Aerial imagery supplied by Nearmap, November 2024
Other data sources include Gransolar Group, Look up & Live (LUAL)

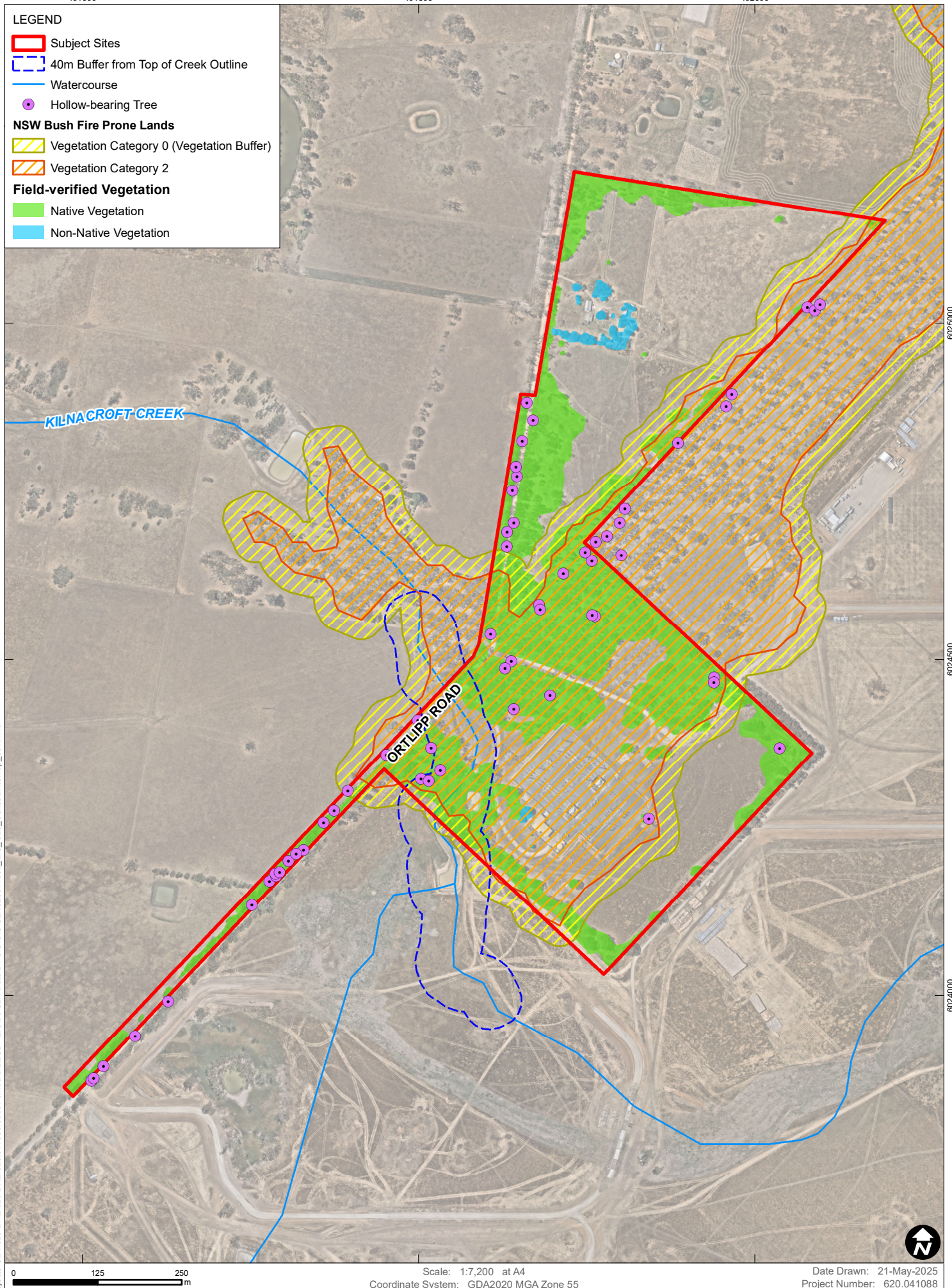


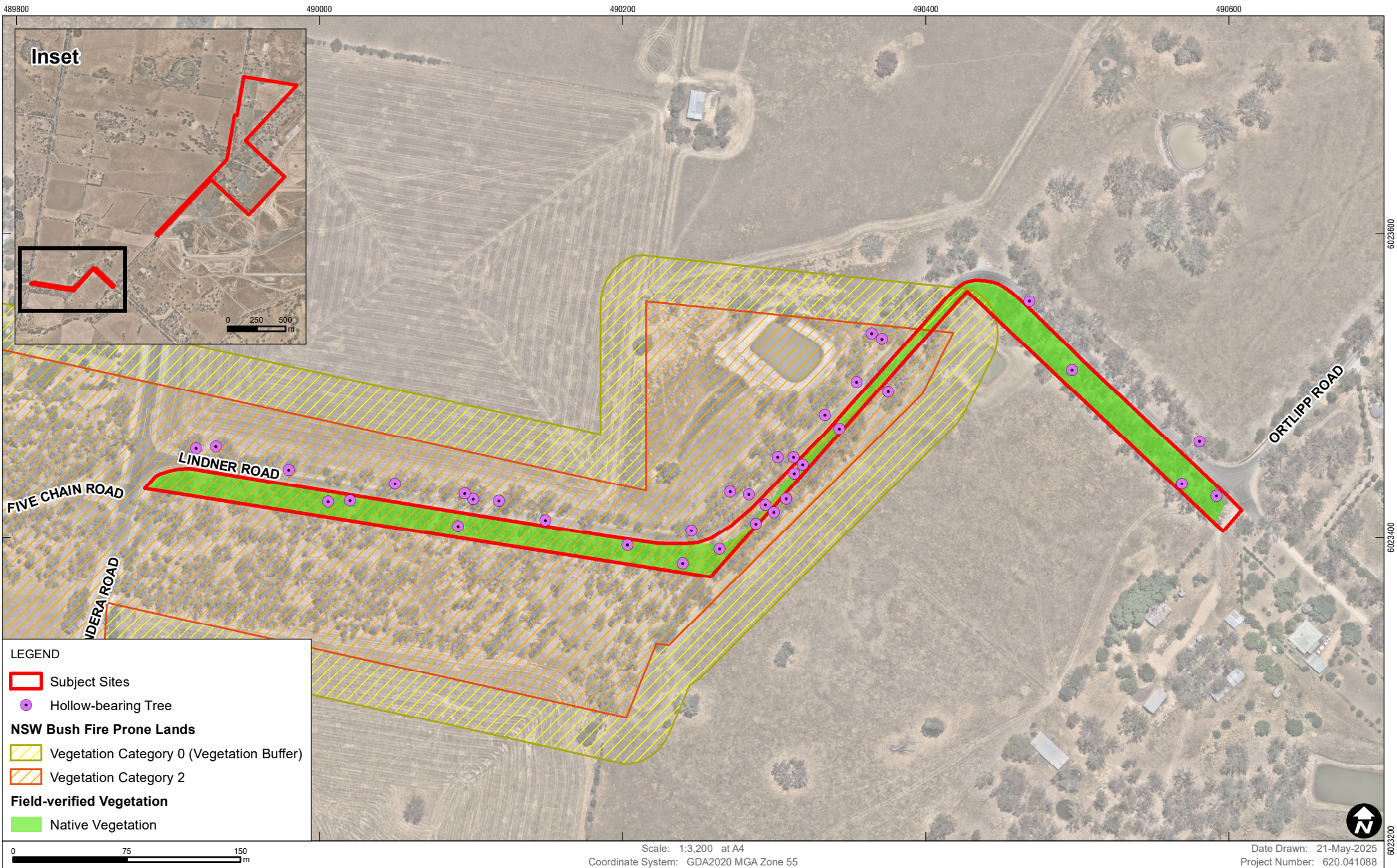
Lindner Road Overview

FIGURE ES - 3

LEGEND

- Subject Sites
- 40m Buffer from Top of Creek Outline
- Watercourse
- Hollow-bearing Tree
- NSW Bush Fire Prone Lands**
 - Vegetation Category 0 (Vegetation Buffer)
 - Vegetation Category 2
- Field-verified Vegetation**
 - Native Vegetation
 - Non-Native Vegetation





Data Source: basedata supplied by NSW SS, June 2024
Aerial imagery supplied by Nearmap, November 2024



Lindner Road Constraints Map

FIGURE ES - 5

Statutory Context

The Project is deemed to be State Significant Development (SSD) being *electricity generating works* with an estimated development cost (EDC) higher than \$30 million. The project therefore requires assessment and approval in accordance with Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act).

BESS Atlantic Pty Ltd have engaged SLR Consulting Australia Pty Ltd (SLR) to prepare this Environmental Impact Statement (EIS) to address the Secretary Environmental Assessment Requirements (SEARs), issued by the *NSW Department of Planning, Housing and Infrastructure*, SSD-68815961 dated 18 April 2024 (Appendix A). The EIS has also been prepared in accordance with the *NSW Environmental Planning and Assessment Regulation 2000* and under the guidance of the *State Significant Development Guidelines - Preparing an Environmental Impact Statement* (DPIE, 2022).

Consultation and Engagement

Consultation with the community and key stakeholders was undertaken to facilitate the preparation of the EIS for the Project.

SLR prepared communications materials, including newspaper advertisements, to promote the engagement sessions. The aim of the communications material was to target a broad spectrum of stakeholders including local community and key stakeholders to have them attend the engagement sessions or submit a survey response.

Tailored letters and emails were also sent to local political figures, state and federal government departments, and Project sensitive receivers to encourage those stakeholders to interact with the Project team and to address specific concerns such as traffic impacts, emergency management plans, and community partnership opportunities.

The consultation program that was delivered featured:

- A community pop-up engagement event held on the footpath near the local IGA supermarket at 82 Urana Street, Jindera on Thursday, 10 October 2024. The purpose of this event was to provide Project updates and to gather feedback from local residents in relation to current sentiment associated with Jindera and/or the proposed Project.
- A drop-in event at the Jindera School of Arts Hall at 109 Urana Street on Saturday, 12 October 2024. The purpose of the session was to provide more detailed information in relation to the Project, for community and/or stakeholders to ask any specific questions they may have and to gather feedback from local residents in relation to sentiment associated with Jindera and/or the proposed Project.
- An online survey to collect feedback on environmental, social, and economic concerns, ensuring that input was captured from a diverse range of community members. The survey was designed in a way that ensured ease of completion to attract the broadest audience.
- Key stakeholders and sensitive receivers were invited to have in person one-to-one meetings to discuss the Project in detail, providing opportunities for more tailored engagement.

While many individuals stopped by the engagement sessions to find out more about the Project and to further educate themselves on BESS projects, some stakeholders highlighted concerns. The most common concerns that were raised included:



- Traffic and transport: concerns about the increased heavy vehicle movement during the construction and operation phases.
- Social impact: questions about the Project's contribution to local employment and procurement and the broader social impacts on the community.
- Emergency management: significant interest in addressing possible fire risks and bushfires that may impact the area associated with the Project. Stakeholders, including local fire services, emphasised the importance of coordination with emergency responders and the need for robust fire mitigation strategies.
- Environmental impacts: concerns were raised regarding potential noise pollution during both construction and operation. Additionally, there was significant focus on the Project's effect on local wildlife and ecosystems, particularly the protection of native species like the squirrel glider and mitigation strategies for biodiversity loss.
- Community benefit sharing arrangements: stakeholders expressed the need for more clarity on how the Project would provide tangible benefits to the local community. There was a call for transparent communication on how funds from the Voluntary Planning Agreement (VPA) with local council would be allocated to community development and improvement projects.
- Health and safety: concerns regarding the potential health risks associated with having a large battery facility near residential areas. Individuals requested more detailed information on safety measures and risk management.
- Cumulative impacts: concerns were raised about the cumulative environmental and social impacts of the Jindera BESS in relation to other nearby solar energy projects. Stakeholders are seeking assurances that the combined effects of these projects on local infrastructure, wildlife, and community well-being would be thoroughly assessed and mitigated.

The consultation process was successful in engaging a broad range of stakeholders and collecting valuable feedback with the pop-up event and drop-in event attracting 40 attendees in total. SLR were able to understand community and stakeholder Project perceptions / concerns and nuances specific to Jindera. This engagement has laid the groundwork for future collaboration between GDA and the local community throughout the Greater Hume Shire Council.

Impact Assessment

A number of comprehensive technical investigations have been completed by appropriately qualified and experienced personnel for the Project to ensure any potential environmental and social impacts associated with the development are appropriately assessed. The investigations have also identified management measures to be implemented for the duration of the Project to avoid or mitigate the identified impacts.

The findings of the technical investigations are summarised in the main body of this EIS and are provided in full in the appendices. The following sub-sections provide an overview of the key findings.

Key Findings

Biodiversity

Extensive surveys and assessment were undertaken to complete the Biodiversity Development Assessment Report (BDAR) (SLR Consulting, 2025).



- Measures to avoid and minimise impacts to biodiversity include:
 - Locate BESS facility in areas where biodiversity values are limited.
 - Limit clearing associated with powerline easement and asset protection zones (APZs) – including retaining and protecting native ground layers.
 - Limit clearing along water pipeline by adopting under boring rather than open trenching methods.
 - Use of sediment barriers and ponds as recommended by engineer.
 - Flora and fauna management measures outlined in this BDAR.
- The subject land contains patches of grassy woodland identified as plant community type (PCT) 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland, which also constitutes White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland ('Box Gum Woodland'), which is listed as a critically endangered ecological community under the *Biodiversity Conservation Act 2016* (BC Act). The subject land also contains foraging and breeding habitat for the Squirrel Glider, which was recorded on site.
- The proposed development will likely involve:
 - Direct clearing of native vegetation and removal of threatened species habitats.
 - Indirect impacts, being potential impacts on adjacent habitats Box Gum Woodland threatened ecological communities (TEC).
 - Prescribed impacts, being potential impacts on habitat corridors and hydrology.
 - Impacts on one serious and irreversible impact (SAIL) entity being Box Gum Woodland TEC. An assessment of impacts on Box Gum Woodland (as it occurs on the site) against the Biodiversity Assessment Method (BAM) criteria for SAILs is included.
- Residual impacts will be minimised through mitigation measures including clearing protocols, construction management measures (e.g. protective fencing, light shields) and rehabilitation.
- Biodiversity offsets are required under the BAM for the permanent removal of 2.88ha of native vegetation associated with construction of the project. Offsetting requirements are summarised in Table ES-2 and Table ES-3 below. A total of 38 ecosystem credits is required to offset the loss of native vegetation (see Table ES-2), whereas 49 species credits are required to offset the loss of threatened species habitat for a selection of affected species (see Table ES-3).
- The BDAR also incorporates a description of aquatic ecosystems on the site and an assessment of impacts on aquatic flora and fauna, and no significant impacts are identified in relation to the Project.

Table ES-2 Impacts That Require an Offset – Ecosystem Credits (SLR, BDAR, 2025)

Vegetation Zone	PCT	TEC/EC	Impact Area (ha)	No. Ecosystem Credits
277_Mod	PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland	White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC	1.75	27



Vegetation Zone	PCT	TEC/EC	Impact Area (ha)	No. Ecosystem Credits
277_Low	PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland	White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC	1.13	11
Total			2.88	38

Table ES-3 Impacts That Require an Offset – Species Credits (SLR, BDAR, 2025)

Common Name	Scientific Name	Loss of Habitat (ha) or Individuals	No. Species Credits
Small Scurf-pea	<i>Cullen parvum</i>	0.46	6
Barking Owl	<i>Ninox connivens</i>	0.06	1
Squirrel Glider	<i>Petaurus norfolcensis</i>	2.9	38
Superb Parrot	<i>Polytelis swainsonii</i>	0.06	1
Small Purple-pea	<i>Swainsona recta</i>	0.06	1
Silky Swainson-pea	<i>Swainsona sericea</i>	0.06	1
Masked Owl	<i>Tyto novaehollandiae</i>	0.06	1
Total			49

Aboriginal Cultural Heritage

An Aboriginal Cultural Heritage Assessment Report (ACHAR) (Virtus Heritage, 2025) has been completed for the Project, which identified two Aboriginal sites within or adjacent to the project area:

- **Jindera IF1:** A stone artefact site with a Potential Archaeological Deposit (PAD) on a hillcrest landform.
- **Jindera ST1:** A scarred tree considered culturally significant.

Cultural surveys were conducted with input from Registered Aboriginal Parties (RAPs) and included stakeholder consultation and field assessments.

Key mitigation actions include:

- Archaeological excavation and salvage under an Archaeological Research Design and Methodology (ARDM).
- Protection and fencing of significant areas.
- Cultural inductions and monitoring during initial ground disturbance.

Operational impacts on Aboriginal heritage are not anticipated due to the absence of earthworks during that phase.

Visual Impact Assessment

A Landscape Character and Visual Impact Assessment (LCVIA) (SLR Consulting, 2025) was undertaken to evaluate the potential visual and landscape impacts associated with the Project.

The LCVIA has been prepared in accordance with the NSW *Large-Scale Solar Energy Guidelines* and applies contemporary assessment methodologies including baseline



condition studies, viewshed analysis, and photomontage simulation to evaluate the scale and nature of visual change. The report includes identification of landscape character zones (LCZs), key visual receptors, and proposed mitigation measures to manage residual impacts.

Seven LCZs were identified within a 5km radius of the site. Impact significance ratings range from minor to moderate, with the highest impact observed in the Primary Production Zone (LCZ 4) due to the introduction of new industrial structures in a traditionally open, rural setting. Adjacent zones such as Woodlands (LCZ 1) and Riparian Forest (LCZ 2) demonstrated minor to negligible visual change due to distance and intervening vegetation. Overall, the development will not fundamentally alter the landscape setting, though it introduces locally perceptible infrastructure to a rural environment.

Four publicly accessible viewpoints (VPs) were assessed:

- **VP1 – 204 Ortlipp Road (North): Minor-Negligible** impact rating. BESS modules are visible from close-range from a nearby rural road. Mitigation through vegetative screening and acoustic fencing reduces prominence of the BESS modules;
- **VP2 – Ortlipp Road (South): Minor-Moderate** impact rating. Infrastructure is partially visible across open pasture. Existing topography and vegetation assist in the partial visual obstruction of the BESS Modules and their visual absorption into the surrounding landscape;
- **VP3 – 238 Ortlipp Road: Minor-Negligible** impact rating. The proposed infrastructure is partially visible from this location; however, distance, low profile, and mitigation measures reduce impact significance ratings; and
- **VP4 – Jindera-Walla Walla Road: Minor-Negligible** impact rating. This is due to its relative distance from nearby receptors, low-lying profile of infrastructure, and the presence of intervening vegetation and landform.

To mitigate any visual impacts, the following mitigation measures are recommended:

- Implementation of native vegetation screening along wall extent;
- Use of muted finishes and non-reflective materials for battery enclosures;
- Maintenance of existing vegetation and topographic buffers where possible; and
- Placement of infrastructure to minimise visibility from key view corridors.

The proposed Jindera BESS will result in localised and manageable visual impacts, primarily within the immediate vicinity of the development site. Broader landscape character values remain largely intact. With the incorporation of appropriate mitigation, the project is considered to have an acceptable level of visual and landscape impact in line with SSD assessment criteria.

Noise and Vibration

A Noise and Vibration Impact Assessment (NVIA) (SLR Consulting, 2025) has been prepared in accordance with the Interim Construction Noise Guideline (ICNG) and the NSW Noise Policy for Industry (NPfI). The predicted noise levels at the closest seven noise sensitive receivers (one being the project host) for construction and operation were assessed against the various requirements of the NSW Noise Policy for Industry (NPfI) and the Interim Construction Noise Guideline.

The site is situated in a quiet rural area, and 37 sensitive receptors, in addition to the host receiver (H1), were identified within a 2km radius. Noise modelling indicates that some



nearby receptors (particularly R5, R6, and H1) may experience exceedances during peak construction periods.

Construction noise impacts are controlled by works being limited to standard construction hours and a combination of training/equipment maintenance and community engagement. Construction vibration impacts are unlikely to be perceptible at the nearest receivers. Additional measures have been recommended including the use of low-noise equipment and acoustic barriers and the implementation of a Construction Noise and Vibration Management Plan (CNVMP).

Operational compliance with the NPfl is achieved with silencing treatment of the BESS battery containers and inverters and the installation of a 4 m noise wall on the northern and western boundary of the site. Installation of Heating, Ventilation, and Air Conditioning (HVAC) silencers, and inverters with silencing kits have also been recommended to ensure compliance. Treatment of the host receiver will be investigated to further reduce residual noise impacts and protect internal amenity.

Cumulative noise emissions from the approved Jindera Solar Farm and Glenellen Solar Farm and the existing Jindera Substation have been considered. Cumulative impacts are not expected to exceed the most stringent recommended amenity criterion during the night period of 40 decibels (dBA).

Traffic and Transport

A Transport Impact Assessment (TIA) (SLR Consulting, 2025) has been undertaken for the Project. The TIA has considered that the existing road network has recently undergone upgrades and is deemed sufficient for the anticipated construction and operational traffic. Based on the analysis and discussion documented in the TIA, the following is concluded that the proposed development will generate approximately 3,800 inbound and 3,800 outbound trips during the assumed construction period of 250 working days (ten months). The average daily traffic generation will be in the order of 15 return trips a day, where the peak construction period is anticipated to generate around 31 return trips a day (23 light vehicle trips and eight heavy vehicle trips).

A review of the turn warrant assessments identified that the existing intersection configurations are sufficient. Further, it is assessed that the road network, in its existing form, will accommodate the traffic impacts of the proposed project and the two adjacent approved solar farm projects.

Mitigation includes:

- Preparation of a Construction Traffic Management Plan (CTMP).
- An oversize and / or over mass (OSOM) material route to study and a construction traffic management plan be prepared following the approval of this SSD application.
- Sealing a section of Ortlipp Road to accommodate heavy vehicle access.
- Coordination with local authorities to manage temporary signage and safe road use.
- Minimal ongoing traffic expected during operation due to limited maintenance needs.

Hydrology and Flooding

Flood Risk and Impact Assessment Report (FRIAR) (WaterTech, 2025) has been undertaken to consider the Project's impact on surface water and groundwater.

Based on the flood depth, velocity and hazard levels determined by the flood modelling, the BESS Site is generally categorised as having low flood risk. Riverine flood risk is contained within the Kilnacraft Creek floodplain and is predicted to pose no risk. Developed conditions



modelling was undertaken for the proposed raised layout. This scenario showed limited potential for the development to influence regional surface water levels, with local changes to flood level observed within and outside of the project area.

A mitigation swale and culvert are recommended to redirect attenuated runoff around the development footprint. The modelled mitigation swale and culvert is not predicted to produce detriment to nearby residential receptors.

Based on the assessed understanding of the local hydrogeological regime and site operations during construction and operation, it is considered that there is negligible risk to groundwater or groundwater dependent ecosystems (GDEs).

Noting minor alterations to existing surface water flows, erosion processes can all be managed with appropriate drainage and surface treatment in the design of the site.

Bushfire Risk

The site is located in a designated bushfire-prone area. The Bushfire Risk Assessment Report (BRAR) (SLR Consulting, 2025) recommends that an APZ up to 30m be provided to the southeastern boundary of the BESS portion of the facility, including its substation, as well as the TL connecting to Jindera Substation.

The bushfire risk has been assessed as low to moderate, with the Bushfire Attack Level (BAL) calculated at BAL-12.5. Other mitigation measures include:

- Use of non-combustible building materials and installation of a fire-rated security/noise barrier.
- Construction of perimeter and internal access roads suitable for firefighting vehicles.
- Installation of a 150,000-litre dedicated firefighting water tank.

Hazards and Risk

The Hazard and Risk Assessment (HRA) (SLR Consulting, 2025) prepared for the Project identified that the hazardous events, causes, consequences, and controls investigated include the following:

- Bushfire;
- Physical damage to BESS (no combustion);
- BESS unit thermal runaway and/or explosion;
- Fire starting onsite;
- Exposure of equipment to high voltage;
- Vehicle collision onsite;
- Transformer oil leakage;
- Security breach;
- Damage due to lightning strike;
- Flooding;
- Seismic Activity;
- Severe Storms; and
- Exposure to electromagnetic fields (EMF).



The potential hazards that could not be eliminated through first review as resulting in a risk level of high and required further examination consisted of:

- Hazards associated with Bushfire.
- Hazards associated with lithium-ion batteries in the BESS, specifically overheating and fire.

Following consideration of mitigation measures, the residual risks associated with all identified hazards as part of the PHA being bushfire and BESS fire have been assessed to be low, and hence adequately mitigated with the implementation of recommended management measures.

It is the overall conclusion of the HRA that the risks associated with the proposed development would be adequately managed, with suitable engineering controls, operational controls and management controls in place.

Social and Economic Impact

A Social Impact Assessment (SIA) (SLR Consulting, 2025) has been prepared in accordance with the NSW Social Impact Assessment Guideline for State Significant Projects (DPHI, 2023).

The SIA identifies the potential social impacts of the Project as a result of amenity impacts, changes to community cohesion and character due to an influx of construction workers during construction into a relatively small rural community, traffic and construction based disruption, potential loss of Aboriginal cultural heritage values and residents concern about the risk of fire from the BESS. Most social impacts would be effectively managed through a range of project environmental performance requirements, including targeted environmental management measures to reduce amenity impacts and fire safety measures and engagement with local emergency services.

To address further identified social impacts, mitigation measures have been developed, including the implementation of a detailed Community and Stakeholder Engagement Plan (CSEP) to ensure transparent communication throughout all project phases. The SIA found that the Jindera BESS project can proceed with acceptable social outcomes, provided the recommended management measures are implemented effectively and ongoing stakeholder engagement is maintained throughout the project lifecycle.

An Economic Impact Assessment (EIA) (Gillespie Economics, 2025) was prepared to consider the impacts of the Project. The Project is expected to provide a temporary economic stimulus during construction through:

- Local job creation.
- Procurement of services and materials from regional suppliers.
- No significant adverse social impacts are anticipated during operation.

The construction, operation and decommissioning phases of the Project will have net positive impacts on the level of economic activity in the regional and NSW economy.

Waste Management

A Waste Management Plan (WMP) (SLR Consulting, 2025) has been prepared for the Project and includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project.



Construction activities have the potential to generate waste through excess construction materials, waste generation from construction offices and excess spoil from excavation and foundation works. The construction activities for the Project would be undertaken according to a Construction Environmental Management Plan (CEMP) that addresses waste management and reduction practices.

During the operational phase of the Project, operational waste streams are expected to be generated by site workers, as well as materials generated during maintenance of the site.

The decommissioning phase is anticipated to generate waste such as end of life batteries and associated infrastructure (cabling, inverters, transformers and other components). Most materials will be reused or recycled at a facility lawfully able to accept them. Any waste that cannot be reused or recycled would be collected by a licenced contractor and disposed of at a site lawfully able to accept it.

As far as practical, batteries in the battery energy storage system would be recycled at approved battery recycling facilities, or subject to confirmation, could be returned to the original equipment manufacturer for refurbishment and recycling. Where spent batteries are unable to be recycled, they would be disposed of at a facility lawfully able to accept it.

Historic Heritage

No heritage-listed items are located within the project boundaries. Nearby heritage sites, such as the Glenellen School and Drumwood Homestead, are situated at sufficient distances to avoid visual or physical impacts.

An unexpected finds protocol will be implemented during construction to address any discoveries of relics or items of heritage value.

Agriculture

The Subject Sites are zoned RU1 – Primary Production and classified as Land and Soil Capability (LSC) Class 4 – Moderate Capability. However, soil samples taken were analysed to provide sufficient information to classify soils in accordance with the Australian Soil Classification (ASC) (Isbell, 2002) and soil taxonomic class. The overall LSC class for the site was determined as LSC Class 4 – Moderate capability land.

The property does not currently generate an income from agriculture and is used as a rural lifestyle block. The surrounding area primarily consists of land used for grazing, cropping and residential and farm infrastructure.

The Project will result in minimal agricultural impact, with no loss of active farmland or significant effect on the region's agricultural output. Standard mitigation measures will manage construction-related soil risks. The site is suitable for development, with agricultural and soil impacts considered low and manageable.

Cumulative Impact

There are a range of renewable energy generation and transmission developments proposed in the Jindera area and are in the vicinity of the Subject Sites, including transmission infrastructure to support the distribution of the electricity generated.

The cumulative impacts of employment and workforce; housing and short-term accommodation; regional economy; agricultural production; population change; services; amenity; traffic; and biodiversity have been assessed. There is the potential for cumulative social benefits and impacts, primarily due to the influx of workers and increased economic activity associated with the simultaneous construction of multiple renewable energy projects. The Project's proposed use of majority local construction will minimise the contribution of the



Project to the negative cumulative impacts of Projects in the region including increased demand for labour and accommodation.

The low population density and traffic volumes around the project area will minimise the potential for cumulative amenity and traffic impacts. The cumulative impact of projects within the area is not expected to result in a significant reduction in the extent of native vegetation or TECs within the region.

Conclusion

The proposed Jindera BESS project supports broader clean energy goals and addresses regional grid stability needs. The EIS concludes that, subject to the implementation of recommended mitigation and management measures, the project can proceed with acceptable levels of environmental, cultural, and community impact.

The proposal aligns with local planning objectives and state environmental policy, and demonstrates a strong commitment to sustainability, Aboriginal heritage protection, and community consultation.

Through the implementation of best practice management, the potential environmental impacts associated with the Project can be appropriately managed, which will also address the community concerns and associated social impacts identified during the stakeholder engagement process. Given the net benefit and commitment from the Proponent to appropriately manage the potential environmental impacts associated with the Project, it is considered the Project would result in a net benefit to the region and broader NSW community.

The Project is consistent with the objects and matters as per the EP&A Act and principles of Ecologically Sustainable Development.

The assessments presented in this EIS indicate that the proposed Jindera BESS is considered to be in the public interest and should be approved on the basis that it provides a range of benefits to the local region and the State by directly contributing to meeting renewable energy targets.

The specialist studies supporting this EIS confirm that the Project would not lead to any significant environmental, social, or economic impacts and that residual impacts are manageable through the implementation of standard measures.



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Appendix R	Agricultural Impact Assessment
Appendix S	Land Use Conflict Risk Assessment
Appendix T	Economic Impact Assessment
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Acronyms and Abbreviations

AA	Archaeological Assessment
ABS	Australian Bureau of Statistics
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACHMP	Aboriginal Cultural Heritage Management Plan
ADGC	Australian Dangerous Goods Code
ADLALC	Albury and District Local Aboriginal Land Council
ADRM	Archaeological Research Design and Methodology
AEMO	Australia Energy Market Operators
AEP	Annual Exceedance Probability
AHD	Australian Height Datum
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
AGRD	Austroads Guides to Road Design
AIA	Agricultural Impact Assessment
ALAPP	As Low as Reasonably Possible
ANZIC	Australian and New Zealand Standard Industrial Classification
Applicant	BESS Atlantic Pty Ltd
APZ	Asset Protection Zone
AQMN	NSW Air Quality Monitoring Network
ARDM	Archaeological Research Design and Methodology
ARR	Australian Rainfall and Runoff
AS	Australian Standard
AUL	Auxiliary Left Lane Turn
AV	Articulated vehicle
BAL	Bushfire Attack Level
BAL ₁	Basic Left Turn
BAM	Biodiversity Assessment Method
BAR	Basic Right Turn
BC Act	<i>Biodiversity Conservation Act 2016</i>
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
BESS Atlantic	BESS Atlantic Pty Ltd
BESS site	Portion of Lot 204 DP 753342 at 204 Ortlipp Road, Glenellen NSW 2642
bgl	Below Ground Level
BMP	Bushfire Management Plan
BoM	Bureau of Meteorology
BRAR	Bushfire Risk Assessment Report
BSAL	Biophysical Strategic Agricultural Land



BYDA	Before You Dig Australia
CD	Candela
CEEC	Critically endangered ecological community
CEMP	Construction Environmental Management Plan
CIA	Cumulative Impact Assessment
CICs	Critical Industry Clusters
CIV	Capital Investment Value
CHR-S	Channelised Right Turn Treatment (short)
CLM Act	Crown Land Management Act 2016
CNVMO	Construction Noise and Vibration Management Plan
Code of Practice	Code of Practice for Archaeological Investigation of Aboriginal Objects (NSW)
COP21	United Nations Climate Change Conference 21
Council	Greater Hume Shire Council
DA	Development Application
dBA	decibels
DCP	Development Control Plan
DCCEEW	Commonwealth Department of Climate Change, Energy, Environment and Water
DD	Due Diligence
DEM	Digital elevation model
DIDO	Drive-in drive-out
DFE	Define flood event
DG	Dangerous Goods
DP	Deposited Plan
DMP	Decommissioning Management Plan
DPE	Department of Planning and Environment
DPI	Department of Primary Industries
DPiE	Department of Planning, Industry & Environment
DPHI	Department of Planning, Housing and Infrastructure
EDC	Estimated Development Cost
EEC	Endangered Ecological Community
EIA	Economic Impact Assessment
EIS	Environmental Impact Statement
EMF	electromagnetic fields
EMP	Environmental Management Plan
EOL	End of life
EPA	NSW Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2021</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>



EPL	Environmental Protection Licence
ESCP	<i>Erosion and Sediment Control Plan</i>
ESD	<i>Ecologically Sustainable Development</i>
FRIAR	<i>Flood Risk and Impact Assessment Report</i>
FIFO	Fly-in Fly-out
FFDI	Forest Fire Danger Index
FM Act	Fisheries Management Act 1994
FPL	Flood planning level
FTE	Full Time Equivalent
GDA	Gransolar Development Australia
GDE	Groundwater Dependent Ecosystems
GFDI	Grassland Fire Danger Index
GHSC	Greater Hume Shire Council
GRIT	Regional Input-Output Tables
GVP	Gross value of agricultural production
GW	Gigawatt
ha	Hectares
HGL	Hydrogeological Landscape
HIA	Heritage Impact Assessment
HIPAP	Hazardous Industry Planning Advisory Board
HFRA	Hydrology and Flood Risk Assessment
HHA	Historic Heritage Assessment
HRA	Hazards and Risk Assessment
HV	Heavy Vehicles
HVAC	Heating, Ventilation, and Air Conditioning
IBRA	Interim Biogeographic Regionalisation for Australia
ICNG	Interim Construction Noise Guideline
ICNIRP	International Commission on Non-Ionizing Radiation Protection
IECA	International Erosion Control Association
IPA	Inner Protection Area
IPC	Independent Planning Commission NSW
IBRA	Interim Biogeographic Regionalisation for Australia
IO	Input-output analysis
KFH	Key Fish Habitat
kg	Kilogram
km	Kilometres
kV	Kilovolt
kVA	Kilo volt-amperes
L	Litre
LALC	Local Aboriginal Land Council



LCVIA	Landscape Character and Visual Impact Assessment
LCZ	landscape character zones
LEP	Local Environmental Plan
LFB	Lachlan Fold Belt
LLS	Local Land Services
LGA	Local Government Area
LOS	Level of Service
LSPS	Local Strategic Planning Statement
LSC	Land and Soil Capability
LUCRA	Land Use Constraints Risk Assessment
LVIA	Landscape and Visual Impact Assessment
MLRA	Multi-Level Risk Assessment
MNES	Matters Of National Environmental Significance
m	Metres
mm	Millimetres
MR	Main Road
MW	Megawatt
MWh	Megawatt Hours
NATA	National Association of Testing Authorities
NDCs	Nationally Determined Contributions
NEM	National Electricity Market
NHVR	National Heavy Vehicle Registration
NMLs	Noise Management Levels
NNTT	National Native Title Tribunal
NPI	National Pollutant Inventory
NPfi	NSW Noise Policy for Industry
NPW Act	<i>National Parks and Wildlife Act 1974</i>
NPWS	National Parks and Wildlife Service
NSW	New South Wales
NTA	<i>Native Title Act 1993</i>
NVIA	Noise And Vibration Impact Assessment
NHVR	National Heavy Vehicle Regulator
OEH	Office of Environment and Heritage
OEM	Original Equipment Manufacturer
OOH	Out of Hours
OSOM	Oversize and / or over mass (vehicles and loads)
PAD	Potential Archaeological Deposit
PCT	Plant Community Type
PHA	Preliminary Hazard Analysis
Planning Systems SEPP	State Environmental Planning Policy (Planning Systems) 2021



PM	Particulate matter
PMF	Probable Maximum Flood
PRS	Preliminary Risk Screening
PPE	Personal Protection Equipment
PMST	Commonwealth Protected Matters Search Tool
POEO Act	<i>Protection of Environment Operations Act 1997</i>
Proponent	BESS Atlantic Pty Ltd
PV	Photovoltaic
QUDM	Queensland Urban Drainage Manual
RAPs	Registered Aboriginal Party
RAP	Remediation Action Plan
RAV	Restricted Access Vehicle
RBLs	Rating Background Noise Levels
REAP	Registered Environmental Assessment Practitioner
REDs	Regional Economic Development Strategies
Resilience and Hazard SEPP	State Environmental Planning Policy (Resilience and Hazards) 2021
REZ	Renewable Energy Zone
RL	Reduced Level
RFS	NSW Rural Fire Service
RUSLE	Revised Universal Soil Loss Equation
SAII	Serious and Irreversible Impacts
SDL	Sustainable diversion limit
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SES	State Emergency Service
SHI	State Heritage Inventory
SIA	Social Impact Assessment
SIDRA	Signalised and Unsignalised Intersection Design and Research
SISD	Safe Intersection Sight Distance
SLR	SLR Consulting Australia Pty Ltd
SSAL	State Significant Agricultural Land
SSD	State Significant Development
Substation Site	Lot 1 DP588720, No.140 Ortlipp Road, Jindera NSW 2642
SWL	Sound power levels
SWMP	Soil and Water Management Plan
TEC	Threatened Ecological Community
TfNSW	Transport for New South Wales
TIA	Traffic Impact Assessment
TL	Transmission line
TMP	Traffic Management Plan



TN	Total Nitrogen
Transport and Infrastructure SEPP	State Environmental Planning Policy (Transport and Infrastructure) 2021
TS	Transmission Substation
TSS	Total Suspended Solids
TP	Total Phosphorus
TTIA	Traffic and Transport Impact Assessment
VIA	Visual Impact Assessment
VIC	Vicotria
VPA	Voluntary Planning Agreement
WMA	Water Management Act 2000
WMP	Waste Management Plan
WQIA	Water Quality Impact Assessment





01 Introduction

Battery Energy Storage System - Jindera

FOR: BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00001

Revision: 1.5



1.0 Introduction

This chapter provides an overview of the proposal, including an introduction to the project location, scope of works and planning approval process.

1.1 Overview

BESS Atlantic Pty Ltd (BESS Atlantic) care of Gransolar Development Australia (GDA) seeks to establish a Battery Energy Storage System (BESS) with a connection to the existing electricity grid, via an above ground transmission line (TL) to Transgrid's JINDERA 330/132 kilovolt (kV) Transmission Substation (TS) (herein referred to as the 'Project').

The BESS comprises of approximately 200 lithium battery containers. A maximum of 100 inverters (one per two batteries) will be located externally to the modular containers. Batteries and inverters are fixed to hardstand footings and accessible by an internal road. Other physical features of the Project include an above ground TL, providing reticulated water to the site, control room/switchgear and auxiliary transmission, car parking, landscaping, security fencing/lighting, and a small storage structure.

The Project is State Significant Development (SSD) being an *electricity generating works* development with an estimated development cost (EDC) higher than \$30 million. The Project therefore requires assessment and approval in accordance with Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act)*.

BESS Atlantic have engaged SLR Consulting Australia Pty Ltd (SLR) to prepare this Environmental Impact Assessment (EIS) to address the requirements of the *Secretary's Environmental Assessment Requirements (SEARs)*, issued by the *NSW Department of Planning, Housing and Infrastructure and Environment (DPHI)*: SSD-68815961 dated 18 April 2024 (Appendix A). The EIS has been prepared in accordance with the *NSW Environmental Planning and Assessment Regulation 2021 (EP&A Regulation)* and under the guidance of the *State Significant Development Guidelines - Preparing an Environmental Impact Statement (DPHI, 2024)*.

1.2 Project Objectives

Primarily, the purpose of the Project is to coincide with the integration of renewable energy consumption and to improve overall grid stability and resilience. This is achieved by storing excess renewable power from the network during low demand periods (i.e., renewable electricity created in daylight hours such as solar energy) and distributing back at peak times alleviating added network constraints.

Lower daytime demand means coal-fired generators need to turn-down and then ramp-up in the early evening to ensure adequate supply. Commercial scale solar farms and wind farms may need to constrain their output during the day due to insufficient system demand and increased power supply from rooftop installations. Meanwhile, peak demand in the evening continues to increase.

By participating in the statewide frequency control market, the Project will assist to stabilise the frequency of the grid at critical times in response to loss of load or loss of generation. The resulting improvement to the stability of grid frequency reduces the risk of system failure and blackouts. It also helps to ensure that the national grid can accommodate an increasing proportion of variable solar, wind and other renewable generations in years to come.

Once constructed, the utility-scale development will operate independently to store and discharge excess power to the electricity grid, generating an array of economic, environmental, social and network benefits.



By addressing minimum demand challenges, the proposed development additionally provides economic, environmental, and social benefits to the immediate and wider community. Refer to Table 1 for comprehensive list of benefits.

Table 1 BESS Benefits Summary

Theme	BESS benefits summary
Economic	• Cost-effective storage • Local investment • Deter taxpayer grid infrastructure upgrades • Landowner revenue • Job opportunity • Long-term lowered energy costs
Environmental	• Renewable energy integration • Carbon emission reduction • Recyclable materials • Emission trading and offsets • Rehabilitation of contaminated sites opportunity <u>When compared with traditional power solutions:</u> • Reduced air and water pollution • Land use efficiency • Hazardous materials and water consumption reduction
Social	• Enhanced energy access • Locally sourced goods and services through construction • Local sponsorships • Education and awareness
Network	• Grid stability & resilience • Peak demand management • Energy efficiency • Long-term energy storage/backup • Increased energy reliance • Improved power quality

1.3 Project Location

Jindera is a rural town located in the Greater Hume Shire in Southern New South Wales (NSW), approximately 15 kilometres (km) north of Albury and close to the NSW–Victoria border. It lies within the Riverina-Murray region, a key area for agriculture and regional development. Jindera is part of a broader rural landscape characterised by farming, grazing, and lifestyle properties, with strong community ties and proximity to major transport routes and regional infrastructure. The locality has access to services in Albury, while maintaining a distinct regional and agricultural identity. The regional context is shown in Figure 1.

The area to which the Project relates, hereafter referred to as the Subject Sites has a total area of 40.81 hectares (ha), refer to Figure 2, and comprises:

- Lot 204 Deposited Plan (DP) 753342, which is the 'BESS Site' (private landowner);
- Lot 1 on DP588720, which is the 'Substation Site' (owned by Transgrid);
- An area of unformed Crown road reserve (owned by Crown Lands); and
- Ortlipp Road and Lindner Road road reserves (owned by Greater Hume Council and Crown Lands).



The overall development footprint of the Project is shown in Figure 3 and Figure 4 and comprises a disturbance area of 18.85ha.

The BESS Site will be leased from the landowner. The BESS Site is currently rural in nature with supporting structures, however no farming is currently taking place on the land. The site is irregular shaped and generally flat in nature, with a minor slope to the south. Kilnacroft Creek runs along the southwest portion of the Substation Site.

A residential dwelling has recently been approved on the BESS Site, outside of the lease area and is noted as the 'host' receiver on the sensitive receiver's map (H1). No other development applications have been lodged or approved on the Subject Sites and there are no restrictions or covenants on the land. There are 37 sensitive receivers (other than H1) within 2km of the BESS Site.

There are three TLs connected to the existing Jindera Substation, including Transgrid 330 kV TL extending northeast from the substation and a 330 kV TL extending west from the substation. Two sets of Transgrid 132 kV TLs extend southwest from the substation. In addition there is an Essential Energy 22 kV TL extend to the south of the substation.

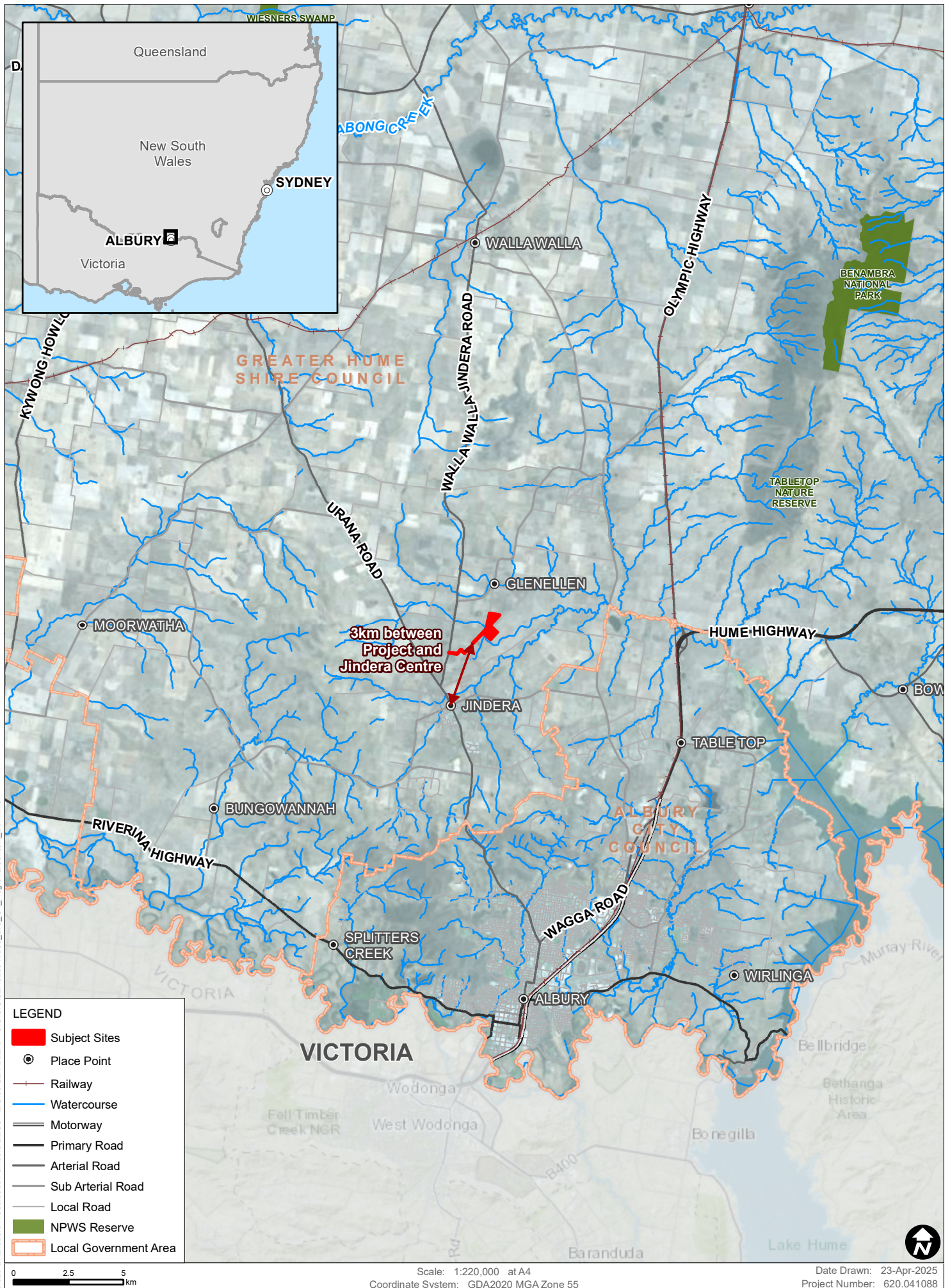
There are two SSD application approvals for solar farms within proximity of the site:

- 'Jindera Solar Farm' 120 MW – SSD-9549 to the north west; and
- 'Glenellen Solar Farm' 200MW – SSD-9950 adjoining to the east. Construction of this project has commenced.

These are discussed further in Chapter 2, Section 2.4.



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491500

492000

LEGEND

- Subject Sites (40.81ha)
- Project Disturbance Area (18.85ha)
- Proposed BESS Area
- Transgrid Substation
- Watercourse
- 40m Buffer from Top of Creek Outline
- Cadastre

ORTLIFF ROAD

203 /
DP753342204 /
DP753342

1 / DP749584

101 /
DP791421

1 / DP588720

1004 /
DP1033823

KILNA CROFT CREEK

6025000

6024500

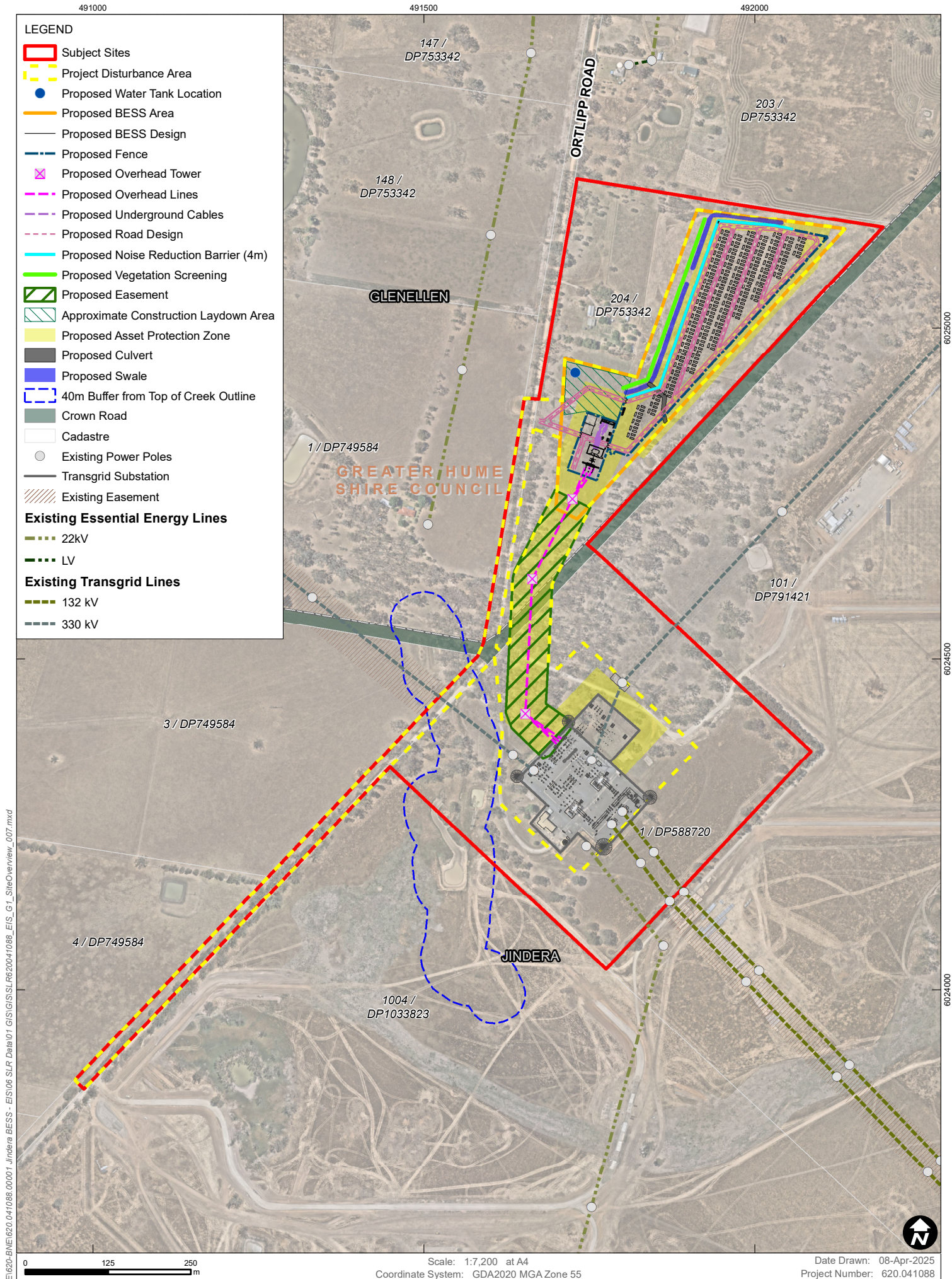
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0 125 250
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Coordinate System: GDA2020 MGA Zone 55Date Drawn: 09-Apr-2025
Project Number: 620.041088

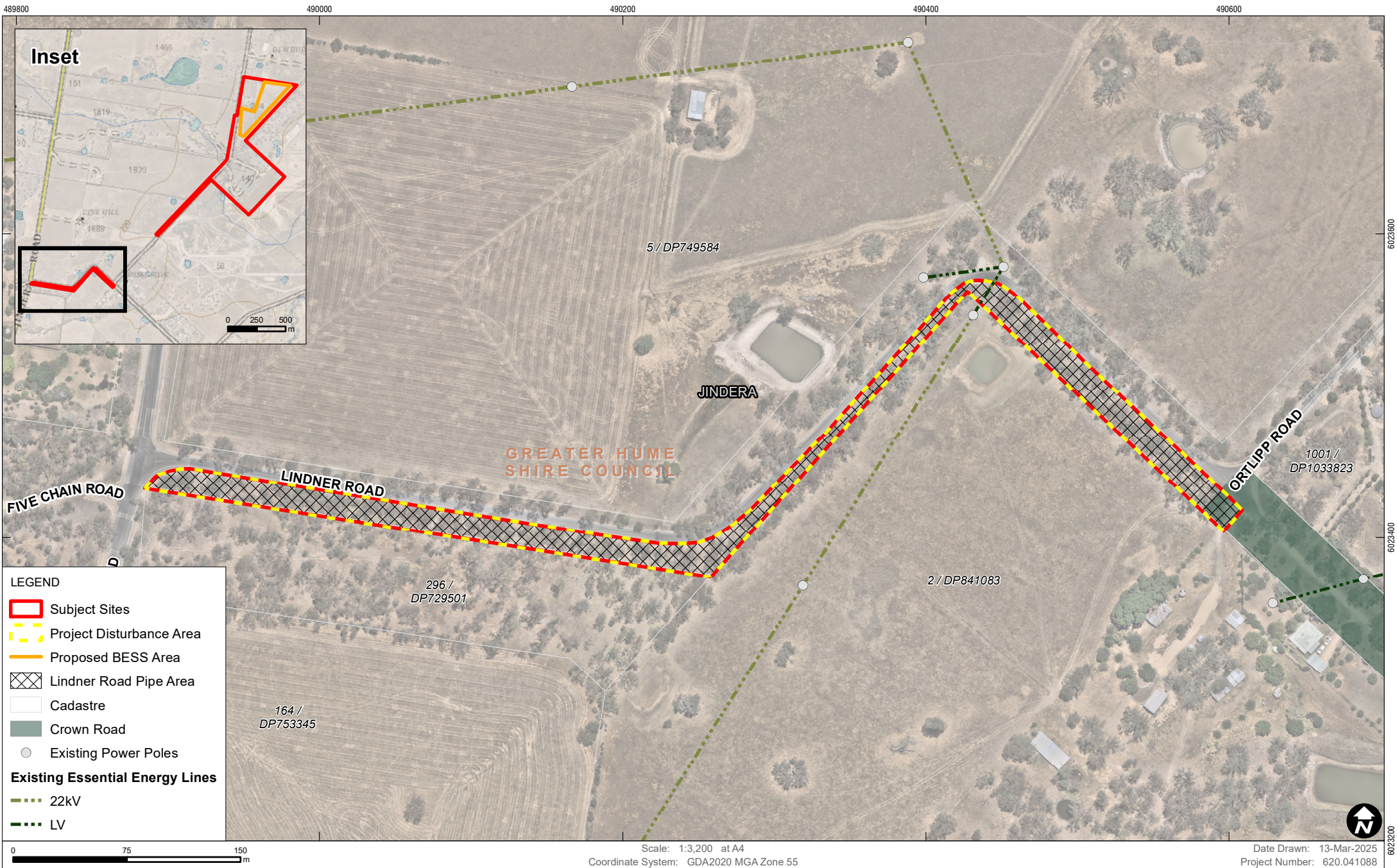
Data Source: basedata supplied by NSW SS, June 2024
 Aerial imagery supplied by Nearmap, November 2024
 Other data sources include Gransolar Group, Look up & Live (LUAL)

Site Aerial

FIGURE 2



H:\Projects\SLR\620-BNE\620-BNE\620-BNE\620.041088_00001_Jindera BESS - EIS\06 SLR Data\01 GIS\GIS\SLR\620.041088_EIS_G1_SiteOverview_007.mxd



Data Source: basedata supplied by NSW SS, June 2024
Aerial imagery supplied by Nearmap, November 2024
Other data sources include Gransolar Group, Look up & Live (LUAL)



Lindner Road Overview

FIGURE 4

1.4 Project Description

The Jindera BESS, 'the Project', involves the development, construction, operation, and eventual decommissioning of a BESS with a capacity of approximately 250 MW / 500 Megawatt Hours (MWh) connecting via overhead transmission lines (TL) to the existing JINDERA 330/132 kV TS, operated by Transgrid.

Jindera BESS will consist of BESS containers (or enclosures), with each container having dimensions of 6 metres (m) in length with an approximate weight of 35,000 kilograms (kg). The BESS will be supported by inverters from the BESS and connect to the existing Transgrid substation via approximately 500m of 330 kV overhead lines.

The key elements of the Project include the following:

- Installation and operation of a BESS including approximately 200 battery enclosures, 100 inverters, and transformers on hardstand with subsurface wiring, and benching of the site to level the foundation for each component;
- Connection and associated upgrades to JINDERA 330/132kV TS, including construction of overhead 330 kV TL to facilitate connection, associated high voltage steel poles, increase in hardstand area and establishment of easements;
- Associated ancillary infrastructure including security fencing, landscaping, site access and internal road (crushed rock), water tank, temporary parking;
- 4m acoustic barrier along the north and west BESS units;
- Providing reticulated water to the BESS Site:
 - Extension of the council water main along a portion of Ortlipp Road;
 - Upgrade of existing water main along a portion of Lindner Road;
- Sealing of Ortlipp Road from the Glenellen Solar Farm to the site access;
- Tree / vegetation removal;
- Pad extension to the Transgrid substation; and
- Decommissioning of the BESS at the end of life (EOL).

Construction of the Project is anticipated to take approximately 10 months. It is expected that the operational life of the Project would be approximately 20 - 25 years, after which the BESS would be decommissioned and the infrastructure removed, returning the site to its original state.

Further details on each component of the Project are provided in Chapter 3.0.

1.5 Project Background

Several sites were considered during site selection for the Project, with regard made to the following:

- Appropriate zoning of land to facilitate development consent for a BESS;
- Availability of existing access to the site via an established road network;
- Proximity to the existing Transgrid substation, to minimise impacts of easements and tree removal;
- Proximity to major solar power generation projects to leverage the advantages of renewable power generation;



- A location that would avoid and/or minimise impacts to high quality native vegetation and protected fauna. Key strategies adopted to avoid, minimise or offset impacts include realigning transmission lines to minimise tree and hollow-bearing tree removal, keeping BESS units away from Kilnacroft Creek, and positioning the project near an existing substation to reduce transmission line length and associated vegetation loss;
- An area that would not result in, or be subject to, major flood impacts;
- Minimising impacts to surrounding privately or publicly owned land and residential dwellings due to noise concerns without significant visual impacts relating to any required acoustic walls. Key strategies adopted to avoid, minimise or offset impacts include scenario testing to reduce the height and length of the noise wall, applying landscaping and muted colours for visual integration, selecting a generally flat site to reduce earthworks, limiting BESS units along the frontage; and
- Minimising impact to surrounding lands due to visual amenity impacts by reducing tree clearing and vegetation screening against the acoustic wall.

1.6 The Proponent

BESS Atlantic Pty Ltd (BESS Atlantic) ('the Proponent') is a subsidiary of Gransolar Development Australia Pty Ltd (GDA). GDA serves as the project development division of Gransolar Group, seeking to advance BESS from conceptual design to ready-to-build, complete with the contractual securing of land, appropriate planning approval and grid connection offer.

The proponent details are provided in Table 2.

Table 2 Proponent Details

Requirement	Detail
Applicant	BESS Atlantic Pty Ltd c/o Gransolar Development Australia (GDA)
ABN	94 659 304 186 / 659 304 186
Applicant Address	Level 4, 307 Queen Street Brisbane QLD 4000
Contact	project.dev@gransolar.com

1.7 EIS Purpose and Structure

SSD to which Division 4.7 of the EP&A Act applies is identified in State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) and in declarations made by the Minister for Planning. The Project is considered to be SSD as it is of a type listed in Schedule 1 of the Planning Systems SEPP.

The NSW Minister for Planning and Public Spaces is therefore the consent authority for the Project and a development application (DA) is required to be lodged with the DPHI, accompanied by an EIS. The EIS will be placed on public exhibition for a period of at least 28 days to allow public and agency submissions to be lodged, after which the proponent may be requested to respond to issues raised in the submissions.

This EIS has been undertaken to assess the significance of the potential environmental impacts associated with the construction and operation of the Project. The EIS has been undertaken in accordance with the *EP&A Act* and the EP&A Regulation.



The EIS has been based on the SEARs issued by the DPHI on 18 April 2024, in conjunction with a range of other government agencies. The SEARs and agency requirements are outlined in Appendix A, with cross references to where each requirement is addressed within this EIS.

The structure and content of this EIS has been designed with consideration of the recommendations of Appendix B to the *State Significant Infrastructure Guidelines – Preparing Environmental Impact Statement (2022)*. The EIS contains two volumes incorporating the main body within Volume 1 and appendices and specialist technical studies in Volume 2. Table 3 outlines the chapters, appendices and inclusions of Volumes 1 and 2.

Table 3 EIS Structure and Inclusions

Chapter or Appendix	Inclusion
Volume 1	
Chapter 1 Introduction	This section provides the context for the detailed assessment of the project
Chapter 2 Strategic Context	This section provides the key strategic context issues that are relevant to the assessment of the project, the site location and site history.
Chapter 3 Project Description	This section provides a consolidated description of the project for which the proponent is seeking approval.
Chapter 4 Statutory Context	This section identifies the relevant statutory requirements for the project including the power to grant approval, relevant legislation and required approvals.
Chapter 5 Community and Stakeholder Engagement	This section summarises the findings of the community engagement that was carried out for the project during the preparation of the EIS and describes what further community engagement will be carried if the project is approved.
Chapter 6 Assessment of Impacts	This section provides a detailed summary of the results of the assessment of the potential impacts of the project. - Biodiversity - Aboriginal Cultural Heritage - Historic Heritage - Land Use Conflict - Landscape Character and Visual Impact - Noise and Vibration - Traffic and Transport - Hydrology - Bushfire - Hazards & Risk - Social Impact - Economic Impact - Waste - Land and Soils - Cumulative Impact
Chapter 7 Project Justification and Conclusion	This section provides a justification, evaluation and conclusion of the project as a whole.
References	References used throughout the preparation of the EIS.
Volume 2 - Appendices	
Appendix A	SEARs compliance table



Chapter or Appendix	Inclusion
Appendix B	Maps and plans
Appendix C	Statutory compliance table
Appendix D	Community engagement table
Appendix E	Mitigation measures table
Appendix F	Biodiversity Development Assessment Report (BDAR, SLR, 2025)
Appendix G	Aboriginal Cultural Heritage Assessment Report (ACHAR, Virtus, 2025)
Appendix H	Heritage Impact Assessment (HIA, Premise, 2025)
Appendix I	Hazards and Risk Assessment (HRA, SLR 2025)
Appendix J	Bushfire Risk Assessment Report (BRAR, SLR, 2025)
Appendix K	Landscape Character and Visual Impact Assessment (LCVIA, SLR 2025)
Appendix L	Noise and Vibration Impact Assessment (NVIA, SLR, 2025)
Appendix M	Transport Impact Assessment (TIA, SLR, 2025)
Appendix N	Flood Risk and Impact Assessment Report (FRIAR, WaterTech, 2025)
Appendix O	Social Impact Assessment (SIA, SLR, 2025)
Appendix P	Consultation Report (SLR, 2025)
Appendix Q	Waste Management Plan (WMP, SLR, 2025)
Appendix R	Agricultural Impact Assessment (AIA, Premise, 2025)
Appendix S	Land Use Conflict Risk Assessment (LUCRA, Premise, 2025)
Appendix T	Economic Impact Assessment (EIA, Gillespie, 2025)
Appendix U	Estimated Development Cost (EDC, Mitchell Brandtman, 2025)
Appendix V	Light Spill Assessment (SLR, 2025)





02 Site and Strategic Context

Battery Energy Storage System - Jindera

FOR: BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00001

Revision: 1.5



2.0 Site and Strategic Context

The strategic policy context at the national, state, regional and local level underpins the Project's need, and includes plans, policies, key strategic directions, and frameworks. This section outlines the relevant context and framework that applies to the Project. This section also details site and environmental context and identifies and identifies surrounding projects that may result in a cumulative impact with the proposal.

2.1 National Context

The Australian energy market is undergoing an unprecedented transformation on the journey to a 100% renewable electricity grid. This transformation is seeking the rapid update of renewable energy and storage technologies. The need for large-scale energy storage in Australia is growing rapidly, with batteries playing an ever-increasing role in the grid, specifically to smooth out the availability of electricity generated from renewables at different times of the day.

BESS projects play a crucial role in the National Energy Market by storing excess energy generated from renewables during peak production periods for use during times of high demand or when renewable sources are not producing. The general key objectives of BESS projects include the following:

- Contribute to improving the renewable power supply in the region;
- Provide critical energy storage within the State; and
- Improve the security, affordability, and sustainability of the State's electricity grid.

A number of National policies outline the Government's commitment to reducing carbon emissions and addressing the need for future energy reliability and stability.

Table 4 outlines the strategic plans and policies relevant to the Project.

Table 4 Strategic Context and Justification

Plan/Policy	Comment
National Context	
Paris Agreement	The Paris Agreement (United Nations Framework Convention on Climate Change, 2016) is a legally binding international treaty on climate change, adopted by 196 nations at the 2015 United Nations Climate Change Conference (COP 21) 21 in Paris in December 2015 and entered into force in November 2016. The goal of the Paris Agreement is to limit global warming to below 2 degrees Celsius (°C), preferably 1.5 °C when compared to pre-industrial levels. Under the Paris Agreement, the Australian Government is committed to reducing emissions and must submit emissions reduction commitments known as Nationally Determined Contributions (NDCs). The NDC 2022 update had Australia increasing the ambition of our 2030 target by committing to reduce greenhouse gas emissions to 43% below 2005 levels by 2030. The installation of BESS projects across Australia is gaining momentum due to the increasing integration of renewable energy sources, such as solar and wind, into the grid. BESS projects play an important role in green energy supplies and make renewable energy more reliable, including providing essential services such as energy storage, grid stability, peak demand management and synthetic inertia.
Powering Australia	The Australian Government's Powering Australia plan prepared by Department of Climate Change, Energy, the Environment and Water (DCCEEW) is focused on creating jobs, cutting power bills and reducing emissions by boosting renewable energy. It seeks to capitalise on Australia's abundant natural resources to drive growth, new industries and become a renewable energy superpower. This



Plan/Policy	Comment
	includes commitments to build a more reliable, affordable and low-emissions energy system for Australia. The proposed BESS will aide in establishing a more reliable energy supply by providing energy capture and firming technology proximate to renewable energy generation projects in the region.
AEMO Integrated System Plan 2024	The Australia Energy Market Operators Integrated System Plan (AEMO, 2024) is a whole-of-system plan that provides an integrated roadmap for the efficient development of the National Electricity Market (NEM) over the next 20 years and beyond. The plan identifies that by 2050, the NEM is likely to require 56 Gigawatt (GW) of energy storage across the network to manage the variability of wind and solar on the journey to a 100% renewable electricity grid. The proposed BESS will directly contribute to achieving the target by providing large scale energy storage to the network whilst supporting regional renewable energy projects by providing enhanced firming.
Australia's Long Term Emissions Reduction Plan	Australia's Long-Term Emissions Reduction Plan (Energy Reduction Plan) published by the DCCEE provides a national level plan to achieve net zero emissions by 2050. The Energy Reduction Plan aims to: • Drive down the cost of low emissions technologies; • Deploy these technologies at scale; • Help our regional industries and communities seize economic opportunities in new and traditional markets; and • Work with other countries on the technologies needed to decarbonise the world's economy. Energy storage is identified as a priority for the network as it provides firming technology to renewable energy generation contributing to the provision of clean and cheap electricity to the network. The Energy Reduction Plan generally aims at a higher level to reduce the cost of technology and therein implementation into the network. This includes measures to increase supply of critical minerals and lithium to support the manufacture of grid scale BESS.
State Context	
NSW Transmission Infrastructure Strategy	The NSW Transmission Infrastructure Strategy (NSW Government, 2018) aims to increase the State's energy capacity by prioritising priority energy zones and boosting investments in the Central West, South West, and New England regions of NSW to deliver affordable and reliable energy and increase transmission capacity. While not located within a priority energy zone, the Project is considered to directly contribute to the distribution network proposed within the Transmission Infrastructure Strategy as a key private-sector led investment to improve energy supply in the State.
NSW Electricity Strategy	The NSW Electricity Strategy (Department of Planning, Industry & Environment (DPIE), 2019) is the NSW Government's plan for a reliable, affordable and sustainable electricity future that supports a growing economy. The strategy encourages an estimated \$8 billion of new private investment in NSW's electricity system over the next decade, including \$5.6 billion in regional NSW. It will also support an estimated 1,200 jobs, mostly in regional NSW. The strategy closely aligns with the NSW Government's Net Zero Plan Stage 1: 2020–2030. It is estimated that that three-quarters of Australia's coal-fired power stations are operating beyond their original design life, with some receiving extensive 'life extension' re-fits to continue operation. In NSW, all five existing coal-fired power stations are scheduled to retire between 2022 and 2043 (AEMO, 2019), beginning with the Liddell Power Station (Hunter Valley) in 2023, increasing the current



Plan/Policy	Comment
	demand for renewable energy. The remaining coal-fired generators are set to reach the end of their technical lives and close by 2035. Over the course of the 2020s, NSW was projected to experience its tightest reserve conditions in 2023-24 after the Liddell power station closed in April 2023. This tight reserve condition is expected to be partially mitigated by projects funded under the Emerging Energy program for new technologies that provide sustainable and on-demand electricity. The NSW Electricity Infrastructure Roadmap was enabled by the Electricity Infrastructure Investment Act 2020 and builds on the foundations of the Electricity Strategy. The implementation of the Net Zero Plan along with the Electricity Infrastructure Roadmap will result in more than 9000 jobs and up to \$37 billion in private investment, with the majority expected to be across regional NSW. The Electricity Infrastructure Roadmap has identified Renewable Energy Zones (REZs) to group new renewable power generation into locations where it can be efficiently stored and transmitted across NSW. The closest REZ to the Site is the proposed South West REZ, which was identified due to its strong renewable energy resource potential, proximity to the existing electricity network, and existing land use. The Central-West Orana REZ was formally declared by the Minister for Energy and Environment under section 19(1) of the <i>Electricity Infrastructure Investment Act 2020</i> gazetted on 4 November 2022. While not located within a REZ area, the Project would contribute directly to the goals through the investment in renewable energy storage and the growth of new low carbon industries across the region.
Electricity Infrastructure Road Map	In November 2020, the NSW Government released the Electricity Infrastructure Roadmap, enabled by the <i>Electricity Infrastructure Investment Act 2020 (NSW)</i>. The Roadmap builds on the foundations of the Electricity Strategy and is expected to attract up to \$32 billion of private investment in regional energy infrastructure by 2030 and support over 9,000 jobs, mostly in regional NSW. The Roadmap is the State's 20 year plan to transform the electricity system into one that is cheap, clean and reliable. It seeks to lay the foundations for future generations to enjoy more secure, reliable and affordable electricity. The Roadmap specifically identifies support for the private sector to deliver long duration storage energy solutions and acknowledges the importance of new storage and firming on the network to better respond to electricity needs and improve reliability of the grid. The Project would contribute to the goal of more secure, reliable and affordable electricity.
NSW Climate Change Policy Framework	The NSW Climate Change Policy Framework (State of NSW and Office of Environment and Heritage, 2016) aims to maximise the economic, social, and environmental wellbeing of the State in the context of a changing climate and given the current and emerging international and national policy settings and actions created to address climate change. The long-term objectives of the Climate Change Policy Framework are to achieve net-zero emissions by 2050 and make NSW more resilient to a changing climate. As the Project would include the construction and operation of a BESS to further develop the renewable energy power supply network of NSW, the Project would directly contribute to increasing the capacity and resilience of the State and further the State's efforts to reach net-zero emissions by 2050. Additionally, as the Climate Change Policy Framework aims to manage impacts on natural resources, ecosystems, and communities, the site suitability for the Project has been chosen specifically to ensure minimal impacts to biodiversity values and the surrounding community.
Net Zero Plan Stage 1: 2020-2030	The Net Zero Plan Stage 1: 2020-2030 (DPIE, 2020) sets out how the NSW Government will deliver the ultimate goal of net zero emissions by 2050. This Plan recognises that, in parts of our economy, low emissions technologies are



Plan/Policy	Comment
	becoming a commercially viable alternative to the traditional ways of doing things. Ultimately, the plan seeks to reduce emissions by 35% (compared to 2005 emission rates) by 2030. The proposal directly aligns with Priority 1 and 2 of the Net Zero Plan. <i>Priority 1: Drive uptake of proven emissions reduction technologies that grow the economy, create new jobs or reduce the cost of living.</i> The proposal represents a proven emissions reduction technology that will support renewable energy generation by capturing energy during high yield periods and supplying during low yield periods. The proposal will establish both short term and long-term employment opportunities within the renewables sector. <i>Priority 2: Empower consumers and businesses to make sustainable choices</i> The proposal represents an effective way to support renewable energy generation in the region and by extension supporting consumers and businesses in making sustainable and effective choices.
Regional Context	
Riverina Murray Regional Plan 2041	The Riverina Murray Regional Plan 2041 (Department of Planning and Environment (DPE), 2023) (Regional Plan) is an update to the Riverina Murray Regional Plan 2036, which provided the NSW Government's vision for land uses in the Riverina Murray region. That plan saw the NSW Government work with councils, stakeholders and the community to achieve priority actions. The updated Regional Plan is a 20-year land use plan with a targeted delivery focus on the next 5 years. It was prepared under the EP&A Act and applies to the local government areas (LGAs) of Albury, Berrigan, Bland, Carrathool, Coolamon, Cootamundra, Gundagai, Edward River, Federation, Greater Hume, Griffith, Hay, Junee, Leeton, Lockhart, Murray River, Murrumbidgee, Narrandera, Snowy Valleys, Temora and Wagga Wagga. Objective 13 of the Regional Plan is to support the transition to net zero by 2050. Within 15 years, 75% of the state's coal powered electricity generation is expected to reach the end of its technical life. Replacing these energy sources and building the infrastructure needed to connect new energy sources is essential to ongoing energy security. The Riverina Murray region of NSW has attracted considerable interest from solar developers given the presence of major transmission lines and existing electricity substations. The Riverina Murray's climate, resources and strategic connections to utility infrastructure place it in a strong position to contribute to and capitalise on the net zero target and electricity infrastructure plans. In recent years, large-scale solar farms account for more than 50% of major projects. Strategy 13.1 is to prepare for the transition to net zero emissions through strategic and statutory planning. The Project aligns with Strategy 13.1 by supporting the transition to net zero emissions through the integration of renewable energy infrastructure that enhances grid stability and reliability, while also minimising land use conflict, in a location compatible with existing land use and planning objectives.
Albury-Wodonga Regional Economic Development Strategies – 2023 Update.	The Albury-Wodonga Regional Economic Development Strategies (REDs) work in conjunction with the 20-Year Economic Vision for Regional NSW (2021) to provide a place-based vision for economic development within the Albury-Wodonga region. The REDs identify impacts on the region since 2018 which include the 2019-2020 bushfires, 2021 mouse plague, COVID-19 pandemic, and more recently the 2022 floods. In response, the REDs provide an economic framework to respond and grow the region and advise on investment to support the region. Energy supply, particularly renewable energy, is identified as an emerging industry for the Albury-Wodonga Region. The REDs identify a total of four solar farm



Plan/Policy	Comment
	projects in the region, along with a hydrogen generation facility and hydro-powered battery which mark continued growth as they develop. An identified vulnerability to a number of other sectors is the cost of energy, with the expansion of renewable energy generation capacity and improvements in reliability and security identified as a source of improvement in this matter. The project will provide further private investment into the Region's energy generation sector, with its key contribution being towards improving reliability and security leveraging the other major solar generation projects.
Local Context	
Greater Hume Local Strategic Planning Statement (LSPS)	The Greater Hume Local Strategic Planning Statement (GHSC, 2018) (LSPS) sets the land use framework for Greater Hume Council's (the Council) economic, social and environmental land use needs over the next 20 years. It addresses the planning and development issues of strategic significance to the Council through planning priorities and actions, spatial land use direction and guidance. This statement helps to give effect to the Regional Plan. The LSPS notes that access to transmission infrastructure, land availability and favourable climate conditions make Greater Hume a desirable location for large scale solar, energy storage, and associated renewable energy generation technologies. There are some significant long-term sustainable benefits of renewable resources that Greater Hume could leverage to provide necessary infrastructure, energy security, employment, education and community investments that can benefit both the economy and local residents. The LSPS acknowledges the challenges for renewable energy projects, and the need to strategically identify suitable locations, that contribute to the long-term sustainability of Greater Hume Shire and minimise impacts on productivity of agricultural land, Aboriginal cultural heritage, biodiversity, and the amenity of residents. The Project aligns with the LSPS by leveraging the region's access to transmission infrastructure, available land, and favourable climatic conditions to support the growth of renewable energy technologies. The Project contributes to the LSPS vision by delivering long-term sustainable benefits such as improved energy security, economic development, and local employment, while being strategically located to minimise impacts on agricultural productivity, Aboriginal cultural heritage, biodiversity, and residential amenity—in line with the LSPS commitment to balanced and sustainable land use planning.
Greater Hume Community Strategic Plan 2032	The Greater Hume Community Strategic Plan 2032 seeks to identify the community's priorities, aspirations and vision for the future and is centred around key strategic themes, being: • Healthy Communities • Growth and Prosperity • Natural and Built Environment • Leadership and Communication The Project will support Outcome G2 by contributing to a more diverse and resilient energy mix, which may help improve energy affordability and, in turn, enhance the liveability of the region. Additionally, the Project is strongly aligned with Outcome G1, supporting Council's objective to stimulate economic growth, attract investment, and create employment opportunities. It will deliver both short- and long-term economic benefits through job creation and local industry engagement, while being implemented in a socially, environmentally, and economically responsible manner.
Greater Hume Local	In accordance with the LEP, the objectives of the RU1 Primary Production zone are:



Plan/Policy	Comment
Environmental Plan 2012	- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base. - To encourage diversity in primary industry enterprises and systems appropriate for the area. - To minimise the fragmentation and alienation of resource lands. - To minimise conflict between land uses within this zone and land uses within adjoining zones. - To maintain the rural landscape character of the land. The Proposal is generally compliant with these objectives as it: - Can be considered a sustainable primary industry that extracts renewable energy (a natural resource); - Is complementary to surrounding land uses; and - Is highly reversible and will not impact the future productivity of the land. Electricity generation is not listed among developments which are permitted consent for the RU1 zone however, in accordance with Clause 2.36 of the Transport and Infrastructure SEPP the Project is permissible with consent.

2.2 Site Location and Context

2.2.1 Site ownership

As outlined in Section 1.3 the Project involves several sites. Table 5 and Figure 5 outlines the proposed uses and ownership details for the Subject Sites.

Table 5 Land Ownership Details

Development Area	Description	Ownership
BESS Site	The BESS is proposed on a portion of Lot 204 DP 753342 at 204 Ortlipp Road, Glenellen NSW 2642.	Private
Substation Site	Represents the Transgrid JINDERA 330/132KV TS substation site located on Lot 1 DP588720 otherwise referred to as 140 Ortlipp Road, Jindera NSW 2642. The substation is approximately 2.2ha.	Transgrid
Transmission Route	The proposed Transmission Route extends from the southern corner of the BESS Development area on Lot 204 DP753342 southward via a Crown Reserve (no Lot identifier), to the northern corner of the Transgrid DP588720.	Transgrid Crown Land
Ortlipp Road	The watermain extension will be extended within the Ortlipp Road reserve, a local classified road.	Greater Hume Shire Council
Lindner Road	Replacement of existing water main for size upgrade.	Greater Hume Shire Council Crown Land



2.2.2 Surrounding Land Use

Land immediately surrounding the Subject Sites comprises rural land lots, including some smaller rural residential properties. The residential township of Jindera is approximately 2km south-west of the Subject Sites. The Subject Sites are located within a largely undeveloped rural landscape, refer to Photos 1-3. Neighbouring lots are predominantly large rural lots, with some residential dwellings and ancillary development located to the north and west of the Subject Sites. The Subject Sites are comprised of relatively flat topography with isolated alterations to the natural landform through construction of roads and irrigation channels. The BESS site is reasonably obscured from view being located in a lower lying areas and is surrounded by tree canopies adjacent to Ortlipp Road.

Jindera lies within the Riverina Murray Important Agricultural Land area, with a strong tradition of mixed farming, including sheep and cattle grazing and dryland cropping. The open, pastoral landscape features undulating hills, plains, and patches of remnant vegetation. Its productive soils and proximity to processing facilities highlight the area's importance to the NSW agricultural economy.

Jindera township is 15.8km (approximately 16 minutes drive) from the regional centre of Albury. Jindera has an urban grid pattern that is in a northwest / southeast orientation, with Urana Road being the main axis. Jindera's village-style commercial centre, centred on Adam Street, provides basic services for locals. The streetscape supports a rural village character and aligns with the needs of a growing population. Rural residential areas in Jindera offer low-density living with larger lot sizes, attracting residents seeking a rural lifestyle near Albury and Wagga Wagga. These areas often support hobby farming. The Greater Hume Council's strategic planning seeks to maintain rural character while managing growth. Jindera's residential areas are primarily detached homes on large lots.

Photo 1 Ortlipp Road (Looking North)

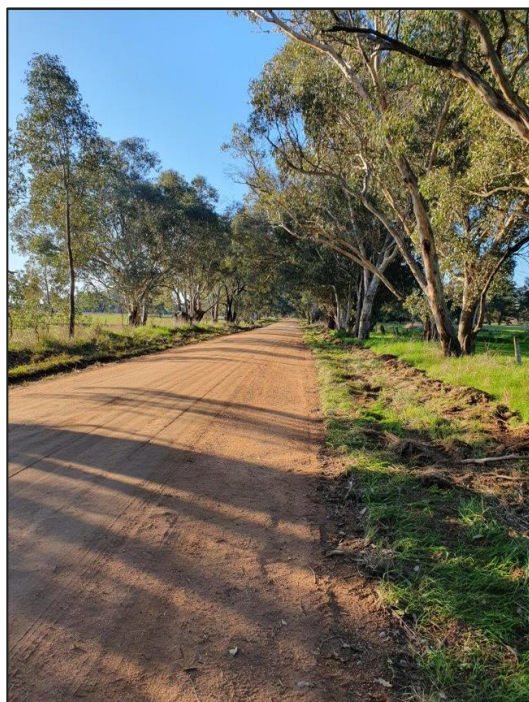


Photo 2 Ortlipp Road (Looking South)

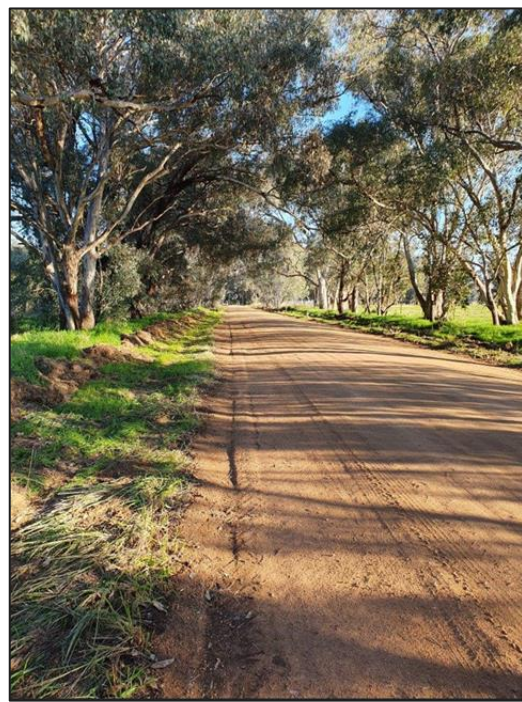


Photo 3 Site Area with Indicative Vegetation



Surrounding the Subject Sites there are minimal recreational destinations however there are 2 which occur within a 2km radius of the site. These include the Jindera Golf Club and the Bits and Boots Pony and Trail Rides. The significant landscape features that occur around the Subject Sites includes distant glimpses toward surrounding rural and forested hills visually characterised with elevated eucalypt forests and rolling pastoral hills along the horizon line. These include the Benambra National Park which is approximately 19km to the north west and the Tabletop Nature Reserve which is approximately 14km to the north east.

It is likely that Jindera would be the key service centres of the BESS construction workforce, with other service centres including Tabletop, Henty, Holbrook, Albury-Wodonga, and other smaller surrounding towns. Existing facilities and services in Jindera and more broadly in Albury-Wodonga are shown in Table 6.

Table 6 Existing Facilities in Proximity to the Subject Sites

Jindera	Albury-Wodonga
• A shopping precinct including a grocery store, newsagency, and hair salon. • Cafes and take-away restaurants. • Post office. • Medical clinics and pharmacy. • Police station and NSW Rural Fire Service (RFS). • One petrol station. • One hotel motel. • Two schools. • Three churches.	• Supermarket (Food Works), butchers, bakery. • News agency. • Restaurants, pubs, cafes. • Post office. • Medical services, including Multipurpose Service (Accident and Emergency Department, hospital and residential aged care and allied services), and a pharmacy. • Police station, fire station, State Emergency Service (SES). • Four petrol stations.



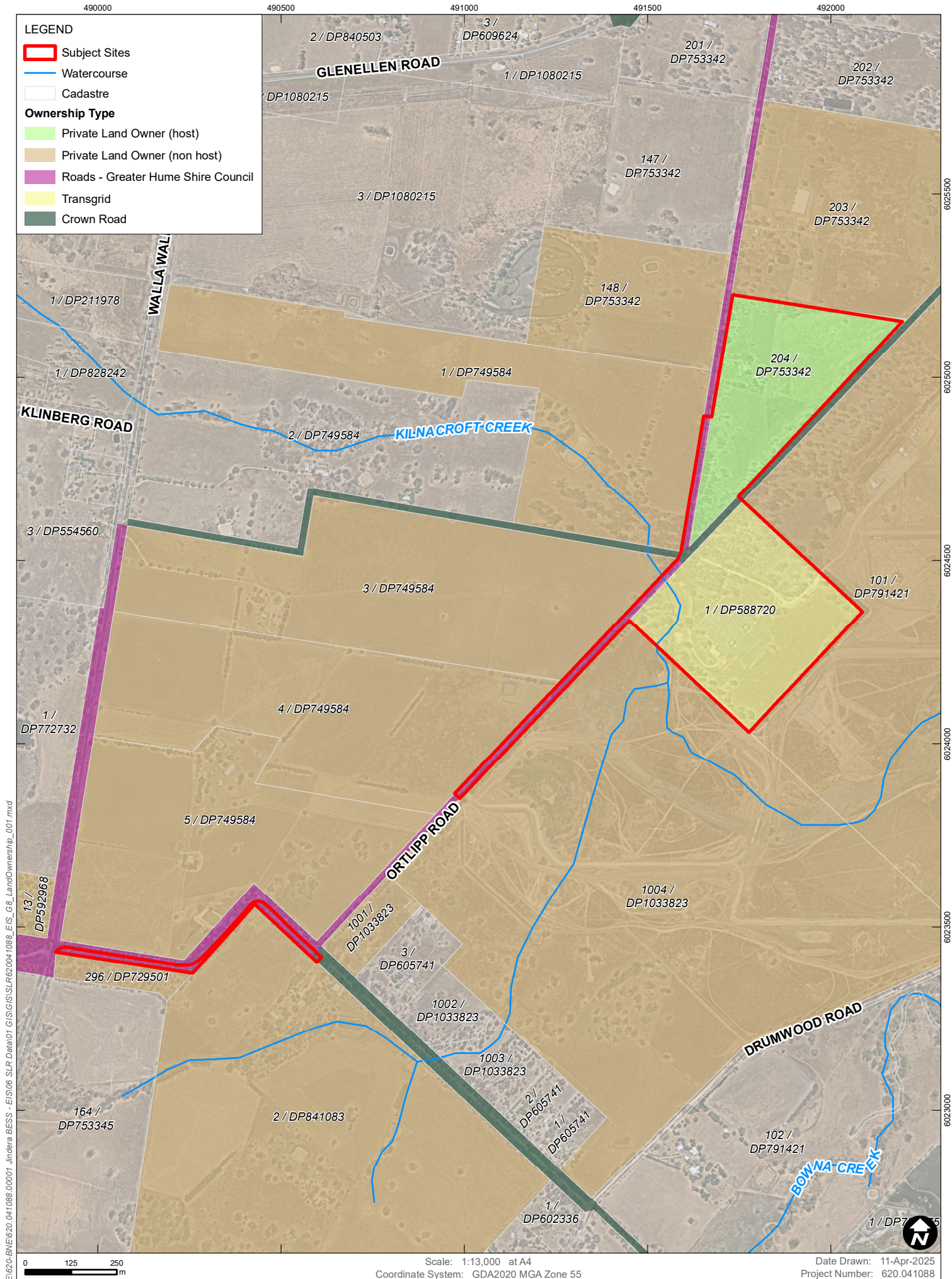
Jindera	Albury-Wodonga
- Recreational facilities including sportsgrounds (football and netball), swimming pool, and Bowling & Recreational Club. - Parks and gardens.	- Accommodation services (hotel, caravan park, motor inn). - Schools. - Seven churches. - Library. - Recreational facilities including swimming pool, bowling and golf clubs, football, tennis and netball clubs, cricket facilities, pony club, a skate park, and a walking and bike track.

Other local towns such as Gerogery, Walla Walla, Henty, and Holbrook provide limited services that include essential businesses such as, but not limited to, a supermarket, newsagency, cafes, petrol stations, and post offices.

Nearby Albury-Wodonga, as a major regional centre, offers a greater number and broader range of similar services, as well as higher order services, including hospitals and specialist medical services, accommodation, and higher education institutions.

The sensitive receivers, which comprise existing land uses that may be impacted by the Project, within a 2km radius of the Project site, are identified in Figure 6. A total of 37 sensitive receivers have been identified. Table 7 shows the closest receptors to the BESS site (within 2km of the BESS area) that are reflected in Table 7. Receiver H1 is within the BESS Site and is the project host. Land uses surrounding the Subject Sites are shown in Figure 7.





H:\Projects\SLR\620-BNE\620-BNE\620-BNE\620.041088-00001-Jindera BESS - EIS\06 SLR Data\01 GIS\GIS\SLR\620041088_EIS_G8_LandOwnership_001.mxd

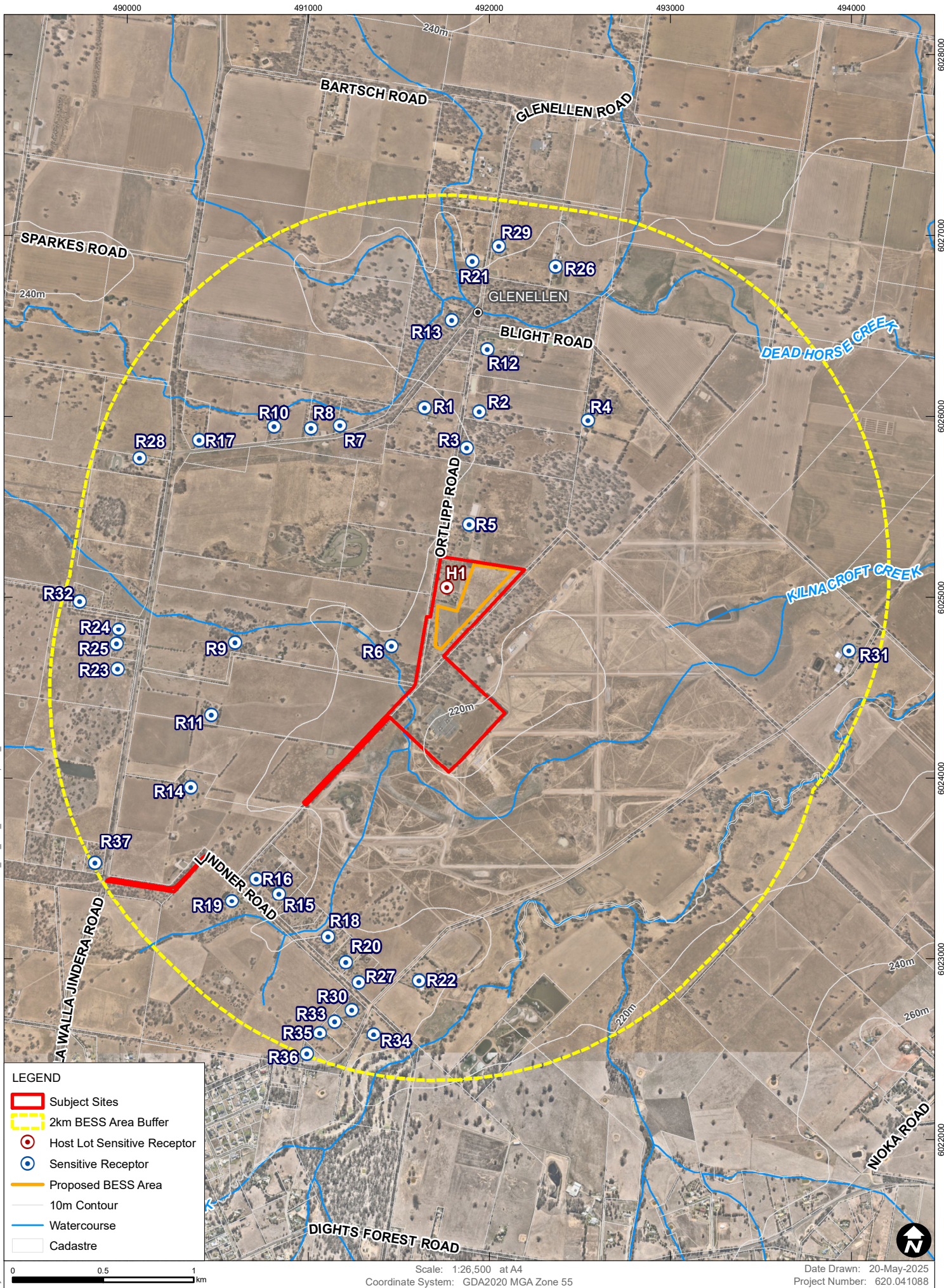


Data Source: basedata supplied by NSW SS, June 2024
Aerial imagery supplied by Nearmap, November 2024
Other data sources include Gransolar Group

Land Ownership

FIGURE 5

\\au.slrl.com\corporate\Projects-SLR\620-BNE\620-BNE\620.041088.00001_Jindera BESS - EIS\06 SLR Data\01 GIS\GIS\SLR\620041088_EIS_G11_SensitiveReceptors_004.mxd



Data Source: Basedata supplied by NSW SS, June 2024
Aerial imagery supplied by Nearmap, November 2024
Other data sources include Gransolar Group, Look up & Live (LUAL)

SENSITIVE RECEPTOR PLAN

FIGURE 6

Table 7 Closest Sensitive Receivers

Receptor ID	Address	Distance
H1	204 Ortlipp Rd, Glenellen	45m
R1	156 Glenellen Rd, Glenellen	1456m
R2	304 Ortlipp Rd, Glenellen	1479m
R3	284 Ortlipp Rd, Glenellen	1235m
R4	66 Blight Rd W, Glenellen	1658m
R5	238 Ortlipp Rd, Glenellen	751m
R6	151 Ortlipp Rd, Glenellen	330m
R7	95 Glenellen Road, Glenellen	1503m
R8	73 Glenellen Road, Glenellen	1595m
R9	1819 Walla Walla Jindera Road, Glenellen	1337m
R10	51 Glenellen Road, Glenellen	1721m
R11	1833 Walla Walla Jindera Road, Glenellen	1542m
R12	336 Ortlipp Road, Glenellen	1873m
R13	185 Glenellen Road, Glenellen	2044m
R14	1889 Walla Walla Jindera Road, Glenellen	1857m
R15	99 Lindner Road, Jindera	1898m
R16	91 Lindner Road, Jindera	1922m
R17	11 Glenellen Road, Glenellen	2002m
R18	141 Lindner Road, Jindera	2012m
R19	96 Lindner Road, Jindera	2129m
R20	159 Lindner Road, Jindera	2126m
R21	219 Glenellen Road, Glenellen	2419m
R22	234 Drumwood Road, Jindera	2126m
R23	1830 Walla Walla Jindera Road, Jindera	1665m
R24	11 Klinberg Road, Jindera	2050m
R25	1816 Walla Walla Jindera Road, Jindera	2082m
R26	208 Glenellen Road, Glenellen	2481m
R27	173 Lindner Road, Jindera	2204m
R28	1714 Walla Walla Jindera Road, Jindera	2263m
R29	232 Glenellen Road, Glenellen	2516m
R30	211 Drumwood Road, Jindera	2393m
R31	535 Drumwood Road, Jindera	2539m
R32	36 Klinberg Road, Jindera	2356m
R33	197 Drumwood Road, Jindera	2494m
R34	204 Drumwood Road, Jindera	2521m
R35	185 Drumwood Road, Jindera	1676m



Receptor ID	Address	Distance
R36	155 Drumwood Road, Jindera	2595m
R37	12 Five Chain Rd, Jindera	2500m
Note: H1 is the Project Host		

2.2.3 Electrical infrastructure

The Substation Site forms part of the larger Transgrid electricity network with NSW and is referenced as JINDERA 330/132KV TS within the network. It is located to the south of the BESS site and visual features include infrastructure components and 330 kV transmission lines that cross the site in a southwest / northeast direction.

The transmission route traverses portions of the aforementioned BESS Site and Substation Site but also traverses an unformed Crown Reserve with no land identifiers. The impacted portion of land consists of sparse trees and vegetation typical of the broader rural landscape.

There are four transmission lines which are currently connected to the Jindera Substation:

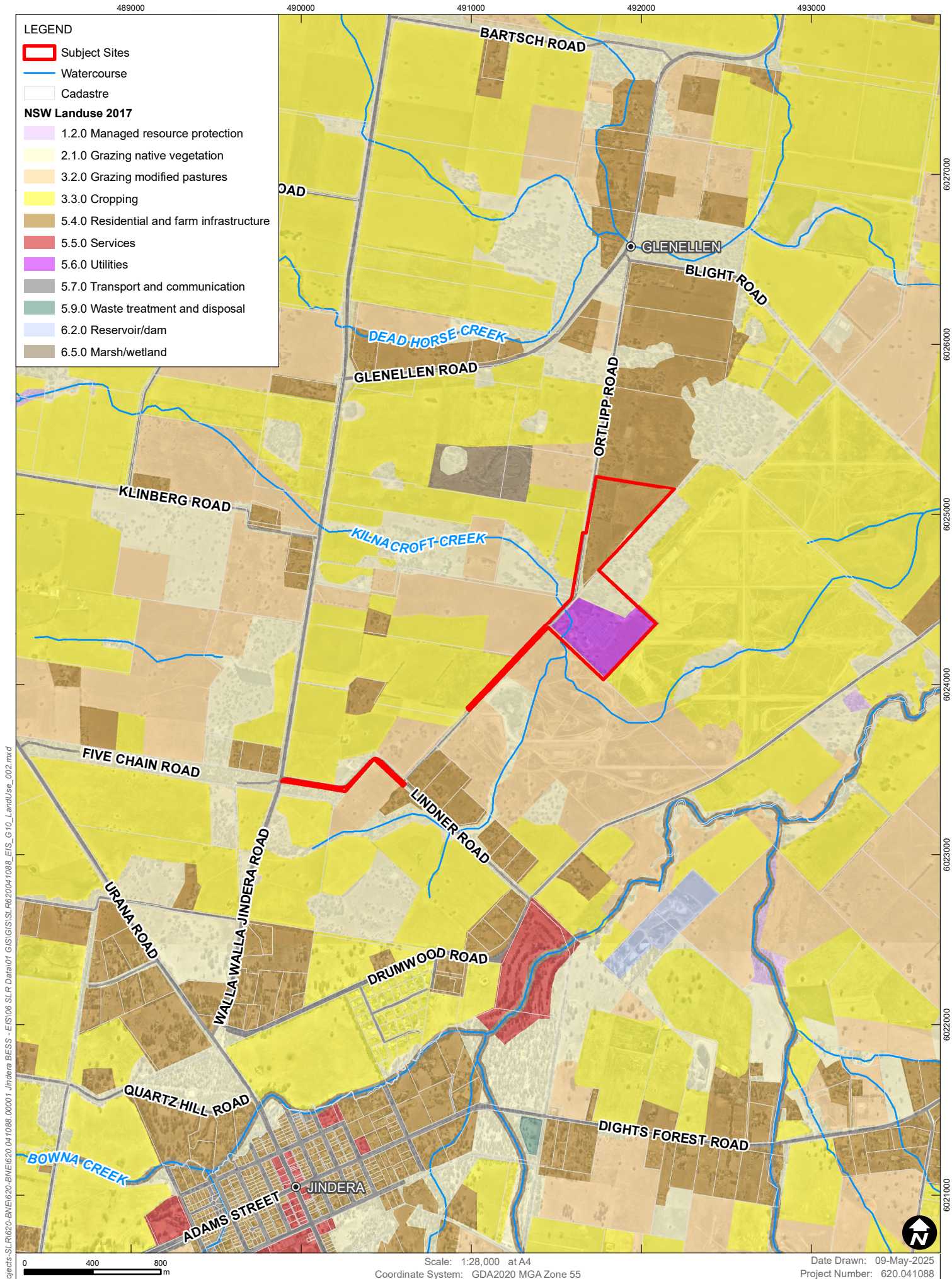
- Transgrid - 330 kV transmission lines extends northeast from the substation, facilitating connections near Culcairn and south of Wagga Wagga.
- Transgrid - 330 kV transmission lines extends west from the substation. This line changes direction west of Walla Walla Jindera Road, extending southwards to cross the New South Wales and Victoria state border.
- Transgrid - 132 kV transmission lines extend southwest from the substation, crossing Drumwood Road. These lines split north of Four Mile Creek, providing connections near Ettamogah Rail Hub in the southwest and Albury in the south.
- Essential Energy - 22 kV transmission lines extends southward, facilitating connections to low voltage lines near the intersection of Drumwood Road and Lindner Road.

2.2.4 Roads and Access

The main highway through the broader region is the Hume Highway which connects Melbourne in the southwest to Sydney in the northeast via Albury-Wodonga at the state boarder.

When approaching from the regional centre of Albury, the Subject Sites are accessed via the suburbs of North Albury and Lavington. Access to the township of Jindera is via Urana Road which is an access corridor in a northerly direction from the suburb of Lavington. Urana Road runs directly through the centre of the township of Jindera and connects to Walla Walla Jindera Road. Access to the Subject Sites is via Ortlipp Road that has to entry points via Walla Walla Jindera Road and Glenellen Road. Refer to Figure 8 for the proposed vehicle path.





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Urana Road is a Transport for New South Wales (TfNSW) Classified Road, identified as Main Road (MR) 125, which consists of a sealed roadway varying between 2 and 4 lanes. Walla Walla Jindera Road is a bitumen sealed 2 lane rural roadway. Portions of Linder Road and Ortlipp Road are unsealed but upkept rural roads with no delineated lanes.

The visual quality of the landscape surrounding these access corridors are defined by the relative low undulating terrain. The vegetation is the main vertical visual element that is concentrated on drainage lines, creeks and property boundaries and are mainly tall to medium height open canopy trees with an open to semi-open understorey. The road verges are generally vegetated with glimpses toward the surrounding landscape including significant features such as the forested hills located in Tabletop northeast of Jindera and the Subject Sites. Use and visitation of these roads varies with lesser order sealed roads having considerably higher usage than the unsealed roads such as Ortlipp Road.

Glenellen Solar Farm (SSD-9550) was approved in December 2023 and is adjacent to the Subject Sites, refer to Figure 14. As part of this approval road upgrades included an upgrade of the Urana Road & Jindera Walla-Wall Road intersection and sealing of Ortlipp Road to the Glenellen Solar Farm entrance. Site access is proposed to the BESS Site from Ortlipp Road, these are discussed further in Section 6.7.

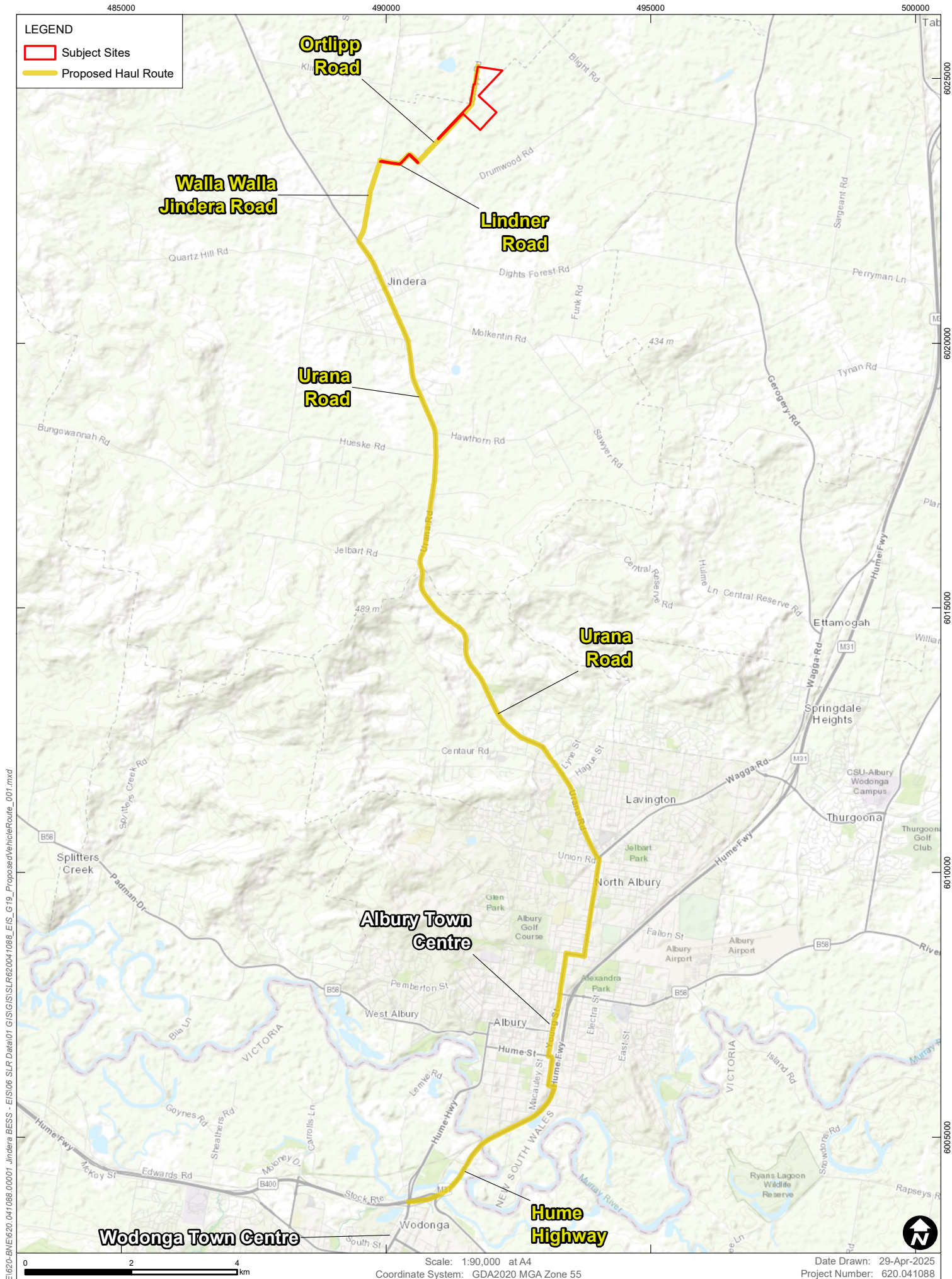
2.2.5 Aboriginal Cultural Heritage

Water features play an important role in the environmental and cultural landscape of the project area. Kilnacroft Creek originates approximately 6.5 kilometres west of the site and, despite being intermittent, holds cultural and ecological significance. Archaeological sites in the region are often located near water sources, reinforcing the historical importance of these waterways for Aboriginal habitation.

Modifications to surface water flows due to agriculture have altered drainage patterns, but the area retains key hydrological features. Following European settlement, the land has been used for farming, with infrastructure developments including the construction of the Transgrid Substation in 1987. Ortlipp Road and Lindner Road were established by 1892, and surface grading and clearing have further altered the landscape over time.

Culturally, the Subject Sites have strong significance for the local Aboriginal community. It is associated with spiritual connections to Table Top Mountain and Kilnacroft Creek, both of which are important in Wiradjuri cultural practices. An Aboriginal Heritage Information Management System (AHIMS) search of a 5km buffer identified a total of 63 Aboriginal sites and Aboriginal objects within the search area. Site types were dominated by artefact sites (84%), followed by modified trees (14%) and one potential archaeological deposit.





H:\Projects\SLR\620.04.1088\BESS - EIS\06 SLR Data\01 GIS\GIS\SLR\620.04.1088_EIS_G19_ProposedVehicleRoute_001.mxd



Data Source: Basemap supplied by ESRI and other sources
Other data sources include Gransolar Group,

**Proposed Heavy
and Light
Vehicle Route**

FIGURE 8

2.2.6 Historic Heritage

The Subject Sites are neither heritage-listed nor within a designated heritage conservation area. As detailed in Table 8, the nearest listed item is approximately 1.6km north of the Subject Sites.

Table 8 Nearby Local Heritage Items (Premises, HIA, 2025)

Item	Significance	Address	Distance
Glenellen School (former) (#I67)	Federation era weatherboard school building	185 Glenellen Road, Glenellen	Approximately 1.6 km north of the Subject Sites
“Drumwood” homestead and outbuildings (#I128)	An early homestead dating to approximately c.1890s, with moderate aesthetic value	234 Drumwood Road, Jindera	Approximately 1.8 km south of the Subject Sites
Jindera General Cemetery (#I131)	Cemetery dating to 1879	Corner Drumwood Road and Hannah Lane, Jindera	Approximately 2.5 km southwest of the Subject Sites
Police Stables (#I135)	Gabled weatherboard stables, built in 1896 which were later used as accommodation for the police force	98 Creek Street, Jindera	Approximately 3.8 km southwest of the Subject Sites
Jindera School of Arts (#I132)	Moderately intact, 1900s community building	109 Urana Street, Jindera	Approximately 4.1 km southwest of the Subject Sites
St Paul’s Anglican Church (#I138)	A gothic style church constructed in 1881, being the second Anglican Church to be built in Jindera	102-112 Urana Street, Jindera	Approximately 4.2 km southwest of the Subject Sites
Blacksmith shop (#I126)	The first Blacksmith and Wheelwright shop, constructed in 1872	115 Urana Street, Jindera	Approximately 4.2 km southwest of the Subject Sites
Pioneer Museum (Wagners Store) and outbuildings (#I133)	The first store opened in Jindera, and includes a slab hut, daub cottage and residence	114 - 16 Urana Street, Jindera	Approximately 4.3 km southwest of the Subject Sites
Big Gum Swamp (#I66)	A swamp area with large gum trees, which has now been drained, cleared and cropped	410 Bethel Road, Burrumbuttock	Approximately 4.2 km southwest of the Subject Sites
St John’s Lutheran Church (#I137)	Early Lutheran Church with a cemetery dating as early as 1868	148-150 Adams Steet, Jindera	Approximately 4.5 km southwest of the Subject Sites
Bethlehem Lutheran Cemetery (#I127)	Spiritual significance to the community, showcasing early German settlement in Jindera	Pioneer Drive, Jindera	Approximately 5 km southwest of the Subject Sites

One Archaeological Sites has been identified in the GHSC LGA, listed as Hawthorn Cottage (ruin) (Item #A3), located on Hawthorn Road, approximately 6km south of the Subject Sites.

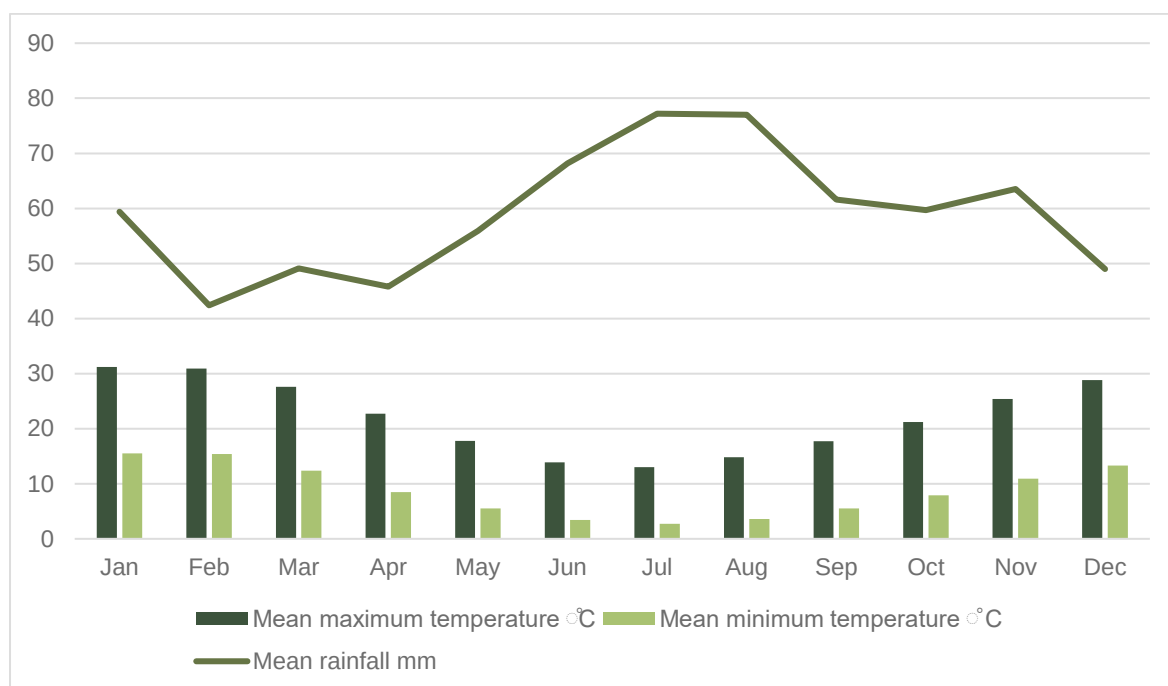


2.3 Environmental Context

2.3.1 Climate

The Greater Hume LGA is located within the NSW Southwestern Slopes Bioregion, specifically in the Lower Slopes subregion. This bioregion features a sub-humid climate characterized by hot summers and cool, wet winters (Office of Environment and Heritage (OEH), 2016). According to temperature data from the Bureau of Meteorology (BOM, 2007) at Albury Airport (station no. 072160), the mean maximum temperature in summer is 31.2 °C (January), while the mean minimum temperature in winter is 2.7 °C (July) Figure 9. Rainfall records from the same station indicate an average annual rainfall 710.4mm, with the highest rainfall typically occurring in winter and spring. August records the highest average monthly rainfall at 77.3mm (BOM, 2024).

Figure 9 BOM Statistics - Albury Airport (Source: BOM)



2.3.2 Air Quality

Given the rural character and setting of the Subject Sites, air quality in the locality is expected to be consistent with other rural environments across NSW. Existing sources of air pollution are expected to include emissions from vehicles and dust from agricultural operations.

Background air pollution at the broader Subject Sites have been characterised through ambient monitoring completed across air quality monitoring stations within the NSW Air Quality Monitoring Network (AQMN) by DPHI ([Data download facility | Air Quality NSW](#)) The sites most proximate AQMN station is located in Albury, the pollutants retrieved from the Albury monitoring station include the following:

- Fine particles less than 2.5 micrometres in diameter (Particulate matter (PM)_{2.5}); and
- Fine particles less than 10 micrometres in diameter (PM₁₀).

The results from data retrieved for PM_{2.5} and PM₁₀ in six monthly intervals between January 2023 and November 2024 are summarised below in Table 9 below.



Table 9 Albury Monitoring Station Air Quality Data

Pollutant	Average Period	Concentration (µg/m³)			
		March 2023	September 2023	March 2024	September 2024
PM _{2.5}	Monthly average maximum	8.2	11.3	21.5	12.9
PM ₁₀	Monthly average Maximum	32.4	23.3	44.4	29.9

The results of the fine particles from the Albury monitoring site indicate ‘good’ air quality.

The air quality in the surrounds of the Project is influenced by the agricultural land uses within the LGA. A search was conducted of the Australian Government DCCEE National Pollutant Inventory (NPI) on 21 November 2024 which identified 9 registered facilities within the Bathurst LGA, with the closest 3 to the broader Project site identified as follows:

- Albury Galvanizing Pty Ltd, Jindera
- APT Management Services Pty Ltd, Culcairn
- Boral CSR Bricks Pty Ltd, Jindera
- Boral Resources (Country) Pty Ltd, Culcairn
- Rivalea (Australia) Pty Ltd, Bungowannah

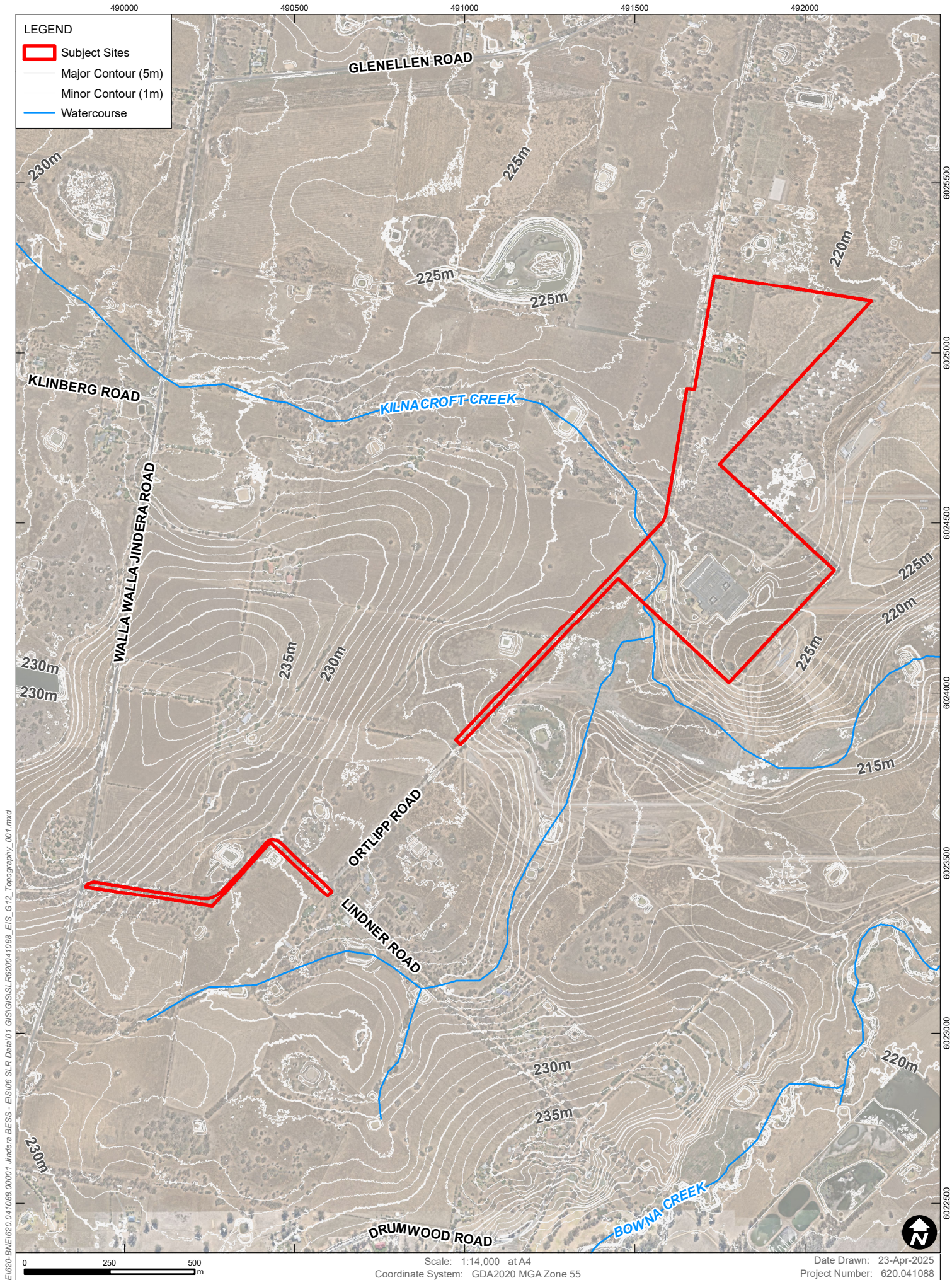
The air quality at the Subject Sites is anticipated to be generally good, reflecting the typical conditions of a rural area in New South Wales. Current sources of air pollution in the area include:

- Emissions from vehicles, particularly during construction.
- Dust generated by nearby unsealed roads.
- General agricultural activities.

2.3.3 Topography

The development area is positioned at a 220m Australian Height Datum (AHD) as a low point and is considered to be generally flat. The sites high point of 225m AHD and a low point of 220m AHD providing a general slope of 1.04% across the site, refer to Figure 10.





H:\Projects\SLR\620-BNE\620.041088_0001_Jindera BESS - EIS\06 SLR Data\01 GIS\GIS\SLR\620041088_EIS_G12_Topography_001.mxd



Data Source: basedata supplied by NSW SS, June 2024
 Aerial imagery supplied by Nearmap, November 2024
 Elevation data sourced DFSI-SS (LiDAR 2013 and 2020)
 Other data sources include Gransolar Group, Look up & Live (LUAL)

Site Topography

FIGURE 10

2.3.4 Surface water

Waterbodies that occur within a local context include small artificial dams that are scattered within private land allotments. Surrounding and within the Subject Sites are 3 creeks that traverse the landscape with water flowing in a west to east direction toward Lake Hume. These creeks include Dead Horse Creek (north of the Subject Sites), Kilnacraft Creek (just south of the site and adjacent the substation) and Bowna Creek greater south running through the township of Jindera and the Jindera Golf Course. Generally, all creeks are obscured from sight by dense corridors of adjoining riparian vegetation and tall canopy trees.

Kilnacraft Creek is an ephemeral third order stream that crosses the southwest corner of the Substation Site and is an ephemeral tributary of Bowna Creek. The BESS Site is located approximately 50m northeast of Kilnacraft Creek. Kilnacraft Creek is an ephemeral branch of the Bowna Creek that passes through the township of Jindera. The Kilnacraft Creek at the project location therefore has a Strahler Stream Order 3 depending on the reference location, refer to Figure 11.

A farm dam is located within the BESS Site, however is not located within the project footprint or disturbance area. Farm dams are present within the broader rural area with the majority being isolated from direct connection to a watercourse however a small number form part of Kilnacraft Creek or associated tributaries.

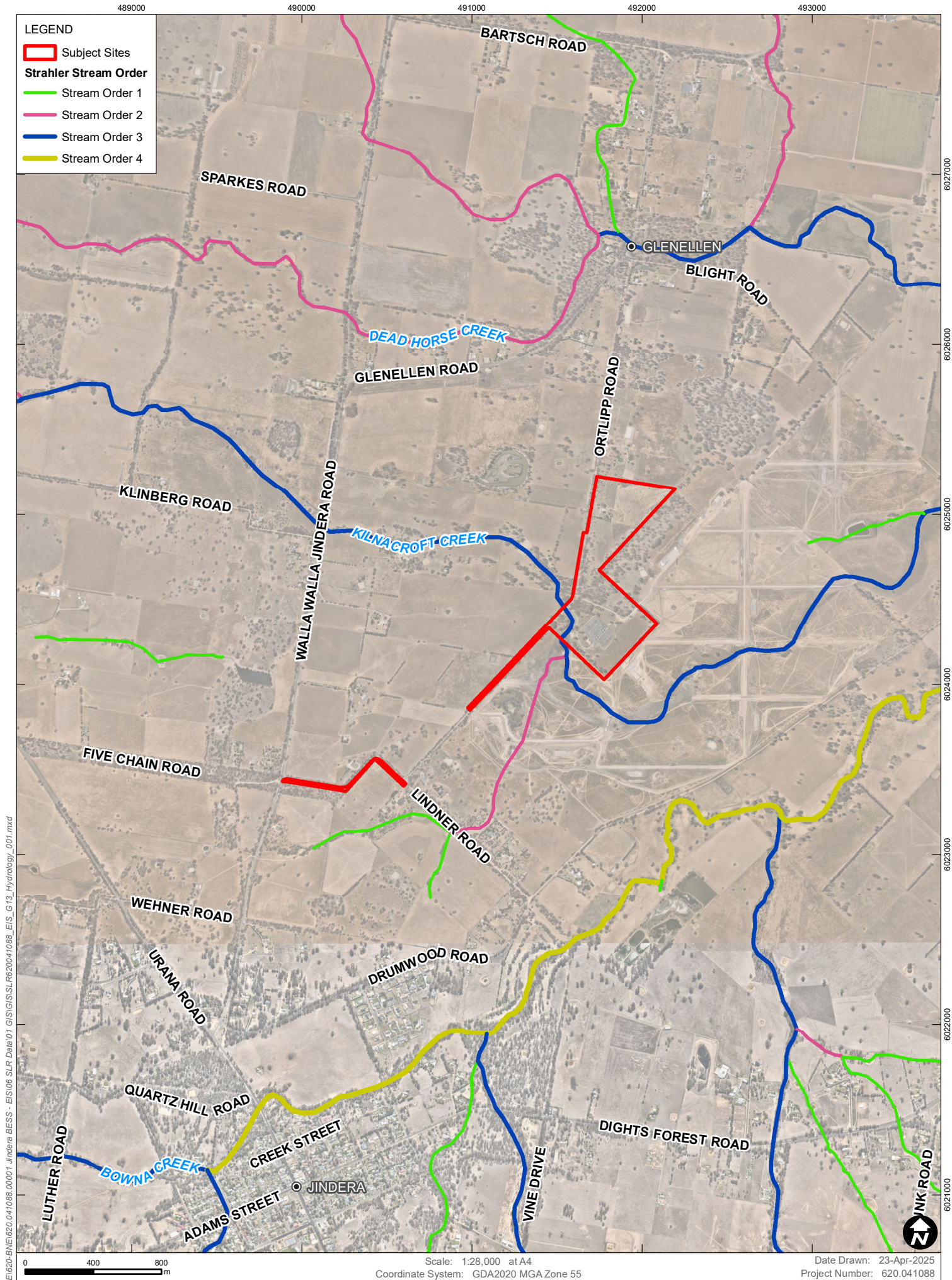
According to the NSW Land Use 2017 mapping, there are no reservoirs within the Subject Sites or immediate area. The nearest identified reservoir is approximately 2km south of the Subject Sites, comprising four reservoirs covering approximately 2ha. Wetlands (non-coastal) are identified in proximity of the Subjects Sites. This area includes a pond and a drainage channel covering about 4.7ha, situated to the west of the development site within Lot 148 DP753342. The Murray River is located approximately 8km south of the development site at its nearest point.

A desktop review identified two potential flood sources at the Subject Sites, being overland sheetflow from the local catchment, and flows from a larger catchment to the west feeding the ephemeral Kilnacraft Creek. An existing Jindera Flood Study (GHD, 2017), commissioned by Council, assessed flood risk through the township and Four Mile Creek. However, its hydraulic modelling was limited to Drumwood Road, near the local catchment high point, and did not extend to the BESS site or the adjacent northern catchment. The closest modelled results lie approximately 1km south of the proposed development area. No existing flood risk data was identified for Kilnacraft Creek or the immediate vicinity of the site.

The indicative Key Fish Habitat (KFH) map provided by NSW Department of Primary Industries (DPI) within the vicinity of the Subject Sites indicates that Kilnacraft Creek is considered KFH, refer to Figure 12. Based on the observations taken during the field inspection and the description of KFH classification the sensitivity of aquatic habitat within Kilnacraft Creek could be considered Type 3 – Minimally sensitive KFH. The aquatic habitat of Kilnacraft Creek within the Study Area was considered mostly ephemeral and did not support native aquatic or wetland vegetation.

Council have identified the site as being within a drinking water catchment.





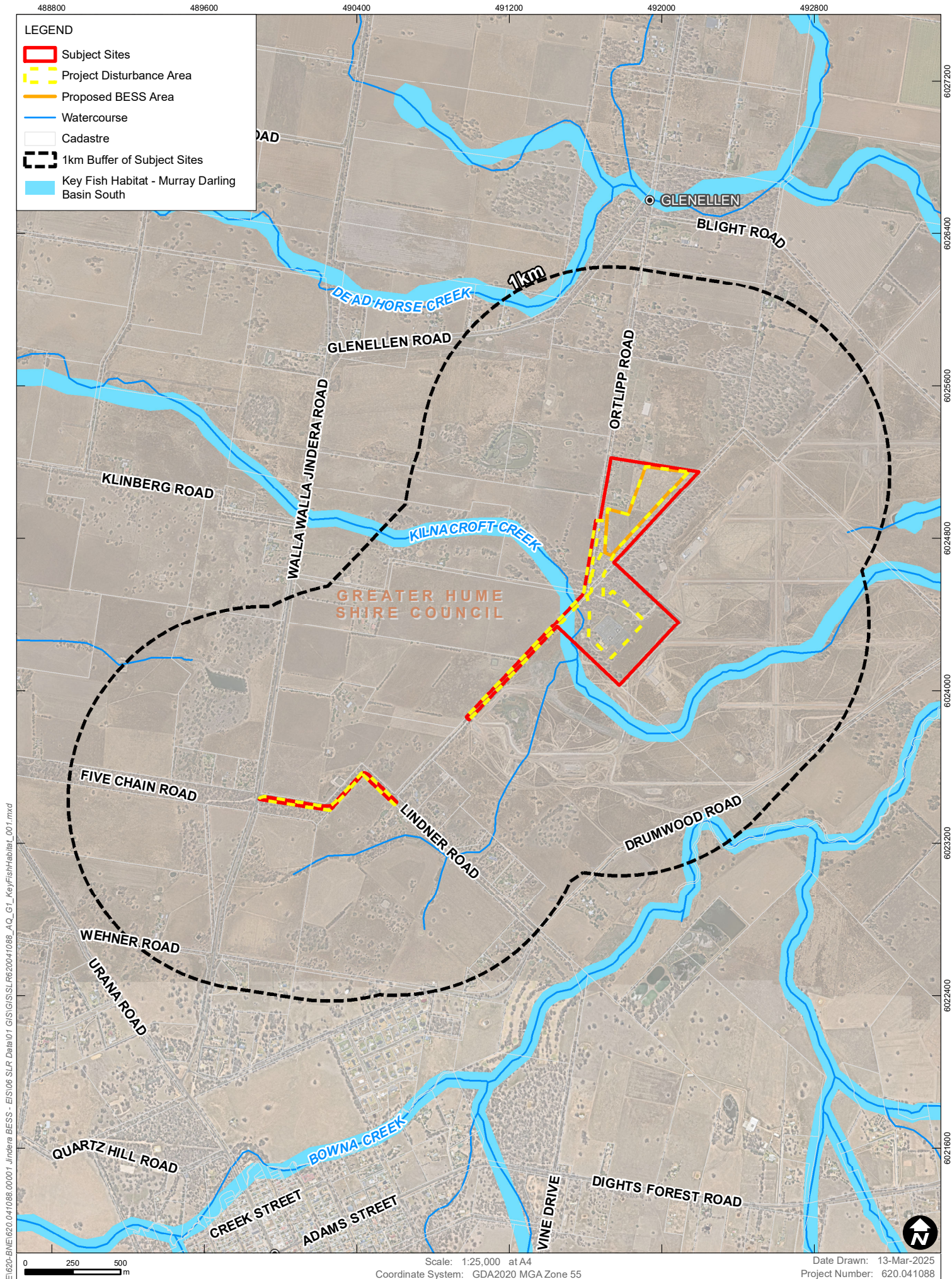
H:\Projects\SLR\620-BNE\620-BNE\020_041088_00001_Jindera BESS - EIS\06 SLR Data\01 GIS\GIS\SLR\620_041088_EIS_G13_Hydrology_001.mxd



Data Source: basedata supplied by NSW SS, June 2024
 Aerial imagery supplied by Nearmap, November 2024
 NSW Strahler Stream Order DPI 2022
 Other data sources include Gransolar Group

Site Hydrology

FIGURE 11



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2.3.5 Groundwater

The Subject Sites lie within the Lachlan Fold Belt (LFB), underlain by Jindera Granite (medium- to coarse-grained biotite granite) and surface colluvium consisting of polymictic conglomerate with a coarse sand matrix. Alluvial deposits from Four Mile Creek lie to the south-southeast, and residual Cenozoic deposits occur to the north, southeast, and west. Soils include Red Brown Earths in the north and Solodized Solonetz in the south.

Situated within the LFB Sustainable Diversion Limit unit of the Murray–Darling Basin, the site hosts unconfined, local aquifers in saprolite, fractured granite, and colluvial sediments. Groundwater extraction in this region is typically limited. No bores exist on-site, but data from nearby bores indicate clay-rich profiles overlying water-bearing zones, with granite encountered at 95 m below ground level (BGL) in one bore.

Groundwater salinity is generally low (fresh), with values below 800 micro Siemens/centimeter ($\mu\text{S}/\text{cm}$) likely in the Jindera Granite, although data is limited. One bore approximately 5km east recorded brackish groundwater (2,500mg/L Total Dissolved Solids), while another northeast bore recorded fresh water, though in a different geological unit.

Groundwater levels in the area are intermediate to deep, with limited and outdated monitoring data. Recorded levels range from 21.9 mBGL to 54.8 mBGL, with no continuous datasets available. While groundwater flow direction is unknown, it is likely topographically controlled based on regional conditions.

According to the Groundwater Dependent Ecosystems (GDE) atlas, no terrestrial or subterranean GDEs are located near the Subject Sites. The GDE atlas identified several aquatic GDEs located within 5km of the Subject Site, the largest being Big Gum Swamp. Given the depth to groundwater recorded in nearby groundwater bores, it is likely these features are evidence of localised perched water tables or rainfall fed wetlands with clay (or organic matter) barriers restricting groundwater infiltration.

2.3.6 Geology and Soils

The subject land is located within the South Western Slopes Australian Bioregion (IBRA) region and Lower Slopes IBRA subregion. The *Reconnaissance Soil and Land Resources of the Murray Catchment* (DCCEEW 2024a) maps the soil landscapes of subject land as Kindra in the north (the rural lot) and Yarra Yarra in the south (the substation lot and a small portion of the southern tip of the rural lot).

The Kindra soil landscapes are generally composed of broad gently sloping plains formed on colluvium below metasedimentary hills, with slopes of 1-3% and local relief <5m. The geology is quaternary slopewash derived from Ordovician metasediments. Parent materials consist of gravel, sand, silt and clay colluvial deposits. Soils are red chromosols (red-brown earths), red dermosols (brown podzolic soils and non-calcic brown soils), and red kurosols (red podzolic soils).

The Yarra Yarra soil landscapes are characterised by gently inclined footslopes and fans on granite-derived colluvium, with Slopes 2-8%, and local relief 10-30m. The geology is quaternary colluvium derived from the adjacent Jindera Granite, with some scattered outcrop. Soils on upper and midslopes are very deep (>1.5m), imperfectly to moderately well-drained red, brown and yellow chromosols (podzolic soils). Soils on lower slopes are typically deep (1.0-1.5m), imperfectly drained brown and grey sodosols and kurosols (soloths and solodized solonetz soils). Fans contain very deep (1.5-5.0m), well-drained orthicthenosols (earthy sands).

The site has been classified as Class 4 – Moderate capability land under the NSW Land and Soil Capability Assessment Scheme (OEH, 2012), with Brown Chromosols identified as the



dominant soil type (Isbell, 2002). Although the soils are moderately capable, the land has not been used for agriculture in the past five years.

Soil analysis indicates low to moderate fertility, with key limitations including wind erosion, soil structure decline, and susceptibility to acidification due to fragile silty topsoils.

The Subject Sites are not identified as being steep slope, landslip, or mine subsidence.

2.3.7 Contamination

A review of the NSW Environment Protection Authority (EPA) Contaminated Land Record and the List of Notified Contaminated Sites (as of 9 December 2024) was undertaken on 24 March 2025. No contaminated sites were identified within the Greater Hume Shire Council (GHSC) local government area. The nearest listed site is a former Caltex service station located approximately 19 km south of the proposed development, at 842 David Street, Albury.

Based on this review, there are no known contaminated sites on or near the Subject Sites, and it is considered unlikely to be contaminated due to its significant distance from any registered sites.

There is a risk of contamination from historical agricultural activities that could be present within the Subject Sites. However, the risk is considered low and no evidence of contamination was observed during the site assessments.

2.3.8 Biodiversity

The subject land lies within the NSW South Western Slopes Interim Biogeographic Regionalisation for Australia (IBRA) Region on the lower inland slopes of the Great Dividing Range. This region occupies 10% of NSW and extends from north of Cowra through southern NSW into western Victoria (National Parks and Wildlife Service (NPWS), 2003). The region is dominated by sub-humid climate characterised by hot summers with no dry season.

The subject land lies wholly within the Lower Slopes IBRA Subregion. This subregion is characterised by Ordovician to Devonian folded and faulted sedimentary sequences with inter-bedded volcanic rocks and large areas of intrusive granites, as well as large areas of Tertiary and Quaternary alluvium. Soils are shallow stony soils on steep slopes, texture contrast soils grading from red subsoils on upper slopes to yellow subsoils on lower slopes. Alluvial sands, loams and clays, with extensive red-brown earths on undulating plains and more extensive grey clays on alluvium.

According to NPWS (2003), the vegetation is typically composed of Dwyer's Gum on granite, Red Ironbark on sedimentary rocks, Hill Red Gum/White Cypress Pine/Red Stringybark in the ranges, Grey Box/Yellow Box/White Cypress Pine/Belah on lower areas, Poplar Box/Kurrajong/Wilga/Red Box in the north, Mallee in the central west, Myall/Rosewood/Yarran on grey clays, Yellow Box/Polar Box/Belah on alluvial loams and River Red Gum or Black Box along streams.

Native vegetation cover for the assessment area has been mapped using regional vegetation mapping (NSW DCCEEW, 2022) and review of aerial imagery (Nearmap 2024).

Table 10 summarises the extent of native vegetation cover within the assessment area.



Table 10 Native Vegetation Cover in the Assessment Area (SLR, BDAR, 2025)

Area	No.
Assessment area (ha)	1,227
Total area of native vegetation cover (ha)	377
Percentage of native vegetation cover (%)	31
Class (0-10, >10-30, >30-70 or >70%)	>30-70

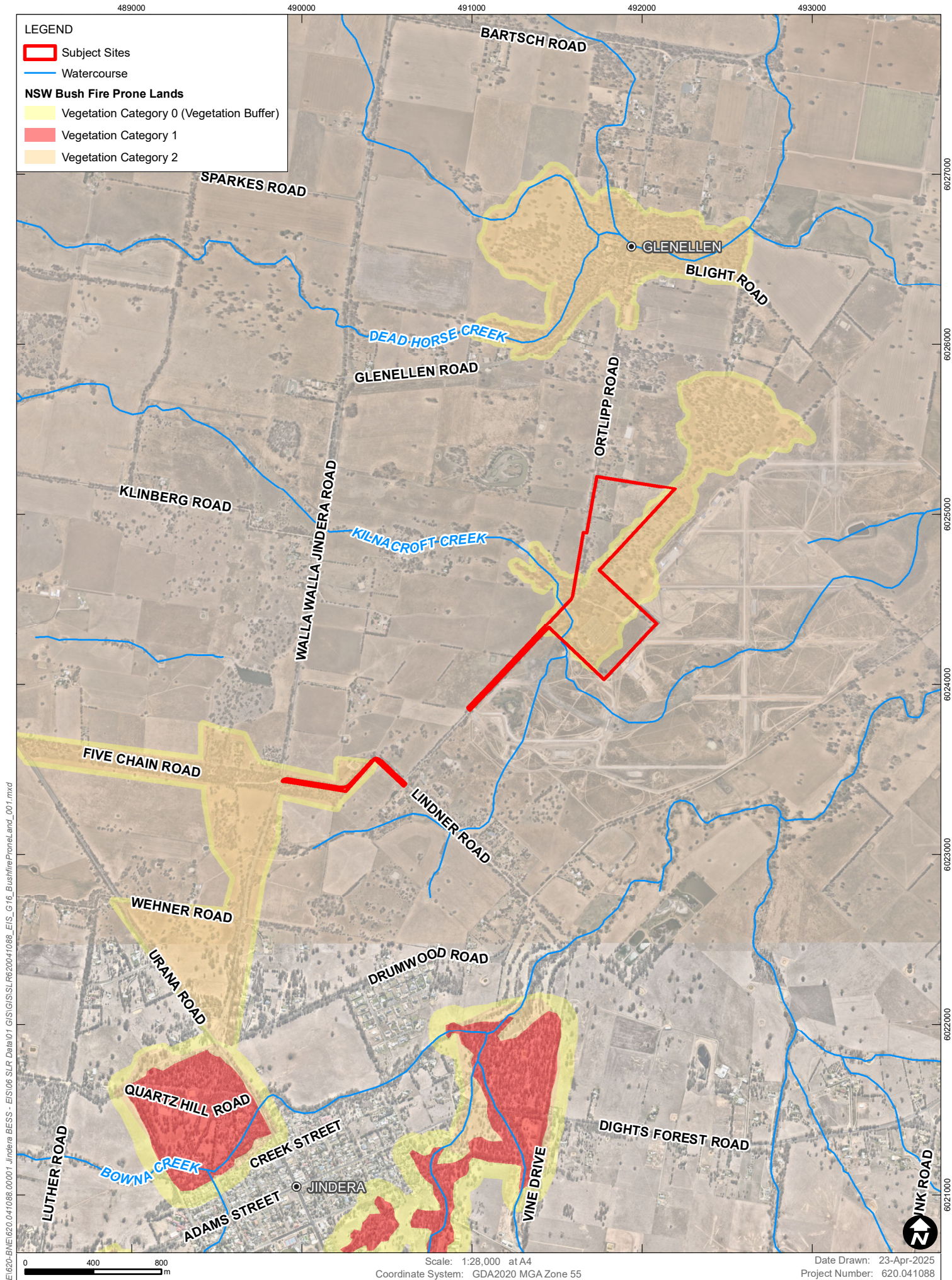
The Subject Sites and assessment area do not contain any karst, caves, crevices, cliffs, rocks and areas of geological significance. This has been determined through examining karst, cave, cliff and geological mapping available on the SEED portal (NSW DCCEE 2024d), as well as review of lidar data and aerial imagery to detect potential cliff lines and rocky areas.

There are no areas of outstanding biodiversity value, as identified under the *Biodiversity Conservation Act 2016* (BC Act), within the Subject Sites or assessment area.

2.3.9 Bushfire Hazard

The RFS Bushfire Prone Land mapping identifies the Subject Sites as bushfire prone land. The BESS site is largely void of being mapped as bushfire prone land, with the exception of the southeastern boundary. This area contains Vegetation Category 2 and Vegetation Buffer. The Substation Site is predominately mapped as being of a Vegetation Category 2, with a Vegetation Buffer on its outskirts, refer to Figure 13.





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Data Source: basedata supplied by NSW SS, June 2024
Aerial imagery supplied by Nearmap, November 2024
NSW Bush Fire Prone Land, NSW Rural Fire Service, 2025
Other data sources include Gransolar Group

Bushfire Prone Land

FIGURE 13

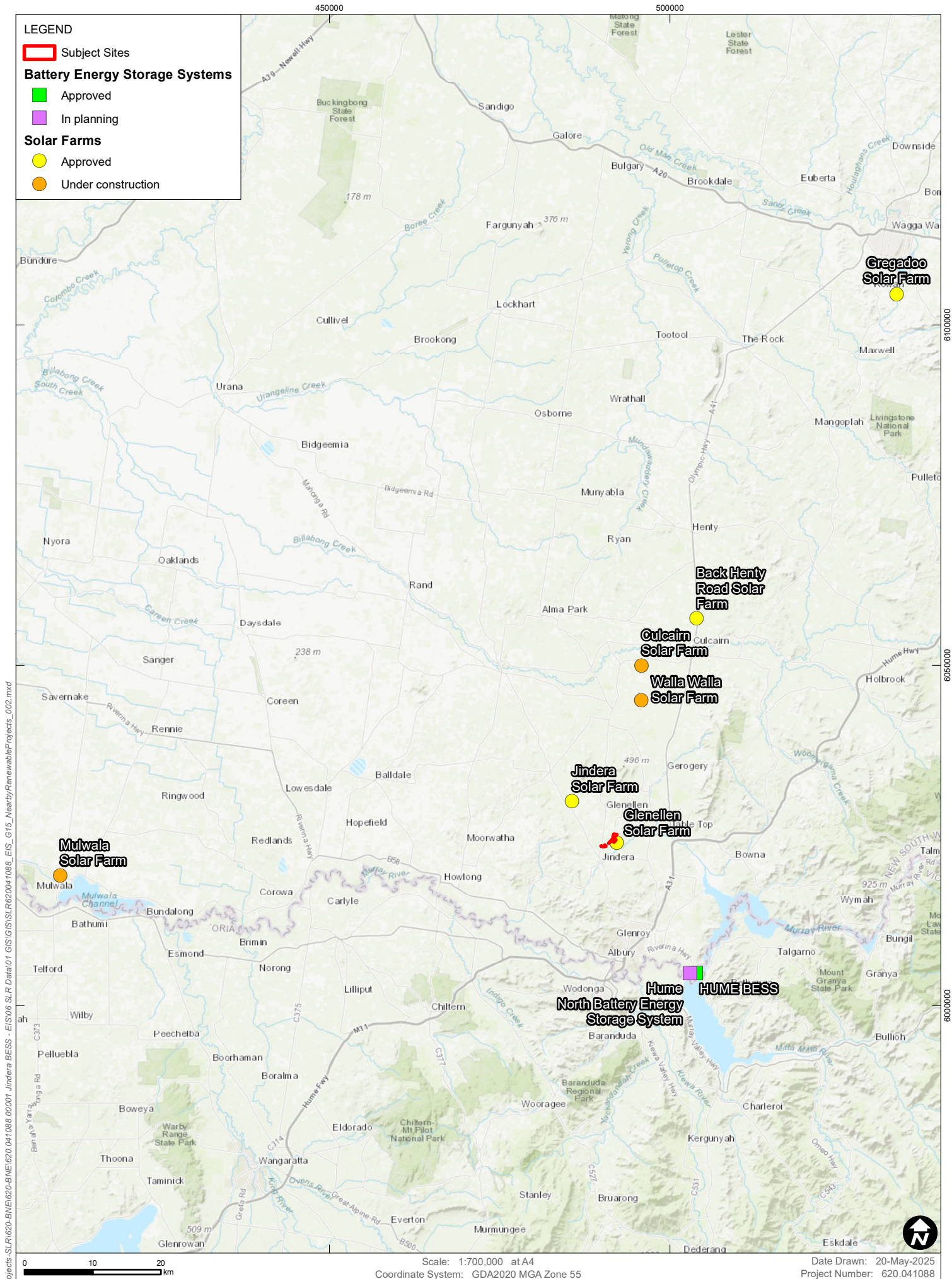
2.4 Potential for Cumulative Impacts

There are a number of projects within the Greater Hume LGA that have the potential to result in cumulative impacts during the construction period. Table 11 summarises projects identified across the Major Projects website and the Council DA tracker that are in proximity to the Subject Sites. See Figure 14 for a map of the Subject Sites with respect to these surrounding significant projects. Cumulative impacts are discussed further in Chapter 6, Section 6.15.

Table 11 Significant Renewable Projects in the Greater Hume LGA and Surrounds

Project	Capacity	Status	Approx. distance to the Project	Potential CIA
Glenellen Solar Farm SSD-9550	200MW	Approved (construction commenced)	300m	Potential
Jindera Solar Farm SSD-9549	120MW	Approved	1.5km	Potential
Walla Walla Solar Farm SSD-9874	300MW	Approved	18.7km	Unlikely
Hume Battery Energy Storage System SSD-10460	20MW/40MWh BESS	Approved	23.2km	Unlikely
Culcairn Solar Farm SSD-10288	Solar Farm - 400 MW BESS 200 MWh	Approved	24.9km	Unlikely
Back Henty Road Solar Farm PPSSTH-98	5MW	Approved (Planning Panel)	33.5km	Unlikely
Mulwala Solar Farm SS-9039	80MW	Approved	82.8km	Unlikely
Gregadoo Solar Farm SSD-8825 Mod 2	45MW	Approved	90.5km	Unlikely
Hume North Battery Energy Storage System SSD-61842974	75MW	Response to Submissions Stage	22.5km	Unlikely





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Data Source: basedata supplied by NSW SS, June 2024
 Imagery supplied by ESRI and other sources
 Other data sources include Gransolar Group

Nearby Renewable Energy Projects

FIGURE 14

2.5 Agreements

A Voluntary Planning Agreement (VPA) will be put into place with the proponent and Council for monetary contributions at the commencement and during the operational stage of the Project. Ongoing discussion have been had between the applicant and Council regarding the VPA over the course of the project approvals stage.

The VPA is proposed to be based on *Benefit Sharing Guideline – for large-scale renewable energy projects* (DPHI, November 2024).

2.6 Project Alternatives

2.6.1 Alternative Sites

In general terms, BESS facilities require large areas of land located adjacent to, or in close vicinity to, an existing substation facility. These characteristics are generally consistent with rural land. As a consequence, there are limited number of suitable locations for such proposals. Other site-specific constraints such as topography, existing use(s) and vehicular access can further reduce the viability of potentially suitable alternative sites for BESS facilities.

Several sites were considered during the site selection process for the Project, with regard made to the following:

- Appropriate zoning of land to facilitate development consent for a BESS.
- Availability of access to the BESS Site via roads capable of allowing truck access.
- Proximity to the existing Transgrid substation to minimise impacts of easements.
- Selection of a construction location that would avoid and/or minimise impacts to high quality native vegetation and protected fauna.
- Co-location with approved solar farms ('Glenellen Solar Farm' and 'Jindera Solar Farm').
- An area that would not result in, or be subject to, potential flood impacts.
- Minimising impacts to surrounding private or public owned land and residential dwellings due to noise and visual amenity concerns.
- Due diligence assessment on risk items, such as soils, hydrology, ecology, that through further assessment have concluded the site is suitable for the BESS use.

2.6.2 Site Considerations

During specialist investigations completed during the Scoping and EIS process, additional design and siting consideration was given to the BESS facility to limit the removal of native vegetation within the broader Project area, and to ensure vegetation within the proposed construction impact boundary of the Project contained minimal native vegetation. The proposed layout and location of the Project has been amended through the design process to reduce impacts to biodiversity values.

In this regard, the original concept layout included placement of the proposed BESS partly within an existing patch of native vegetation. The proposed location of the BESS compound was moved north to avoid the patch of native vegetation, thereby avoiding any direct impacts on native vegetation (and on biodiversity values in general).

Throughout the preparation of the SSD, an amendment to the proposed water source was made, to rather extend the reticulated water supply, in lieu of bringing water to site to fill water tanks.



A number of items were raised by the community during the community engagement processes for the project. As part of this, specific consideration has been given to these items with management measures implemented where necessary. An example is the implementation of vegetation screening and material colouring to improve visual outcomes. A comprehensive list of proposed mitigation measures are provided at Appendix E.

2.6.3 Transmission Line Routes

Detailed review of potential TL routes was undertaken through the planning phase, to ensure any impacts are minimised. In addition to the TL route option selected, a potential TL route was identified along the Ortlipp Road reserve.

Both proposed transmission line route options were estimated to require a similar amount of vegetation removal to accommodate the construction of the transmission line. Although using the Ortlipp Road reserve required slightly less vegetation removal, it would require the removal of a larger number of mature trees than the preferred option.

The TL and easement were also moved further east to avoid the road easement and lessen the required length for the connection.

The habitat trees within proximity to the preferred TL route are also expected to be avoided by careful alignment of the route. Where habitat trees cannot be avoided compensatory nest boxes are proposed.

2.6.4 Do Nothing

A 'do-nothing' approach would involve not constructing and operating the BESS at the Subject Sites. This approach will not support the State and National Government's plans, policies, and strategies identified in Section 2.1, to improve energy affordability, invest in new power sources and grid network infrastructure, and ensure new technologies deliver benefits for customers and work towards Australia's emission reduction targets.

The 'do nothing' option may also avoid potential environmental impacts associated with the construction of the Project; however, it is considered that the benefits of the Project, ensuring appropriate mitigation and management measures are implemented during construction and decommissioning, would significantly outweigh any potential environmental impacts whilst contributing to ecologically sustainable development (ESD).





03 Project Description

Battery Energy Storage System - Jindera

FOR: BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00001

Revision: 1.5



3.0 Project Description

This chapter provides a detailed summary of the proposal.

3.1 Project Overview

The Jindera BESS, 'the Project' involves the development, construction, operation, and eventual decommissioning of a BESS with a capacity of 250 MW/MWh connecting via overhead TL to the existing JINDERA 330/132 kV TS, operated by Transgrid.

Jindera BESS will consist of BESS containers (or enclosures), with each container having dimensions of 6m with an approximate weight of 35,000kg. The BESS will be supported by inverters from the BESS and connect to the existing Transgrid substation via approximately 500m of 330 kV overhead lines.

The key elements of the Project include the following and are shown in Table 12, Figure 15, and Figure 16.

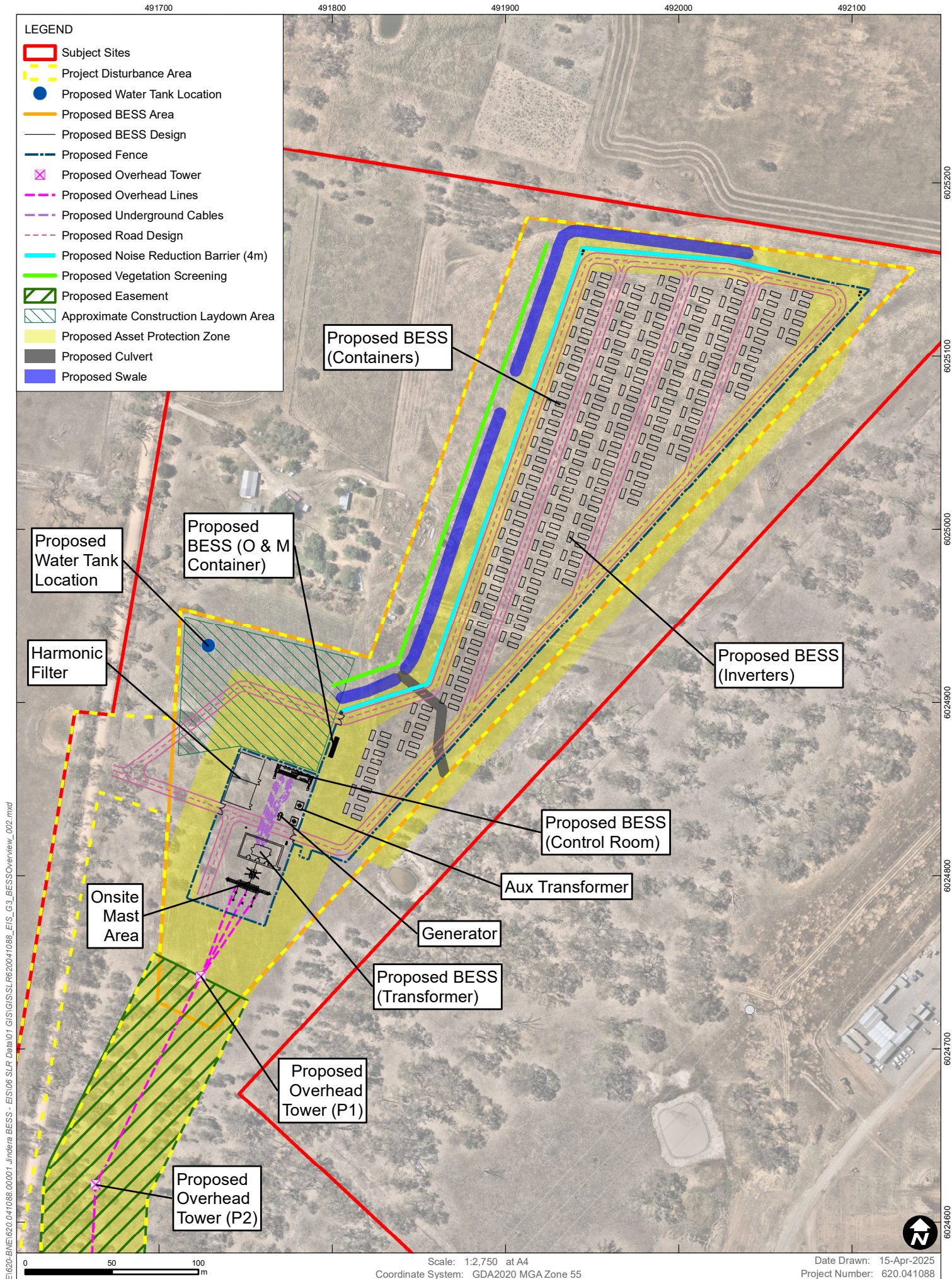
Table 12 Project Overview

Project Element	Description
BESS Works and Substation Connection	The Project will involve the following components: • Installation and operation of a BESS including 200 battery enclosures, 100 inverters, and transformers on hardstand with subsurface wiring, and benching of the site to level the foundation for each component. • Construction of hardstand, paved internal roads, control room and switch gear, auxiliary transformer, battery enclosures, and inverter and transformer stations. • Construction of overhead 330 kV TL to facilitate connection to the existing JINDERA 330/132 kV TS and associated high voltage steel poles. • Minor earthworks to level the BESS Site to an approximate level of RL 221.2. • Pad extension to the existing Transgrid substation. • Acoustic attenuation including a 4m acoustic barrier along the west BESS boundary and a portion of the northern boundary. • Construction of ancillary works: water tank, storage structures, stormwater management infrastructure and security lighting and fencing. • Vegetative screening. • Site establishment works including vegetation clearing within the BESS boundary and TL footprint, bulk earthworks, and a temporary construction compound. • Transport of construction personnel associated heavy and light vehicles, and materials to and from the Subject Sites on a day-to-day basis, dependent on the construction schedule. • Removal of temporary construction facilities, and rehabilitation of disturbed areas following completion of construction of the Project.
Site Access	Access to the BESS site will be from Ortlipp Road via a new driveway crossing. An internal access road will accommodate heavy vehicles associated with the construction of the BESS.
Road Works	Road works will be undertaken, including the new driveway crossing at Ortlipp Road. Sealing of a portion of Ortlipp Road is also proposed,

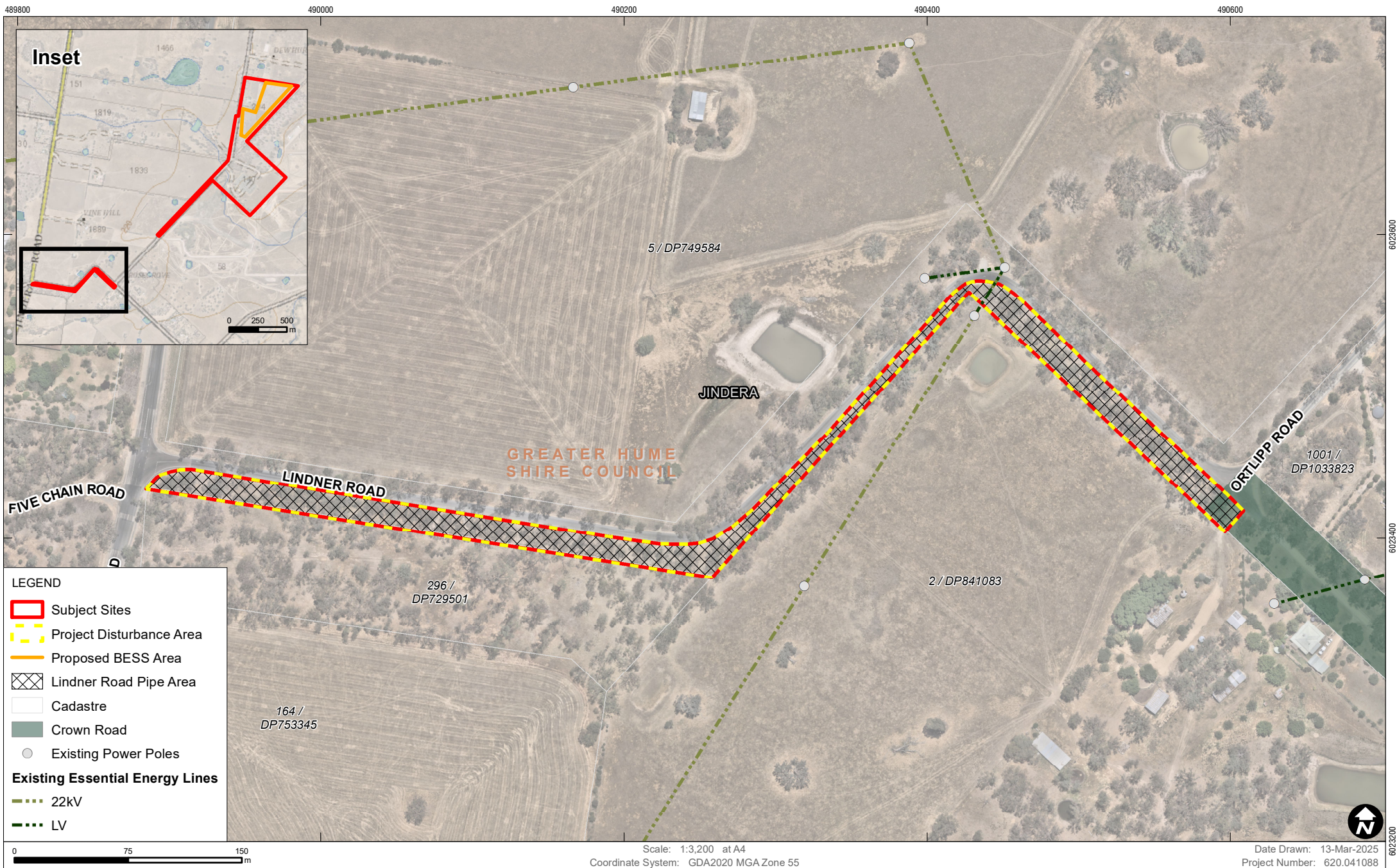


Project Element	Description
	extending from the works being undertaken for the nearby Glenellen Solar Farm, to the Subject Site's access. The proposed driveway will cater for heavy vehicles associated with the construction phase.
Grid Connection	A new overhead TL (330 kV) will be constructed to connect the BESS substation, to the existing Transgrid JINDERA 330/132 kV TS to the south of the BESS site. The transmission route will run south-southwest from the southern portion of the BESS site, transecting an unformed road reserve before orientating south-southeast to enter the JINDERA 330/132 kV TS land. The TL towers will be approximately 30m in height with a ground clearance of 7.5m, located within the proposed 60m TL easement. Three TL towers are proposed to facilitate the route to the JINDERA 330/132 kV TS. The TL towers will be located in the BESS site and Substation Site, with only the overhead lines being within the Unformed Crown Road Reserve.
Water main works	The project will include providing reticulated water to the site by upgrading the existing water pipe along Lindner Road; and a new water main pipe along Ortlipp Road, from the Glenellen Solar Farm to the site. Under boring is proposed for all water main works.
Tree removal	Tree removal is required for the BESS Site, TL and easement and to achieve recommended APZs. No tree removal is required to facilitate the water main works.
Construction Duration	Construction of the Project is anticipated to take approximately 10 months.
Operation Life Expectancy	The operational life of the Project will be determined by the evolving nature of the technology, however it is anticipated that the lifespan will be approximately 20 – 25 years.
Decommissioning	The Project will be decommissioned, and the infrastructure removed, returning the BESS site to its original use following the approximate 20 – 25 year life expectancy.
Staging	The Project is not seeking a staged consent.





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Data Source: basedata supplied by NSW SS, June 2024
 Aerial imagery supplied by Nearmap, November 2024
 Other data sources include Gransolar Group, Look up & Live (LUAL)

Lindner Road Overview

FIGURE 16

3.2 Development Specifications

This section provides a more detailed outline of the specific project requirements and specifications.

3.2.1 Project Area

The extent of the proposed development footprint, and a breakdown of individual elements, is detailed below in Table 13 and Figure 17.

Table 13 Project Areas

Development Component	Area (ha)
Total Subject Sites (BESS Site, Substation Site, water main works)	40.81
BESS Site	6.98
TL and easement	1.96
Substation Area	5.9
Lindner Road Pipe Area	1.28
Ortlipp Road Pipe Area	2.54
Disturbed Area	18.85
APZ	6.49
Vegetation Clearing	6.48
Native vegetation	2.88

The area detailed as the BESS Site will be leased privately, with no subdivision proposed. The approved (but not constructed) dwelling located on the BESS Site is located outside of this lease area.

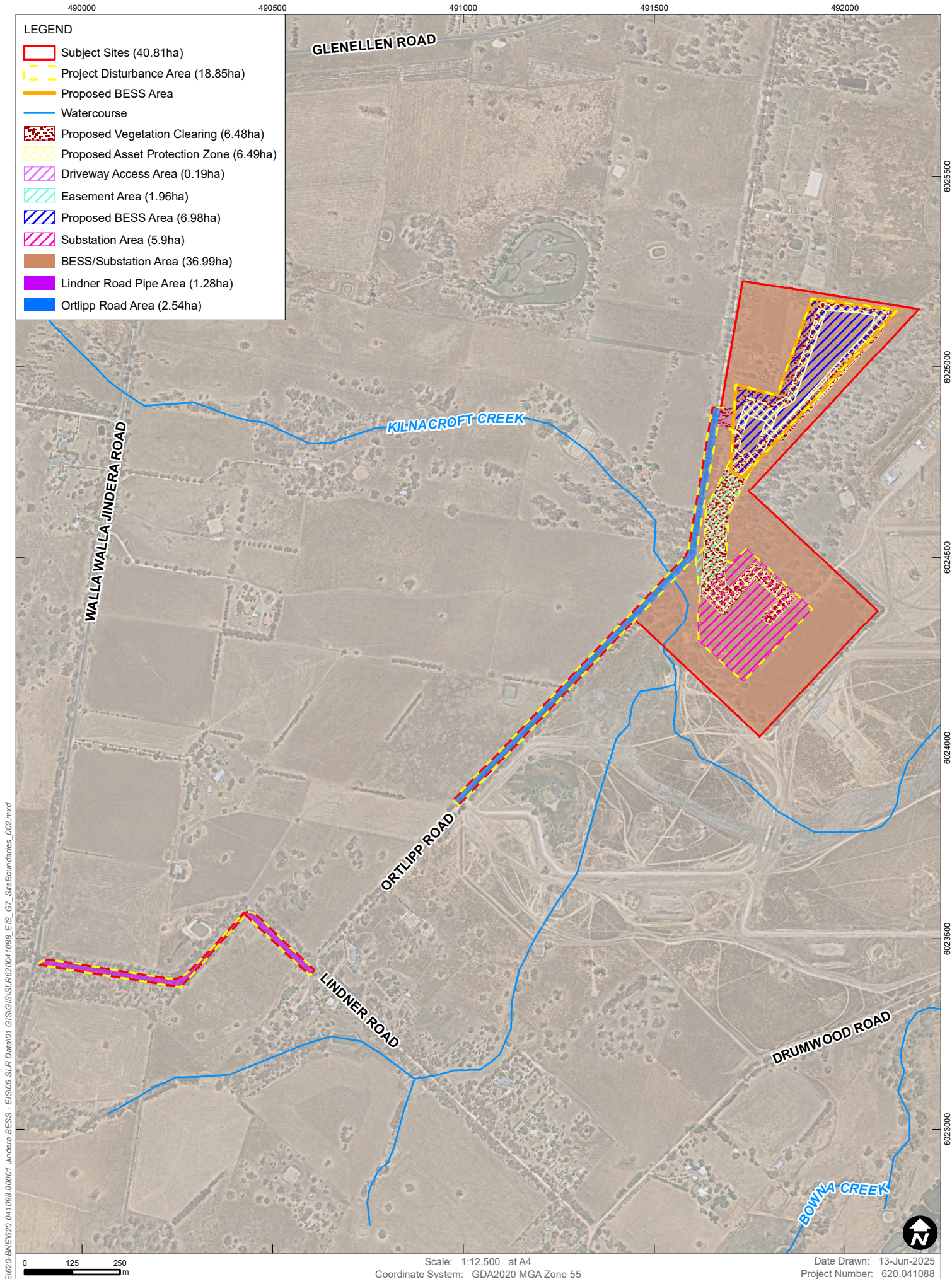
3.2.2 BESS Units

Table 14 provides the specifications for the proposed BESS in Figure 17 with an example of a BESS module shown in Figure 18.

Table 14 BESS Specifications

Specification	Detail
Number of enclosures	Up to 200 battery enclosures (6m container frame) Each battery rack consists of 418 battery cells. Each battery enclosure contains up to 10 racks connected in parallel
Dimensions	6m containers (6,058mm x 2,438mm x 2,891mm each)
Weight	35,000kg each
Inverters	100 Inverters (3600 Kilovolt-amps (kVA))





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Figure 18 Indicative Image of BESS Modules



3.2.3 Transmission Lines

An overhead TL (330 kV) will be constructed to connect the BESS to the existing Transgrid JINDERA 330/132 kV TS on the Substation Site to the south. The TL will include a 60m wide easement inline with the electricity providers guidelines.

Three TL towers are proposed and will be approximately 30m in height with a minimum ground clearance of 7.5m, located within the proposed easement. The TL route will run south-southwest from the southern portion of the BESS site, transecting an unformed Crown road reserve before entering the JINDERA 330/132 kV TS land.

3.2.4 Earthworks and Stormwater Management

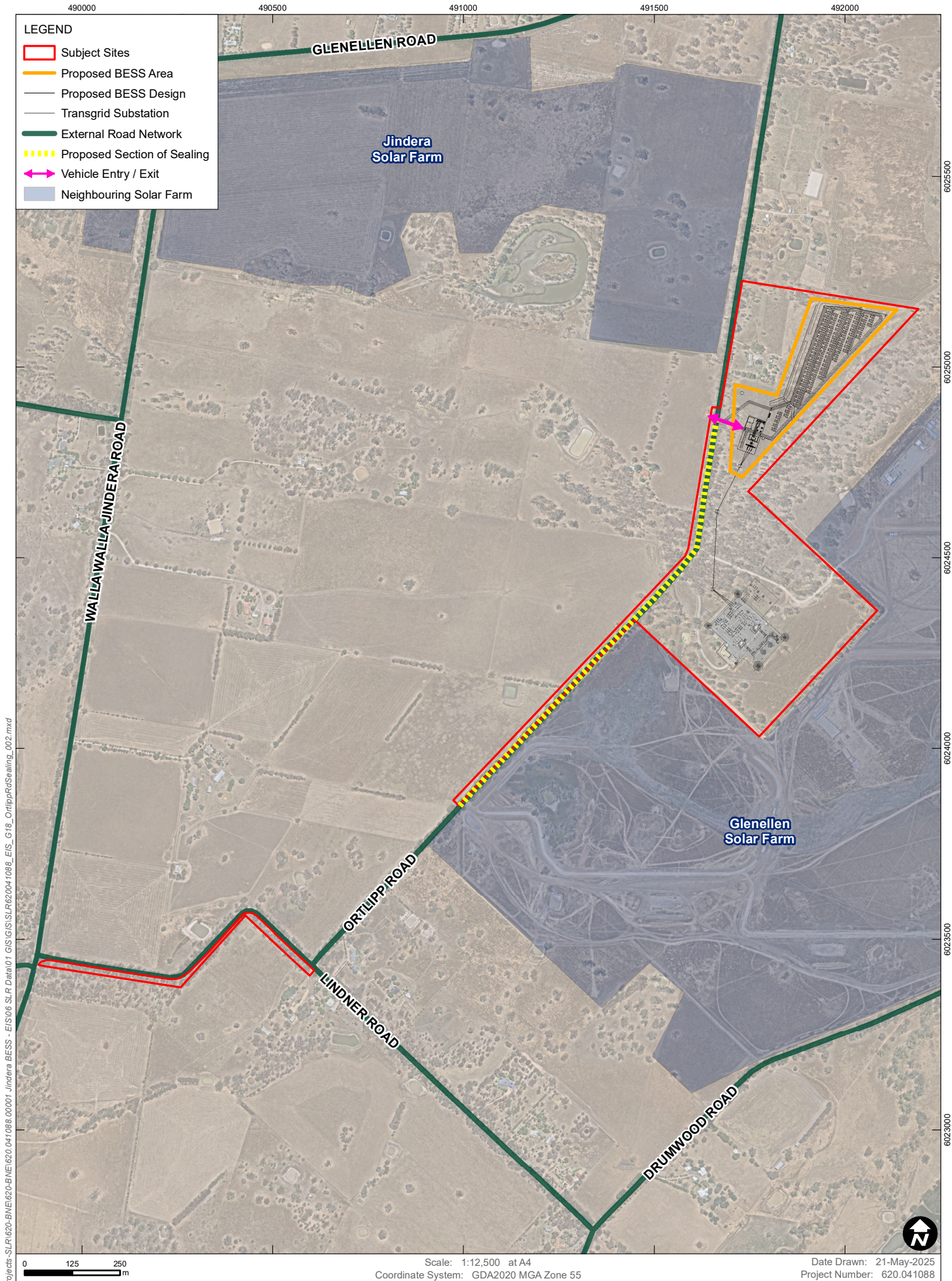
A general crushed rock pad is to be formed to support the Project within the BESS Site providing for a Reduced Level (RL) of approximately 221.2m AHD. The pad is to be treated with swale/cut-off drains and culvert be installed to prevent off-site impacts.

Any sensitive infrastructure such as inverters and battery storage will be located on raised fill pads with 300mm freeboard above the maximum of the 1% Annual Exceedance Probability (AEP) flood level (0.01-0.1m). The footings are to be designed to withstand the projected flood velocities per the Flood Risk and Impact Assessment Report (FRIAR) at Appendix N.

3.2.5 Site Access

A section of Ortlipp Road, from the driveway of the approved Glenellen Solar Farm to the access location of the Project, is proposed to be sealed to accommodate the bi-directional movements of the anticipated construction vehicle fleet. An indicative extent of the proposed sealing of approximately 1.5km and the access point is shown in Figure 19.





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Data Source: basedata supplied by NSW SS, June 2024
 Aerial imagery supplied by Nearmap, November 2024
 Other data sources include Gransolar Group,

Proposed Ortliipp Road Works

FIGURE 19

3.2.6 Fencing / Vegetation Screening and Lighting

The BESS Site will be secured by chainmesh security fencing, up to 2.1m in height. In addition, a 4m high acoustic barrier is proposed along the western frontage of the BESS units and a portion along the north face of the BESS. Refer to Figure 20 for infrastructure height reference.

To minimise visual impacts associated with the proposed acoustic wall along Ortlipp Road, a key mitigation measure includes the application of a recessive green finish to its external surface. In addition to the colour treatment, a vegetation buffer will be established along the roadside-facing side of the wall. This buffer will include locally appropriate native species selected for their screening capacity, form, and compatibility with existing vegetation patterns. Species will be chosen to ensure seasonal foliage cover and height sufficient to break up the linear form of the wall and soften its appearance from public viewpoints.

The proposed planting will also support ecological and landscape connectivity where possible. Over time, as vegetation matures, the wall will become increasingly screened, further reducing its visual presence in the landscape.

Combined, these measures will ensure that the acoustic wall is effectively integrated into its setting, maintaining the visual integrity of the local rural character and minimising residual visual impacts.

Boundary lighting will be installed for security purposes, refer to Figure 20. Security lighting will operate 24 hours 7 days a week. A Night Time Light Spill Assessment has been undertaken at Appendix V.

3.2.7 Water Infrastructure

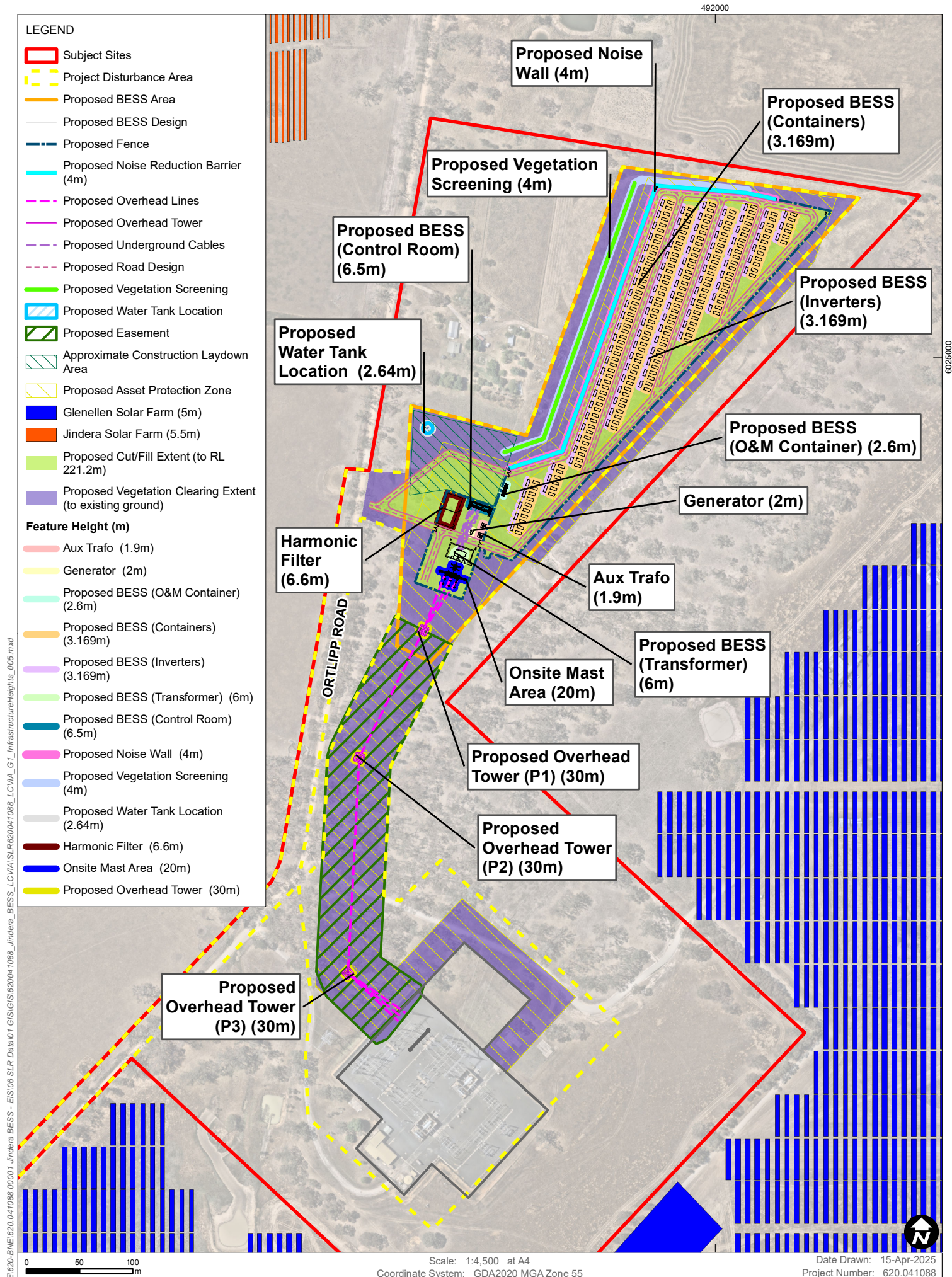
To enhance the availability of water for fire fighting purposes, it is proposed to install a dedicated water tank within the BESS Site and upgrading the existing water supply to the site. A 150,000 litre (L) water tank dedicated for firefighting purposes will be constructed at an early stage of the construction phase to enable availability during both construction and operational phases.

The Project will include providing reticulated water to the site. The water supply pipeline upgrade works are separated into two components consisting of:

- The upgrade of approximately 800m of pipeline along Lindner Road and connecting to an existing pipeline at its intersection with Ortlipp Road. The pipeline upgrade will see an increase in the diameter of the pipe from 50mm to 100mm, increasing capacity and throughput, refer to Figure 16.
- The extension of the existing Ortlipp Road pipeline connecting to the Subject Sites (refer to Figure 16).

Under-boring will be utilised to remove the need for tree removal within the road reserve.





3.2.8 Tree Removal

The proposed BESS footprint, access road, TL route, and recommended Asset Protection Zones (APZ) will require the removal of native vegetation. A 30-metre buffer on either side of the proposed TL route and associated towers is required for construction and maintenance purposes. Additional vegetation clearing is proposed to the north and east of the BESS site and Substation Site pad extension, specifically in the area between the BESS security fencing and the site boundary. The proposed areas for vegetation removal are shown in Figure 21 and Figure 22.

As detailed within Table 13 the vegetation area to be cleared comprises an area of 6.48ha. Works relating to tree removal and the TL works in the Substation Site will not be within 40m of the top of the bank of Kilnacroft Creek.

Offsets are required for the proposed tree removal as calculated within the provided BDAR at Appendix F.

3.2.9 Operational Details

3.2.9.1 Operational Activities and Equipment

The ongoing use of the BESS does not require any staff to be permanently on site, as monitoring and operation of the BESS will be undertaken remotely. On-site requirements will be minimal and will generally involve the following:

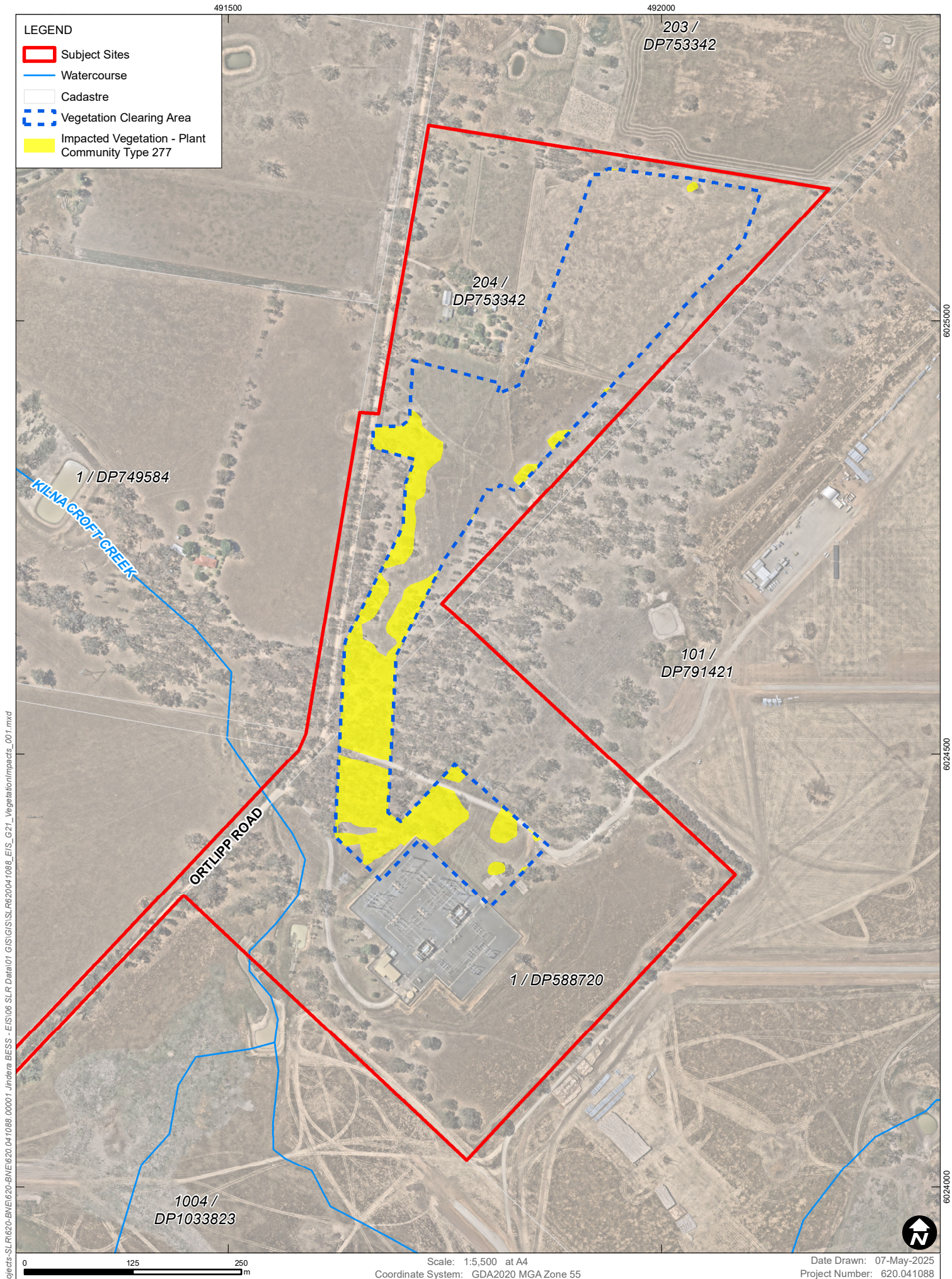
- General maintenance and management of equipment, site buildings, and landscaping when required; and
- Receipt of equipment or goods on a schedule basis, when required.

3.2.9.2 Operation Hours and Personnel

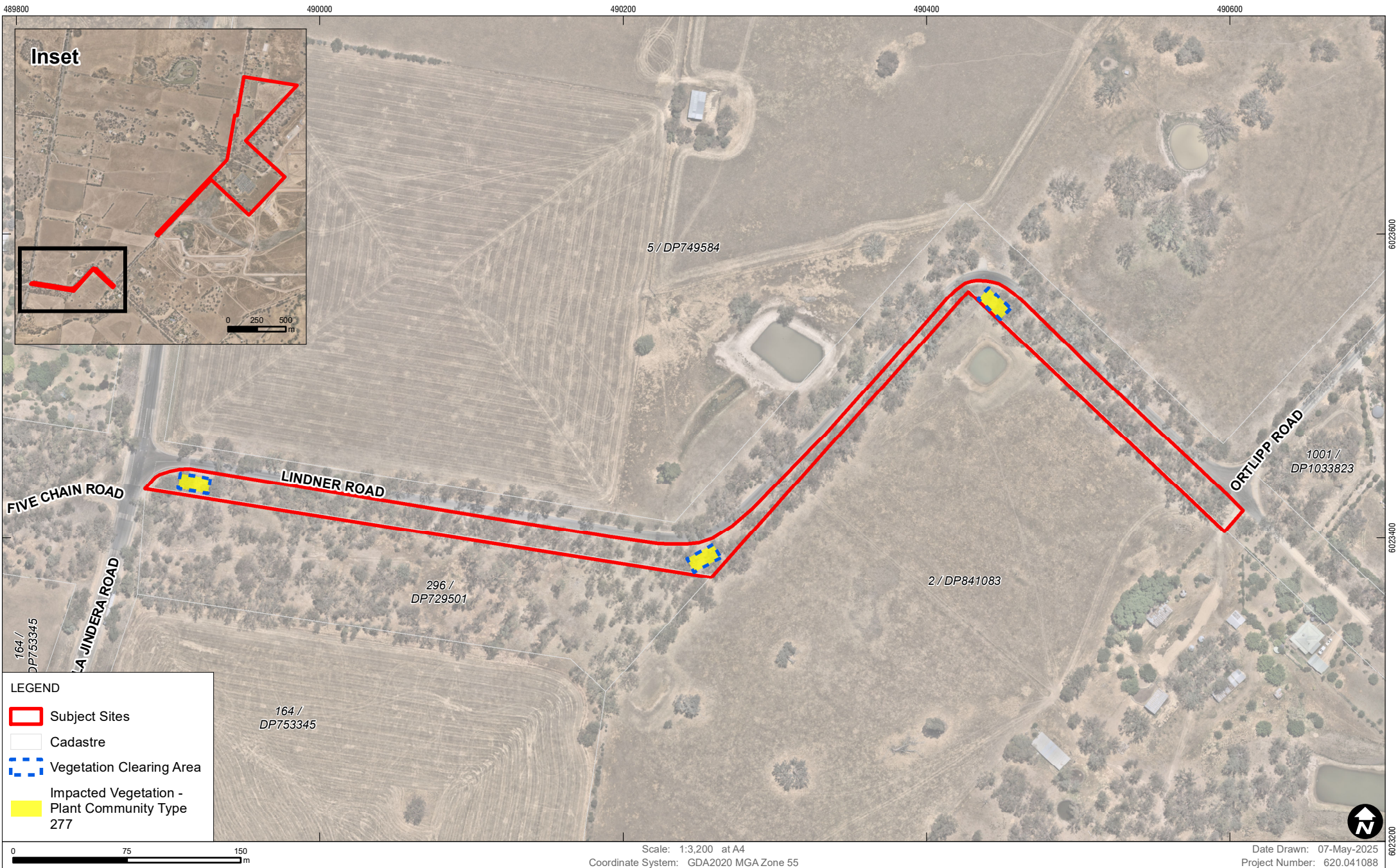
The Project is proposed to self-operate 24 hours a day, 7 days a week and will be monitored remotely. It is anticipated the BESS will require periodic and irregular maintenance by authorised staff, otherwise the facility is otherwise restricted to the public.

Emergency responses and maintenance activities may be required to be undertaken out of hours. During operation, it is anticipated that approximately 2 full time equivalent (FTE) jobs will be required.





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Data Source: basedata supplied by NSW SS, June 2024
Aerial imagery supplied by Nearmap, November 2024



Lindner Road Vegetation Impacts

FIGURE 22

3.3 Construction Works

Construction of the Project will require heavy vehicles, plant, and equipment for the transportation and installation of components. The Project will require earth-moving equipment for civil and road works, cable trenching equipment, forklifts, and cranes subject to detailed design to install the BESS and complete ancillary works. Trenching and boring will be utilised for the water main extension to prevent tree removal.

3.3.1.1 Construction Activities

It is anticipated that the construction and commissioning phase will last approximately 10 months. Over that time, the main construction activities will include:

- Transport of construction personnel, associated heavy and light vehicles, and materials to and from the Subject Sites on a day-to-day basis, dependent on the construction schedule;
- Site establishment works including vegetation clearing within the BESS boundary and TL footprint, bulk earthworks, and a temporary construction compound;
- Road works to formalise site access with a new driveway cross over, internal road to accommodate heavy vehicles, and sealing of a portion of Ortlipp Road;
- Construction of hardstand, paved internal roads, control room and switch gear, auxiliary transformer, battery enclosures, and inverter and transformer stations;
- Construction of overhead 330 kV TL to connect to the existing JINDERA 330/132 kV TS and associated high voltage steel poles;
- Acoustic attenuation measures, including a 4m high acoustic barrier, refer to Figure 15;
- Construction of ancillary works including:
 - Construction parking areas; 1 x 150,000L water tank for external fire fighting purposes;
 - 1-2 containers used as sheds for temporary storage; and
 - Stormwater management infrastructure, security lighting and fencing;
- Vegetative screening along the western and northern BESS boundary; and
- Removal of temporary construction facilities, and rehabilitation of disturbed areas following completion of construction of the Project.

3.3.1.2 Construction Materials

The following materials will be transported to the Subject Sites for the construction of the Project and ancillary facilities and infrastructure:

- 200 lithium batteries, within modular containers;
- 100 Inverter + transformer stations;
- Hardstand works materials and equipment, including those required for the expansion of the JINDERA 330/132 kV TS footprint;
- Additional connection infrastructure at the JINDERA 330/132 kV TS;
- Bulk earthworks materials and equipment;
- Piling;



- Cabling;
- Building structures (including temporary structures for construction crew and management);
- Internal roads and parking areas;
- Control room and 33 kV switchgear;
- Auxiliary transformer;
- Fence, gates and lighting;
- Fire safety system;
- High voltage steel poles;
- High voltage cabling; and
- 330/33 kV main transformer.

3.3.1.3 Construction Hours and Personnel

Construction of the Project is expected to take approximately 10 months. During construction, it is anticipated that approximately 80 FTE jobs will be required during the peak of site activity. Employment numbers will fluctuate starting with about 20 workers on site for 1 to 2 months. Worker numbers then progressively increase to 80 staff at about the 65% completion stage for several months before tailing off toward completion and the start of commissioning. About 5 - 10 staff are required for commissioning.

The workforce will be sourced from the local area where possible, and the wider region where worker deficits arise. It is expected the peak period would extend for approximately 4 months. Outside of this period, approximately 10 - 20 workers will be required at any one time.

The following standard construction hours are proposed for the Project:

- Monday to Friday - 7 am to 6 pm.
- Saturday – 8 am to 1 pm.
- Sunday and Public Holidays - No works to be undertaken.

No works are proposed to be undertaken outside of the standard construction hours. In the event this is required, Out of Hours (OOH) approval would be sought, and all works would be undertaken in accordance with the appropriate OOH protocols and approval processes.

3.3.2 Construction Traffic and Access

Construction access to and from the BESS Site will be provided from a new driveway crossover from Ortlipp Road which will be retained for operations. Internal access roads will accommodate heavy vehicles associated with the construction of the Project.

Most of the workers during construction will be sought locally. Those who are required to travel to Jindera are anticipated to reside in local short-term accommodation facilities (e.g. motels) during construction. During construction, it is proposed that bus transfers will be provided by the subcontractors (where practicable) to minimise traffic volumes and transit risks during construction as per a Traffic Management Plan (TMP). The number of shuttle buses and the identified routes will be determined to minimise travel times and ensure convenient pick-up points for staff.



The BESS units, associated components, and the construction fleet will be transported to the site from the Port of Melbourne. One oversize and over mass (OSOM) vehicle is required during the construction period for the one-off transportation of the transformer.

The construction fleet is anticipated to be a composition of the following fleet:

- 17m long truck & dog combinations (earthworks).
- 20m long AVs (variety of materials).
- 20m long goose-neck low loaders (machinery).
- 26m long B-Double design vehicles (batteries).

The expected frequency of the above vehicle is discussed further in the Transport Impact Assessment at Appendix M and Section 6.7 of this EIS.

All heavy vehicles (HV) will take the routes to and from the Subject Sites, as shown in Figure 23 and Figure 24.

During their inbound journey, all heavy vehicles will travel along Hume Motorway (M31) to Albury and will use Young Street, North Street, Mate Street, Guinea Street and Urana Road. This route is the shortest that could accommodate the largest design vehicle (26m B-Double) of the anticipated construction fleet.

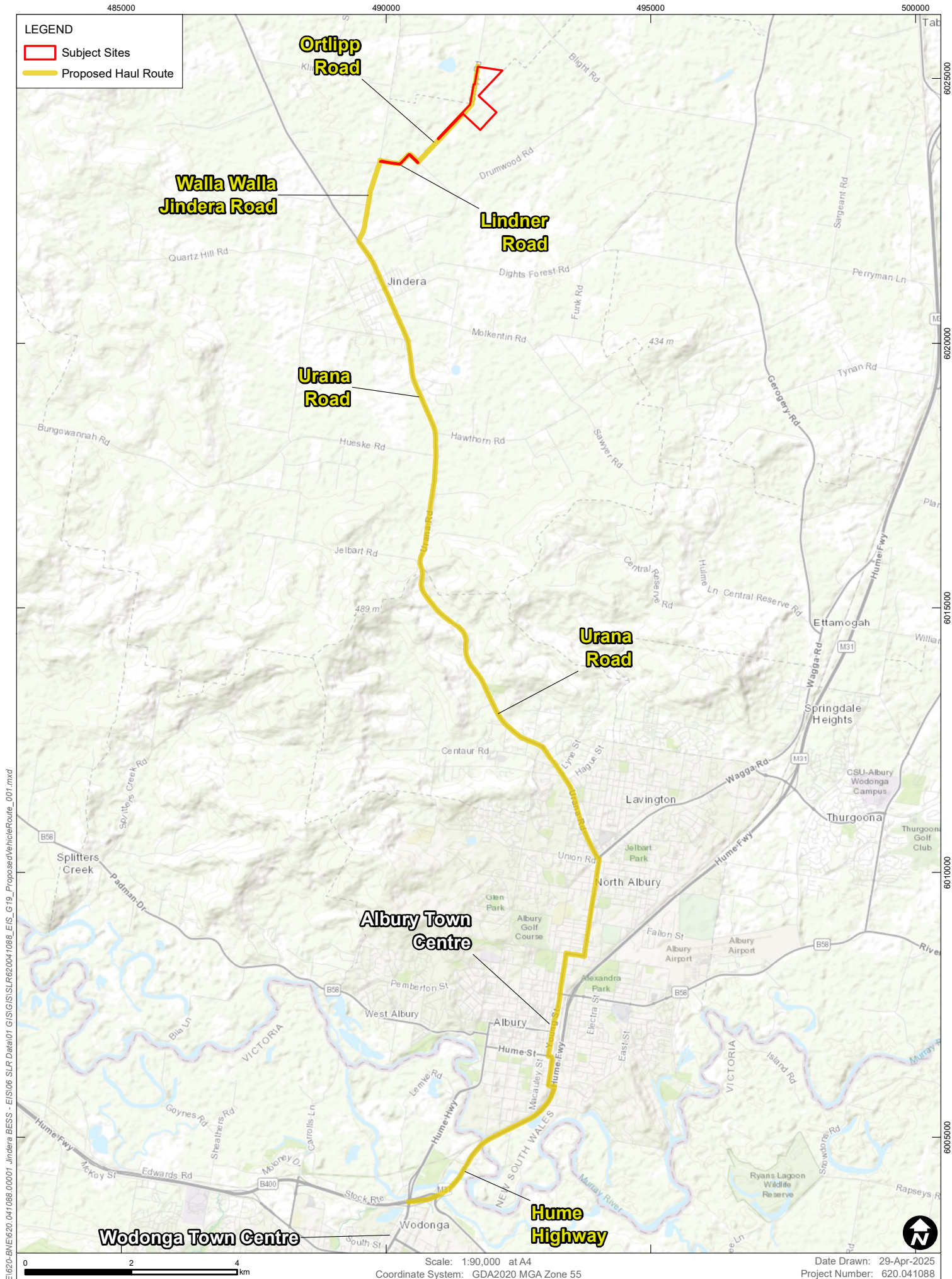
All traffic will approach the site via Urana Road and turn into Jindera-Walla Walla Road followed by a turn into Lindner Road. Following Lindner Road, traffic will turn onto Ortlipp Road and proceed into the site. It is noted that from Jindera-Walla Walla Road to the entrance of the neighbouring Glenellen Solar Farm on Ortlipp Road is sealed. It is proposed to seal Ortlipp Road from the Glenellen Solar Farm to the proposed site access.

A review of the proposed route is consistent with the National Heavy Vehicle Regulator Route Planner Tool.

A review of the route found that it does not traverse over any railway corridors or level crossings.

A one-off OSOM transport will be required for the transformer unit. This transport will utilise the proposed heavy vehicle route. OSOM approvals will be required in NSW for the transportation of the transformer, given the Restricted Access Vehicle (RAV) map of TfNSW does not prescribe the appropriate routes for the proposed OSOM vehicle.





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Data Source: Basemap supplied by ESRI and other sources
Other data sources include Gransolar Group,

**Proposed Heavy
and Light
Vehicle Route**

FIGURE 24

3.3.3 Water Use

Water will be required during the construction phase for dust suppression, general construction, and maintenance activities. Construction water requirements for the Project are anticipated to be sourced from the Council's bulk water supply once the water main works are complete. Water required prior to the reticulated water connection will be bought to site as required.

Estimated water use during construction is 4,500kL and Council have confirmed its ability to supply water to support the construction and operation of the Project and will be facilitated through a combination of a dedicated metered connection and access to Council's Jindera standpipe. During periods of unrestricted supply, Council can provide up to 10,000kL over a 10-month construction period. This will be delivered via a nominal diameter 25 metered water connection, with a maximum daily volume of 25kL and a peak flow rate of 32 litres per minute, supplemented by bulk water supply through the standpipe.

Post-construction operational water needs, estimated at up to 5,000kL per annum, can also be accommodated through the same combination of metered and bulk supply. The same flow rate and daily volume limits will apply to the metered connection, with remaining requirements sourced via the Jindera standpipe.

In the event of drought or reduced water allocations, alternative supply arrangements are available. These include sourcing bulk water from Greater Hume Council's Culcairn standpipe, which draws from an independent groundwater system, and potential access to supplies from Albury City or Riverina Water County Council, subject to the necessary approvals.

Water availability is subject to broader allocation decisions made by the NSW Minister for Water. Any restrictions imposed under drought or reduced allocation scenarios will apply equally to this project, as with all other users of the water supply network and bulk standpipes operated by Greater Hume Council.

Wastewater during construction will be captured and appropriately removed from site and disposed of in accordance with the Council / water authority requirements. Potable water may be transported to site in bottles for use by the construction workforce. If utilised, toilet facilities will involve waterless toilets (or equivalent) that are emptied off-site.

3.4 Decommissioning

The Project is proposed to be decommissioned, and the infrastructure removed following the EOL of the BESS, returning the Subject Sites as close as possible to original state. All decommissioning and restoration activities will be in accordance with permits, approvals and regulatory requirements at the time.

The operational life of the Project will be determined by the evolving nature of the technology, however it is anticipated that the lifespan will be approximately 20 - 25 years.

The standard construction hours and HVs, plant, and equipment required for the construction of the Project shall also apply to the decommissioning phase.

The decommissioning phase is anticipated to generate waste such as EOL Li-ion batteries and associated infrastructure, such as cabling, inverters, transformers and other electrical and structural components. Most materials will be reused or recycled at a facility lawfully able to accept them. Any waste that cannot be reused or recycled would be collected by a licenced contractor and disposed of at a site lawfully able to accept it.





04 Statutory Context

Battery Energy Storage System - Jindera

FOR: BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00001

Revision: 1.5



4.0 Statutory Context

This chapter describes the statutory context and the planning approval process for the Project as well as other relevant environmental and statutory planning requirements. This section is to be read in conjunction with the full assessment of relevant legislation and the applicable provisions provided within the Statutory Compliance Table at Appendix C.

4.1 Power to Grant Approval

The EP&A Act and the EP&A Regulation form the statutory framework for planning approvals and environmental assessment in NSW. Implementation of the EP&A Act is the responsibility of the Minister for Planning and Public Spaces, State government agencies, and local government authorities. The relevant approval pathway, consent authority, and application requirements are discussed in the following sections.

4.1.1 Approval Pathway

The EP&A Act specifies that the applicable approval pathway for the proposed development is through the SSD process. The proposed development will require SSD Approval under Part 4 Section 4.36 of the EP&A Act 1979, as per Clause 4.36 of the Act.

The Project triggers SSD through Schedule 1 of the Planning Systems SEPP.

20 Electricity generating works and heat or co-generation

Development for the purpose of electricity generating works or heat or their co-generation (using any energy source, including gas, coal, biofuel, distillate, waste, hydro, wave, solar or wind power) that—

- (a) has an estimated development cost of more than \$30 million, or*
- (b) has an estimated development cost of more than \$10 million and is located in an environmentally sensitive area of State significance.*

As the EDC exceed \$30 million, the Project is required to be assessed as SSD. An estimated development cost report is provided at Appendix U.

4.1.2 Consent Authority

The Minister for Planning and Public Spaces will be the consent authority for the Project in accordance with Section 4.5 of the EP&A Act. However, the Independent Planning Commission (IPC) pursuant to clause 2.7 of the Planning Systems SEPP may be the consent authority in some circumstances. The requirement for the Independent Planning Commission NSW (IPC) to be the determining authority is to be confirmed following the completion of the EIS public exhibition.

4.1.3 State Significant Development Application

In accordance with Section 4.12 of the EP&A Act, an SSD application must be accompanied by an EIS. The EIS must be prepared in accordance with Schedule 2 of the EP&A Regulation. Schedule 2 of the EP&A Regulation provides the framework by which an application is made to obtain assessment requirements to inform the preparation of an EIS and the requirement for consultation with relevant public authorities. Schedule 2 also provides form and content which must be included within an EIS.

To inform the content of the EIS, a request for SEARs from the Secretary DPHI is required. The SEARs specify the issues that must be addressed in the EIS. The SEARs for the Project were issued by DPHI on 18 April 2024 and are summarised at Appendix A, with reference to compliance within the EIS and specialist studies.



4.1.4 Permissibility

The Project is defined under the NSW land use planning definitions as '*electricity generating works*'. Pursuant to Greater Hume LEP 2012, the Subject Sites are zoned RU1 Primary Production, refer to Figure 25.

Electricity generating works are a prohibited use on land zoned RU1. As such, all works associated with the BESS are proposed in accordance with the provisions of the Transport and Infrastructure SEPP. Part 2.3 (Development controls), Division 4 (Electricity generation works or solar energy systems), Clause 2.36 of the Transport and Infrastructure SEPP states that:

- (1) *Development for the purpose of electricity generating works may be carried out by any person with consent on the following land—*
 - (a) *in the case of electricity generating works comprising a building or place used for the purpose of making or generating electricity using waves, tides or aquatic thermal as the relevant fuel source—on any land,*
 - (b) *in any other case—any land in a prescribed non-residential zone.*

The RU1 Primary Production zone is listed as a prescribed non-residential zone and therefore permissibility for the Project is established under the Transport and Infrastructure SEPP.

4.1.5 Pre-Conditions to Exercising the Power to Grant Approval

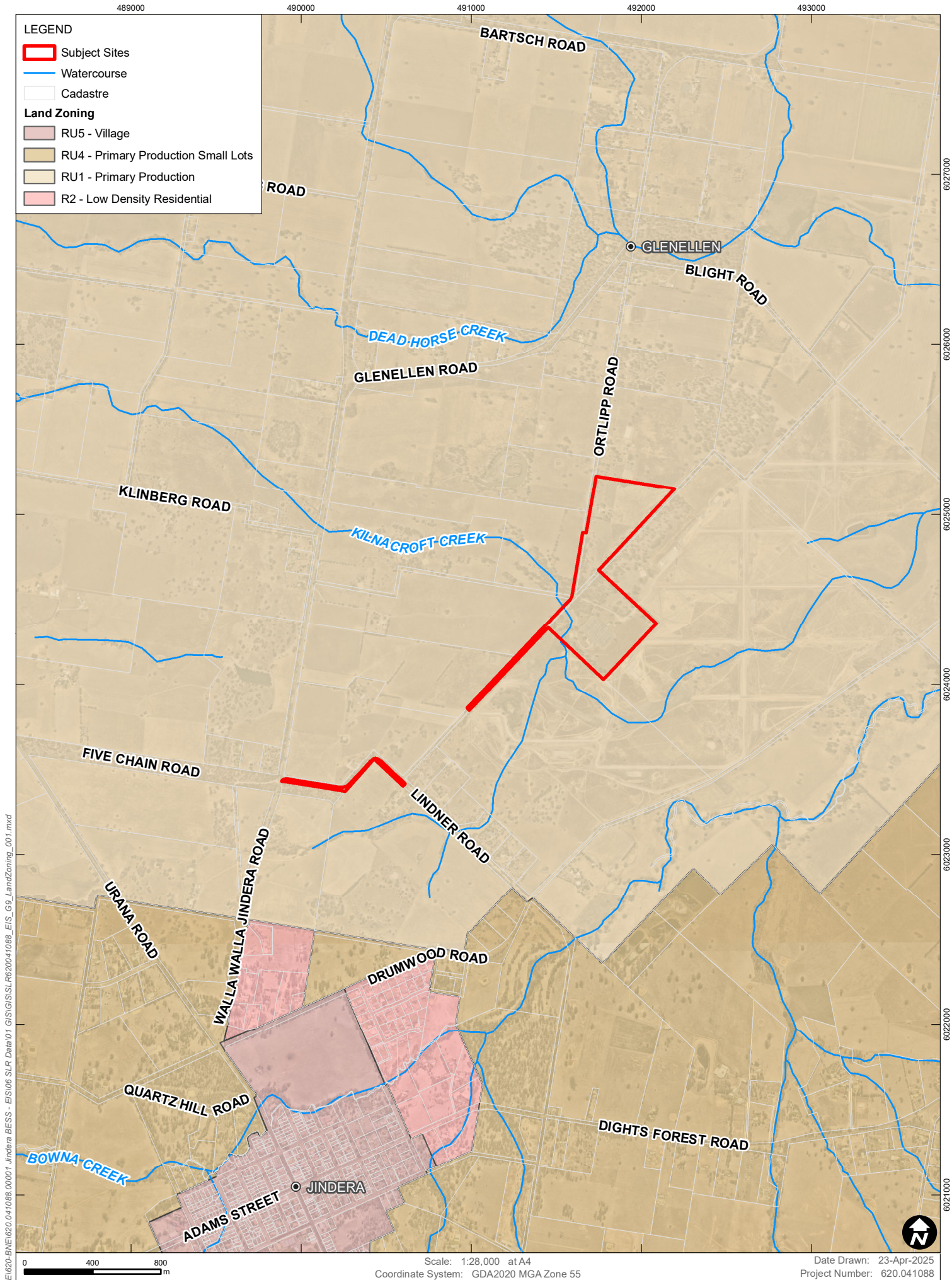
4.1.5.1 Project Approvals

This section provides an overview of other approvals required to carry out the Project. Approvals required for the Project are identified in Table 15.

Table 15 Project Approvals

Legislation	Permit / Approval	Authority
Crown Land Management Act 2016	Part 5 Division 5.6 – Licences over Crown Land	Crown Land
EP&A Act	Development Approval	DPHI
Roads Act 1993	Section 138	Council





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Data Source: basedata supplied by NSW SS, June 2024
 Aerial imagery supplied by Nearmap, November 2024
 Other data sources include Gransolar Group
 © State Government of NSW and NSW Department of
 Planning, Housing and Infrastructure (as of 26/09/2024)

Land Zoning

FIGURE 25

4.2 Commonwealth Considerations

4.2.1 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The Commonwealth EPBC Act aims to protect matters deemed to be a matter of national environmental significance (MNES). A search of the Protected Matters Search Tool was undertaken on 5 May 2025 within a 20km buffer of the Subject Sites. The results of the search are in Table 16. EPBC approval is not required for the Project.

Table 16 Results of MNES Search

Matter of National Environmental Significance	Response
World heritage properties	There are no world heritage properties listed within proximity of the Subject Sites.
National heritage places	There are no national heritage places listed within proximity of the Subject Sites.
Wetlands of national importance	There are 7 wetlands of international importance within proximity to the Subject Sites.
Great Barrier Reef marine park	The Subject Sites are not located within proximity to the Commonwealth marine area.
Commonwealth marine park	The Subject Sites are not located within proximity to the Great Barrier Reef marine park.
Listed threatened ecological communities	There are 6 identified threatened ecological communities within 20km
Listed threatened species	There are 51 listed threatened species within 20km.
Listed migratory species	There are 9 listed migratory species within 20km.

4.2.2 Native Title Act 1993

The Native Title Act 1993 recognises the interests and rights Aboriginal people have to land and aims to provide recognition and protection of common law native title rights. A search of the Register of Native Title Claims (24 March 2025) showed no claim at the Subject Sites or within the LGA.

4.2.2.1 Pre-Conditions to Grant Development Consent

The items provided within Table 17 are pre-conditions in exercising power to grant approval for the development.



Table 17 Pre-Conditions to Grant Development Consent

Pre-Condition	Assessment
Environmental Planning and Assessment Regulation 2021	
24 Content of development applications (1) A development application must— (a) be in the approved form, and (b) contain all the information and documents required by— (i) the approved form, and (ii) the Act or this Regulation, and (c) be submitted on the NSW planning portal.	This application is accompanied by an EIS prepared in accordance with the relevant guideline to ensure it is in the correct form.
190 Form of environmental impact statement (1) An environmental impact statement must contain the following information— (a) the name, address and professional qualifications of the person who prepared the statement, (b) the name and address of the responsible person, (c) the address of the land— (i) to which the development application relates, or (ii) on which the activity or infrastructure to which the statement relates will be carried out, (d) a description of the development, activity or infrastructure, (e) an assessment by the person who prepared the statement of the environmental impact of the development, activity or infrastructure, dealing with the matters referred to in this Division.	All relevant information stipulated in Section 190 has been included within this application package.
(2) The person preparing the statement must have regard to— (a) for State significant development—the State Significant Development Guidelines, or (b) for State significant infrastructure—the State Significant Infrastructure Guidelines.	The EIS has been prepared in accordance with the SSD Guidelines.
(3) An environmental impact statement must also contain a declaration by a relevant person that— (a) the statement has been prepared in accordance with this Regulation, and (b) the statement contains all available information that is relevant to the environmental assessment of the development, activity or infrastructure, and (c) the information contained in the statement is not false or misleading, and (d) for State significant development or State significant infrastructure—the statement contains the information required under the Registered Environmental Assessment Practitioner Guidelines.	A declaration by a Registered Environmental Assessment Practitioner (REAP) has been included with the EIS confirming the required information has been included with the application (refer to Executive Summary of EIS).
192 Content of environmental impact statement (1) An environmental impact statement must contain the following— a) a summary of the environmental impact statement, b) a statement of the objectives of the development, activity or infrastructure, c) an analysis of feasible alternatives to the carrying out of the development, activity or infrastructure, considering its objectives,	This EIS has been prepared in accordance with the requirements under Clause 192 and the relevant Guidelines.



Pre-Condition	Assessment
including the consequences of not carrying out the development, activity or infrastructure, d) an analysis of the development, activity or infrastructure, including— (i) a full description of the development, activity or infrastructure, and (ii) a general description of the environment likely to be affected by the development, activity or infrastructure and a detailed description of the aspects of the environment that are likely to be significantly affected, and (iii) the likely impact on the environment of the development, activity or infrastructure, and (iv) a full description of the measures to mitigate adverse effects of the development, activity or infrastructure on the environment, and (v) a list of the approvals that must be obtained under another Act or law before the development, activity or infrastructure may lawfully be carried out, e) a compilation, in a single section of the environmental impact statement, of the measures referred to in paragraph (d)(iv), f) the reasons justifying the carrying out of the development, activity or infrastructure, considering biophysical, economic and social factors, including the principles of ecologically sustainable development set out in section 193.	
Biodiversity Conservation Act 2016	
7.14 State significant development or infrastructure (2) The Minister for Planning, when determining in accordance with the Environmental Planning and Assessment Act 1979 any such application, is to take into consideration under that Act the likely impact of the proposed development on biodiversity values as assessed in the biodiversity development assessment report. The Minister for Planning may (but is not required to) further consider under that Act the likely impact of the proposed development on biodiversity values.	Appendix F & Section 6.1 (EIS)
State Environmental Planning Policy (Resilience and Hazards) 2021	
4.6 Contamination and remediation to be considered in determining development application (1) A consent authority must not consent to the carrying out of any development on land unless— (a) it has considered whether the land is contaminated, and (b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and (c) if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose. (2) Before determining an application for consent to carry out development that would involve a change of use on any of the land specified in subsection (4), the consent authority must consider a report specifying the findings of a preliminary investigation of the land concerned carried out in accordance with the contaminated land planning guidelines.	Section 2.3.7 (EIS)



Pre-Condition	Assessment
State Environmental Planning Policy (Transport and Infrastructure) 2021	
2.48 Determination of development applications—other development (2) Before determining a development application (or an application for modification of a consent) for development to which this section applies, the consent authority must— (a) give written notice to the electricity supply authority for the area in which the development is to be carried out, inviting comments about potential safety risks, and (b) take into consideration any response to the notice that is received within 21 days after the notice is given.	The application is to be referred to Transgrid for comment as the relevant and impacted electricity supply authority.

4.2.2.2 Mandatory Matters for Consideration

The matters which a consent authority must consider prior to a determination are addressed in Table 18.

Table 18 Mandatory Matters for Consideration

Matter	Relevant EIS Section
Environmental Planning and Assessment Act 1979	
1.3 Objects of Act (cf previous s 5) The objects of this Act are as follows— (a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources, (b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment, (c) to promote the orderly and economic use and development of land, (d) to promote the delivery and maintenance of affordable housing, (e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats, (f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage), (g) to promote good design and amenity of the built environment, (h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants, (i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State, (j) to provide increased opportunity for community participation in environmental planning and assessment.	Appendix C
4.15 Evaluation (1) Matters for consideration—general In determining a development application, a consent authority is to take into consideration such of the following matters as are of relevance to the development the subject of the development application— (a) the provisions of— (i) any environmental planning instrument, and	Appendix C



Matter	Relevant EIS Section
(ii) any proposed instrument that is or has been the subject of public consultation under this Act and that has been notified to the consent authority (unless the Planning Secretary has notified the consent authority that the making of the proposed instrument has been deferred indefinitely or has not been approved), and (iii) any development control plan, and (iiia) any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4, and (iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph),	Chapter 4 (EIS)
(b) the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality,	Chapter 6 (EIS)
(c) the suitability of the site for the development,	Chapter 6 and 7 (EIS)
(d) any submissions made in accordance with this Act or the regulations,	Submissions response during assessment.
(e) the public interest.	Section 7.11 (EIS)
State Environmental Planning Policy (Resilience and Hazards) 2021	
3.12 Matters for consideration by consent authorities In determining an application to carry out development to which this Part applies, the consent authority must consider (in addition to any other matters specified in the Act or in an environmental planning instrument applying to the development)— (a) current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development, and (b) whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply, and (c) in the case of development for the purpose of a potentially hazardous industry—a preliminary hazard analysis prepared by or on behalf of the applicant, and (d) any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application), and (e) any likely future use of the land surrounding the development.	Appendix I (HRA) Section 6.10 (EIS)



Matter	Relevant EIS Section
State Environmental Planning Policy (Biodiversity and Conservation) 2021	
Chapter 3 Koala Habitat Protection 2020 (1) Before a council may grant consent to a development application for consent to carry out development on land to which this Part applies, the council must be satisfied as to whether or not the land is a potential koala habitat. (2) The council may be satisfied as to whether or not land is a potential koala habitat only on information obtained by it, or by the applicant, from a person who is qualified and experienced in tree identification. (3) If the council is satisfied— (a) that the land is not a potential koala habitat, it is not prevented, because of this Chapter, from granting consent to the development application, or (b) that the land is a potential koala habitat, it must comply with section 3.7.	Appendix C Appendix F Section 6.1 (EIS)
Greater Hume Local Environmental Plan 2012	
2.3 Zone objectives and Land Use Table (2) The consent authority must have regard to the objectives for development in a zone when determining a development application in respect of land within the zone.	Appendix C
5.10 Heritage conservation (1) Objectives The objectives of this clause are as follows— (a) to conserve the environmental heritage of Greater Hume, (b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views, (c) to conserve archaeological sites, (d) to conserve Aboriginal objects and Aboriginal places of heritage significance. 5) Heritage assessment The consent authority may, before granting consent to any development— (a) on land on which a heritage item is located, or (b) on land that is within a heritage conservation area, or (c) on land that is within the vicinity of land referred to in paragraph (a) or (b), require a heritage management document to be prepared that assesses the extent to which the carrying out of the proposed development would affect the heritage significance of the heritage item or heritage conservation area concerned. 6) Heritage conservation management plans The consent authority may require, after considering the heritage significance of a heritage item and the extent of change proposed to it, the submission of a heritage conservation management plan before granting consent under this clause. (7) Archaeological sites The consent authority must, before granting consent under this clause to the carrying out of development on an archaeological site (other than land listed on the State Heritage Register or to which an interim heritage order under the Heritage Act 1977 applies)— (a) notify the Heritage Council of its intention to grant consent, and (b) take into consideration any response received from the Heritage Council within 28 days after the notice is sent.	Appendix C Appendix H Appendix G.



Matter	Relevant EIS Section
<i>(8) Aboriginal places of heritage significance</i> <i>The consent authority must, before granting consent under this clause to the carrying out of development in an Aboriginal place of heritage significance—</i> <i>(a) consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment (which may involve consideration of a heritage impact statement), and</i> <i>(b) notify the local Aboriginal communities, in writing or in such other manner as may be appropriate, about the application and take into consideration any response received within 28 days after the notice is sent.</i>	
6.1 Earthworks <i>(3) Before granting development consent for earthworks (or for development involving ancillary earthworks), the consent authority must consider the following matters—</i> <i>(a) the likely disruption of, or any detrimental effect on, drainage patterns and soil stability in the locality of the development,</i> <i>(b) the effect of the development on the likely future use or redevelopment of the land,</i> <i>(c) the quality of the fill or the soil to be excavated, or both,</i> <i>(d) the effect of the development on the existing and likely amenity of adjoining properties,</i> <i>(e) the source of any fill material and the destination of any excavated material,</i> <i>(f) the likelihood of disturbing relics,</i> <i>(g) the proximity to, and potential for adverse impacts on, any waterway, drinking water catchment or environmentally sensitive area,</i> <i>(h) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.</i>	Appendix C
6.2 Terrestrial biodiversity <i>(3) Before determining a development application for development on land to which this clause applies, the consent authority must consider—</i> <i>(a) whether the development is likely to have—</i> <i>(i) any adverse impact on the condition, ecological value and significance of the fauna and flora on the land, and</i> <i>(ii) any adverse impact on the importance of the vegetation on the land to the habitat and survival of native fauna, and</i> <i>(iii) any potential to fragment, disturb or diminish the biodiversity structure, function and composition of the land, and</i> <i>(iv) any adverse impact on the habitat elements providing connectivity on the land, and</i> <i>(b) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.</i> <i>(4) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that—</i> <i>(a) the development is designed, sited and will be managed to avoid any significant adverse environmental impact, or</i> <i>(b) if that impact cannot be reasonably avoided by adopting feasible alternatives—the development is designed, sited and will be managed to minimise that impact, or</i>	Appendix C Appendix F Section 6.1 (EIS)



Matter	Relevant EIS Section
<i>(c) if that impact cannot be minimised—the development will be managed to mitigate that impact.</i>	
6.7 Essential services <i>Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the development are available or that adequate arrangements have been made to make them available when required—</i> <i>(a) the supply of water,</i> <i>(b) the supply of electricity,</i> <i>(c) the disposal and management of sewage,</i> <i>(d) stormwater drainage or on-site conservation,</i> <i>(e) suitable vehicular access.</i>	Appendix C

4.3 Other State and Local Considerations

Table 19 outlines a consideration of other NSW legislation and planning instruments which may have relevance to the Project, including approvals that are not required under Section 4.41 of the EP&A Act, or authorisations that cannot be refused under Section 4.42 of the EP&A Act, for SSD.

Table 19 State Legislation and Requirements

NSW Legislation	Requirement
<i>Coal Mine Subsidence Compensation Act 2017</i>	The Subject Sites are not mapped within a coal mine subsidence area.
<i>Contaminated Land Management Act 1997</i>	A search of the NSW EPA POEO Public Register was made on 24 March 2025 indicating no contaminated land sites located within the Greater Hume LGA. A search was also made on this date of the NSW EPA POEO Public Register indicating 29 POEO licences in the Greater Hume LGA, with the closest in force licence (No. 1515) registered to 80 Hueske Road Jindera approximately 10 km to the south of the Subject Sites. As no contaminated land sites or EPLs have been registered for the Subject Sites, and the use of the land as a rural purpose it is reasonable to consider the potential for contamination unlikely and the land suitable for the purpose of the Project, being electricity storage works. An appropriate unexpected finds protocols will be implemented during construction and decommissioning phases.
<i>Crown Land Management Act 2016 (CLM Act)</i>	The CLM Act aims to provides for the ownership, management and use of Crown Land within NSW. The Project includes works which traverse an unformed Crown road corridor. An application for a Crown Road Licence will be required per Part 5 of the CLM Act.
<i>Fisheries Management Act 1994 (FM Act)</i>	The project does not require an approval under the FM Act. The FM Act aims to conserve, develop, and share the fishery resources of the State for the benefit of the present and future generations. Kilnacraft Creek, which runs through the Substation Site, is mapped as KFH. Some vegetation in close proximity to the creek line may need to be cleared to facilitate drilling rigs and entry and exit points. Based on the



NSW Legislation	Requirement
	site inspection of the creek, the only vegetation in the vicinity of the proposed works would be moderate low cover of invasive weeds and pasture grasses. The only function of this poor-quality vegetation would be to provide some minimal stability and creek bank protection. Given the small area that would be required for entry/exit points and potential drilling pads, the poor quality of this vegetation and its very limited ecological value, along with the low quality of aquatic habitat of the creek within proximity of this proposed works, it is expected that the removal of this vegetation would not have any adverse impact on the creek ecology. In addition, if impacts were to occur to the aquatic ecology of the creek, these would be very minor and temporary in nature.
<i>Heritage Act 1977</i>	The Project does not impact on any local or State heritage items, as no listed items are in close proximity to the Subject Sites.
<i>Local Land Services Act 2013</i>	The existing vegetation on the western boundary and within the road reserve does not comply with the requirements of the Category 1 - exempt land mapping, due to the Subject Sites not being cleared before 1 January 1990 or being lawfully cleared of native vegetation following this date.
<i>Mining Act 1992</i>	The Project does not involve the extraction of mineral resources. An exploration licence (No.6366) exists over the Subject Sites to Krakatoa Australia Pty Ltd, which expires on 3 March 2024. Consultation with Krakatoa Australia Pty Ltd has been undertaken and they have advised no intent for works in or in the vicinity of the Subject Sites (refer to Chapter 5)
<i>National Parks and Wildlife Act 1974</i>	In accordance with Section 86(1) of the NPW Act, it is an offence to harm or desecrate a known Aboriginal object, whilst it is also an offence to harm an Aboriginal object under Section 86(2). Similarly, Section 86(4) states that a person must not harm or desecrate an Aboriginal place. Virtus Heritage have undertaken an ACHAR, refer to Appendix G. An Aboriginal Heritage Impact Permit (AHIP) under section 90 of this Act is not required for SSD.
<i>Protection of the Environment Operations Act 1997</i>	Per Schedule 1, the Project does not involve the generation of electricity. The Project stores and releases electricity that has already been generated. As such, Clause 17 does not apply to the Project, and an Environmental Protection Licence (EPL) is not required.
<i>Roads Act 1993</i>	An approval under s138 from Council will be required for all works within a public road.
<i>Rural Fires Act 1997</i>	The Subject Sites are mapped within bushfire prone land. A BRAR is provided at Appendix J. A bushfire safety authority under section 100B of the Rural Fires Act 1997 (NSW) is not required as it is not identified as a <i>special fire protection purpose</i>.
<i>Water Management Act 2000 (WM Act)</i>	The WM Act aims to provide for the sustainable and integrated management of the water sources of the State for the benefit of both present and future generations. If a 'Controlled Activity' is to occur within 40 m of the 'high bank' of 'waterfront land', a Controlled Activity approval under Clause 91 of the



NSW Legislation	Requirement
	WM Act is required from the National Resources Access Regulator (NRAR). However, as the Project is classified as an SSD under Part 4 of the EP&A Act, approvals under section 91 (controlled activity) of the WM Act are not required.
<i>Greater Hume Development Control Plan (DCP) 2013</i>	As the project is classed as SSD, it is not subject to the provisions of the DCP 2013. Notwithstanding, it is considered that the Project meets the relevant requirements of the DCP.





05 Stakeholder Engagement

Battery Energy Storage System - Jindera

FOR: BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00001

Revision: 1.5



5.0 Community and Stakeholder Engagement

This chapter provides a description of the consultation undertaken with the local community and key stakeholders.

Consultation and engagement were undertaken during the scoping stage of the Project and preparation of the EIS with the community, Aboriginal groups and government agencies. The below discussion summarises the details provided within the Consultation Report (Appendix P), Aboriginal Cultural Heritage Assessment Report (Appendix G), and throughout other technical assessment where relevant. A summary of the engagement undertaken is in the sections below and in Appendix D.

Outcomes of the consultation undertaken have aided in informing the Project to align with outcomes of previous engagement. All meetings have been recorded by minutes, and feedback is shared across the Project team with relevant technical specialists. Feedback has been entered into a database for review and consideration during the preparation of the EIS phase.

5.1 Aboriginal Consultation

An Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales (DECCW 2010)* has been prepared by Virtus Heritage, attached at Appendix G.

Preparation of the ACHAR included consultation with Registered Aboriginal Parties (RAP) and was undertaken in accordance with *Aboriginal Cultural Heritage Consultation requirements for Proponents (DECCW 2010)*. During this process, an expression of interest (EOI) was sent to Aboriginal knowledge holders, together with an advertisement in the local newspaper inviting them to become a RAP. As a result of the EOI and public notice a total of five Aboriginal representatives nominated to become RAPs for the project.

Stage 1 of the ACHAR process involved details of the project and assessment methodology being provided to the RAPs, and opportunities for feedback provided. Additional opportunities for feedback were also provided during fieldwork.

Feedback from the Aboriginal consultation has been incorporated into the assessment of significance and the development of heritage management and mitigation strategies for the Project.

The list of RAPs consulted for the project are summarised in Table 20.

Table 20 List of RAPs Consulted (Virtus, ACHAR, 2025)

Organisation / Individual	No of attendees
Individual	1
Southern West Yiradyuri Clans, Water and Sky Country Aboriginal Corporation	1
Individual	1
Bundy Aboriginal Cultural Heritage	1
Albury and District Local Aboriginal Land Council	1



Stage 2 consisted of presentation of information about the Project, where RAPs were provided with information outlining the proposed works, including information relating to proposed impacts as well as the ACHAR methodology. Copies of all correspondence relating to consultation with the RAPs is included in the ACHAR (Virtus) at Appendix G.

Stage 3 of the ACHAR process involved the gathering of information about cultural significance, by providing each Aboriginal stakeholder with a copy of the ACHAR methodology which outlined the proposed assessment process that would be used in the completion of the Project. Aboriginal stakeholders were provided with 28 days to review and provide feedback on this methodology.

Of the 5 registered stakeholders, 3 replied in support of the methodology, and 2 did not respond. All RAPs have been provided with a final copy of the report and supporting appendices.

Two site inspections were undertaken on 29 October 2024 and 12 February 2025. As a result of these site inspections two previously unknown Aboriginal sites were identified and recorded during the surveys, including:

- **Jindera IF1 (AHIMS # 55-6-0294) and PAD -**
 - Outside project area: the artefact from this site is located just outside of the north east boundary of the project area;
 - Inside project area: The PAD associated with Jindera IF1 is within Area 1 of the project area (i.e. hillcrest landform). The area is considered as PAD based on the presence of an Aboriginal object, being a sensitive landform for potential Aboriginal occupation (i.e. hillcrest - elevated and flat to very gently inclined and associated with a drainage line), and the lack of observable significant disturbances/modifications to the landform. Bundyi Aboriginal Cultural Knowledge representative also identified the hillcrest landform as a PAD; and
- **Jindera ST1 (AHIMS #55-6-0295) -**
 - Inside project area: Jindera ST1 (AHIMS #55-6-0295) is a scarred tree with a single scar located toward the south west end of the project area along Ortlipp Road.

These items are discussed further in the ACHAR at Appendix G and Section 6.2 of this EIS. As a result of the survey findings, ACHAR outcomes and subsequent Archaeological Assessment (AA) (Virtus Heritage, 2025) and Archaeological Research Design and Methodology (ARDM) (Virtus Heritage, 2025) were prepared (Appendix G).

The final stage of the consultation process included the review of the draft ACHAR, draft AA and draft ARDM by the RAPs. Ongoing consultation and engagement will be undertaken through all future stages of the Project.

5.2 Community Consultation

A Community and Stakeholder Engagement Plan (CSEP) was prepared in March 2024 to identify stakeholders and outline the appropriate associated engagement procedures and processes required for the successful delivery of the Project. The CSEP was prepared in the early Project stage and outlines tailored actions including controls, mitigations, key messages, communication methods and engagement frequency. The CSEP is included as Appendix A of the Engagement Report (SLR, 2025) at Appendix P.

Engagement has been undertaken in accordance with *Undertaking Engagement Guidelines for State Significant Projects* (DPHI, March 2024).



5.2.1 Scoping Stage Engagement Activities

Preliminary engagement with landowners and residents surrounding the BESS Site was undertaken at scoping stage. The purpose of this early engagement was to introduce the Project and BESS technology, to identify potential impacts, understand current concerns and to answer any questions. Early consultation included:

- Kitchen table meetings and door knock discussions with nine of the eleven landowners and residents contacted around the Subject Sites.
- 'Calling cards' and project information flyers were left for landowners and residents who could not be reached during visits.

Table 21 summarises feedback received through early consultation. It is important to note that some concerns raised by local landowners and residents related to the Jindera Solar Farm and may not be specifically relevant to the Project.

Table 21 Summary of Feedback Received through Early Consultation

IMPACT CATEGORY	SUMMARY OF FEEDBACK
Way of life	Opposed to development of solar and BESS infrastructure on high value agricultural land. Concerns about the impact of construction traffic on local transport networks.
Health and wellbeing	Concern regarding potential impacts relating to visual amenity, noise, and light at night. Concern regarding the requirement to run underground cable.
Surroundings	Concern about potential visual impacts when walking, such as those created by the Jindera Solar Farm. Concerns that the Subject Sites are too swampy.
Livelihoods	Concern regarding impact on land values as a result of diminished landscape and vistas, as experienced from the nearby Jindera Solar Farm. Opportunities for procurement of local goods and services. Opportunities to lease land for the BESS and associated activities

5.2.1.1 EIS Stage Engagement activities

SLR, on behalf of GDA, implemented a 5-week community and stakeholder engagement program for the Project. A range of engagement activities were conducted, targeting a broad spectrum of stakeholders, including local community, Project sensitive receivers and key stakeholders.

Table 22 describes the communication channels that were employed to inform stakeholders of the Project.

Table 22 Communication Channels (SLR, Consultation Report, 2025)

Tool	Activity description
Targeted traditional mailout	Utilising a combination of GIS data and publicly available information, Project sensitive receivers were identified and contacted through a direct mail campaign. The recipients were invited to call the dedicated Project telephone line or connect via the Project email address to schedule a meeting with the Project team.



Tool	Activity description
	A total of 36 letters were dispatched to sensitive receivers via priority Australia Post-delivery. Two letters from sensitive receivers were returned.
Email notification	To complement the traditional mailout campaign, an email notification was sent to 12 key stakeholders including key organisations, authorities and First Nations organisations across the Project area.
Newspaper advertisement campaign	A newspaper advertisement campaign was created and circulated throughout October via the Jindera News and The Border Mail newspapers. The Border Mail advertisement ran in print and online from Friday, 27 September - Saturday, 12 October and the Jindera News Advertisement ran from Friday, 1 October - Saturday, 30 October which was free for local residents and available at local shops such as the IGA. The aim of these advertisements was to increase awareness of the Project and promote the upcoming community events to a wide audience base.
Dedicated Project telephone line	A dedicated landline telephone line was established for Project enquiries, providing stakeholders with direct access to Project information and assistance. The number was included in all printed collateral.
Dedicated Project email address	The Project's dedicated email address contact@jinderabess.com.au was included on all printed collateral and managed by GDA.
Online community survey	An online survey was developed to gather valuable feedback and address community concerns regarding the Project. To ensure accessible participation, the survey was made available through multiple channels. A QR code was created for quick mobile access, and the survey link was also prominently featured on the project website, included in informational materials, and promoted through letters, postcards, and project email updates. Additionally, during pop-up sessions, a laptop was provided on-site to facilitate survey participation, making it easy for community members to share their insights and concerns directly with the project team.
Project database campaign	To actively obtain more community contacts, we encouraged community members to sign up to project updates. This message was included via the mailouts and on the website.
Project website	A dedicated Project web page (jinderabess.com.au) was created to host the latest information relating to the Project and to promote the engagement period. The opportunity to sign up for Project updates is also housed on this page.
Project collateral	Collateral was developed prior to the in-person engagement sessions to inform the community about the Project. Key collateral developed included: • Project factsheet Served as a concise overview of the Project, highlighting objectives, key messaging, potential benefits and Project timeline. The factsheet provided a quick and accessible reference point for community members to understand the Project's purpose and significance. • Project poster Designed to assist community members in visualising the Project location and its information during the events. It provided clarity on Project requirements and enabled direct communication with Project team members. • Postcard for survey promotion



Tool	Activity description
	Served to provide a QR code that linked to the online community engagement survey and facilitated the completion of the community online survey. These items, along with the newspaper advertisements, are in Appendix E of the Consultation Report at Appendix P.

The consultation attendance is shown in Figure 26, and event and consultation opportunities are detailed in Table 23.

Table 23 Engagement Opportunities (SLR, Consultation Report, 2025)

Tool	Activity
Pop-up event	A pop-up event was held on Thursday 10 October 2024 from 4pm to 6pm in a high-traffic public location, near the local Jindera IGA supermarket. The event was designed to provide high level Project information, and to answer community questions. Should community members wish to have a more in-depth discussion, we used this opportunity to promote the drop-in session. Project collateral was distributed at the event.
Drop-in event	A drop-in event was held on Saturday 12 October 2024 from 9am to 12pm at the Jindera School of Arts Hall where community members could attend to learn more about the Project. This event allowed attendees to engage directly with Project representatives and ask questions in a one-on-one or small group setting. Project collateral was distributed at the event.
Individual sensitive receiver meetings	An individual meeting was offered for sensitive receivers and key stakeholders to learn more about the impacts of the Project. Communication collateral was used in the meeting to facilitate in-depth discussions about the sensitive receiver's property.
Stakeholder meetings	A face-to-face meeting was conducted with the NSW Rural Fire Service in their Albury office. This meeting provided an opportunity to introduce the Project, address enquiries and collect a deeper understanding of key areas of interest and concerns associated with firefighting operations in the Greater Hume and Riverina region.

5.2.2 Issued raised

During the consultation, stakeholders highlighted several concerns, shown in Figure 26, Figure 27 and Table 24, and summarised below. Figure 28 shows the overall sentiment of the project.

The most common issues raised included:

- **Traffic and transport:** concerns about the increased heavy vehicle movement during the construction and operation phases.
- **Social impact:** questions about the project's contribution to local employment and the broader social impacts on the community.
- **Emergency management:** there was a significant interest in addressing possible fire risks associated with the Project. Stakeholders, including local fire services, emphasized the importance of coordination with emergency responders and the need for robust fire mitigation strategies.
- **Environmental impacts:** concerns were raised regarding potential noise pollution during both construction and operation. Additionally, there was significant focus on the project's effect on local wildlife and ecosystems, particularly the protection of native species like the squirrel glider and mitigation strategies for biodiversity loss.



- Community benefit sharing: some stakeholders expressed the need for more clarity on how the project would provide tangible benefits to the local community. There was a call for transparent communication on how funds from the VPA would be allocated to community development and improvement projects.
- Health and safety: several residents were concerned about the potential health risks associated with having a large battery facility near residential areas. They requested more detailed information on safety measures and risk management.
- Cumulative impacts: concerns were also raised about the cumulative environmental and social impacts of the Jindera BESS in relation to other nearby solar and renewable energy projects. Stakeholders wanted assurances that the combined effects of these projects on local infrastructure, wildlife, and community well-being would be thoroughly assessed and mitigated.

Figure 26 Consultation Snapshot (SLR, Consultation Report, 2024)



Figure 27 Key Concerns Raised (SLR, Consultation Report, 2025)

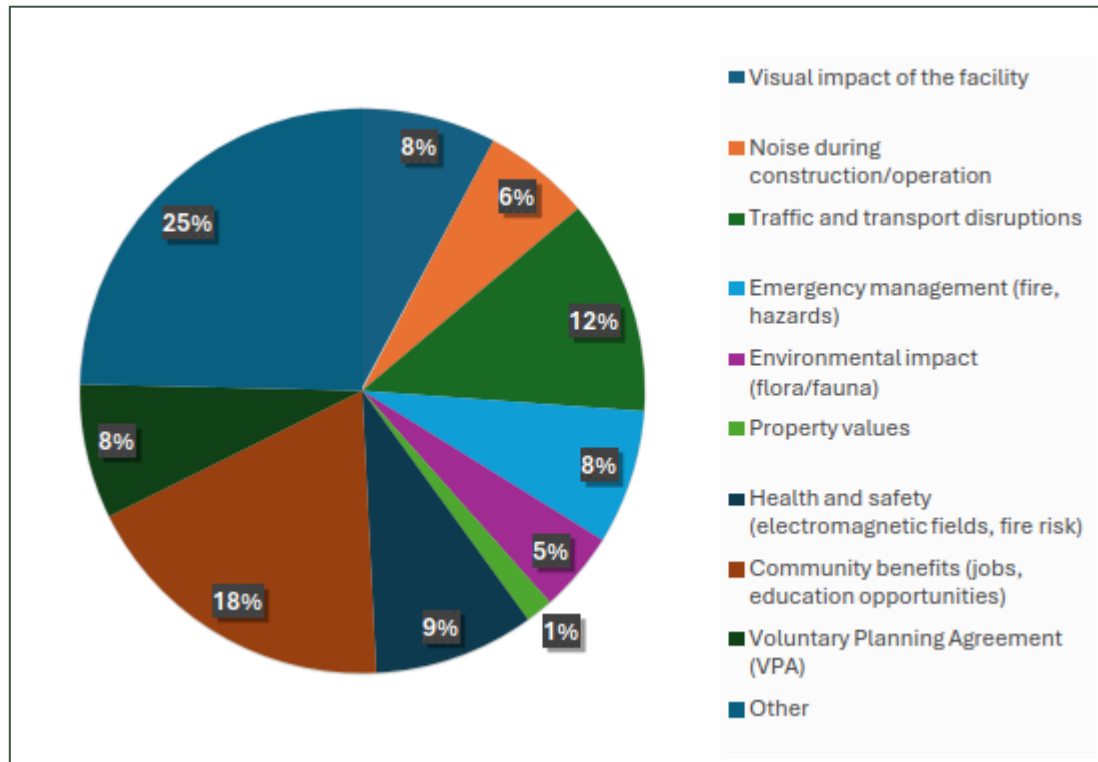


Figure 28 Overall Sentiment Towards the Project (SLR, Consultation Report, 2024)

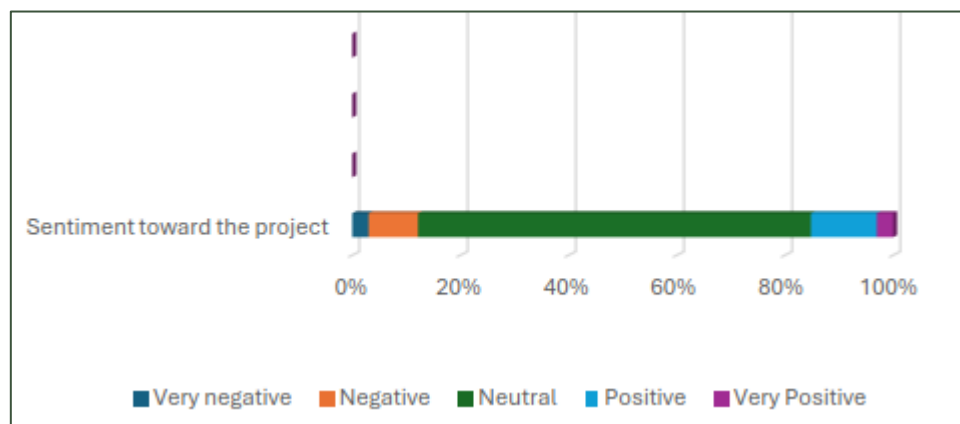


Table 24 Issues and Outcomes during Consultation

Theme	Category	Interest and/or identified issue	Stakeholders who raised this	Also raised in the Jindera and Glenellen Consultations?	Addressed in other technical assessment
Traffic and transport	<i>the design of the project and any alternatives considered</i> <i>the economic, environmental and social impacts of the project</i>	- Increased heavy vehicle movements during construction. - Safety concerns at site access points. - Need for road upgrades, particularly Ortlipp Road and Urana Road. - Turn-around areas for large vehicles. - Cumulative traffic impacts from nearby developments.	- Local residents - Local bus driver - Sensitive receivers - Transport for NSW.	Yes - concerns about construction traffic on local transport networks were previously raised.	Traffic Report addressing intersection performance, recommended routes, and road upgrades. Includes analysis of cumulative impacts from adjacent solar farm developments.
Social impact and local benefits	<i>the economic, environmental and social impacts of the project</i>	- Job creation and local procurement opportunities. - Accommodation for construction workforce. - Distribution of project benefits. - Voluntary Planning Agreement (VPA) funding allocation. - Support for community groups (sports clubs,	- Local residents - Greater Hume Council - Construction workers - Property valuers.	Yes - opportunities for procurement of local goods and services were previously noted.	Economic Impact Assessment forecasting \$28 million in economic output and 87 direct and indirect jobs. Analysis of local procurement and employment opportunities.



Theme	Category	Interest and/or identified issue	Stakeholders who raised this	Also raised in the Jindera and Glenellen Consultations?	Addressed in other technical assessment
		museums, Jindera Community Hub). Infrastructure improvements (swimming pool, roads, telephone network).			
Emergency management	<i>the economic, environmental and social impacts of the project</i>	- Fire risks and mitigation strategies. - Need for water tanks (25,000+litres). - Emergency vehicle access and gates. - Fire suppression training and drills with local brigades. - Use of gravel to reduce grass fire risk. - Equipment and training for Rural Fire Service.	- Local residents - Rural Fire Service (RFS) members - NSW Rural Fire Service - Sensitive receivers.	Not specifically mentioned in previous consultations.	Bushfire Risk Assessment and Hazards and Risk Assessment detailing firebreaks, buffer zones, fire-resistant materials, suppression systems, and emergency response planning.
Environmental impacts	<i>the economic, environmental and social impacts of the project</i>	- Noise from cooling systems during operation. - Construction noise. - Native vegetation and wildlife impacts. - Protection of squirrel glider populations.	- Local residents - Sensitive receivers - Environmental groups - University lecturer.	Yes - concerns regarding potential impacts on visual amenity, noise, and environmental impacts were previously raised.	Noise and Vibration Assessment, Night Light Impact Assessment, ecological assessments, erosion and sediment control plans.



Theme	Category	Interest and/or identified issue	Stakeholders who raised this	Also raised in the Jindera and Glenellen Consultations?	Addressed in other technical assessment
		- Cumulative impacts from nearby developments. - Water resources and hydrology. - Erosion and sediment control.			
Community benefit sharing	<i>the economic, environmental and social impacts of the project</i> <i>community engagement</i>	- Transparency in VPA fund allocation. - Funding for local facilities (swimming pool, sports clubs, museums). - Education and awareness programs. - Community partnerships. - Previous disappointments with solar farm community commitments.	- Local residents - Greater Hume Council - Community groups.	Not specifically mentioned in previous consultations.	Not specifically addressed in technical assessments but relates to social and economic contributions.
Health and safety	<i>the economic, environmental and social impacts of the project</i>	- Health risks associated with battery facility. - Electromagnetic fields. - Battery fire risks. - Hazardous materials management.	- Local residents - Sensitive receivers.	Not specifically mentioned in previous consultations.	Hazards and Risk Assessment addressing EMF compliance, fire suppression systems, separation distances, and containment measures.



Theme	Category	Interest and/or identified issue	Stakeholders who raised this	Also raised in the Jindera and Glenellen Consultations?	Addressed in other technical assessment
Grid stability and energy supply	<i>the justification and evaluation of the project as a whole</i> <i>the design of the project and any alternatives considered</i>	- Contribution to network reliability. - Power outage mitigation. - Benefits to local electricity supply. - Integration with renewable energy sources.	- Local residents - Energy industry stakeholders.	Not specifically mentioned in previous consultations.	Project description and objectives in EIS focus on grid stability benefits.
Cumulative impacts	<i>the economic, environmental and social impacts of the project</i>	- Concerns about multiple energy projects in the area. - Combined effects on infrastructure, services, and environment. - Relationship to Jindera and Glenellen Solar Farms.	- Local residents - Greater Hume Council - NSW Rural Fire Service.	Yes - local landowners expressed opposition to development of solar and BESS infrastructure on high-value agricultural land.	Traffic Report and Visual Impact Assessment addressing cumulative effects. Other technical assessments consider adjacent developments.
Property values	<i>issues that are either beyond the scope of the project</i>	- Concerns about diminished landscape and vistas - Impact on property values.	- Local residents - Property valuers.	Yes - concern regarding impact on land values due to diminished landscape and vistas.	Economic Impact Assessment addressing regional economic effects and property market considerations.
Visual impacts	<i>the strategic context, including identifying the key natural and built features that are valued</i>	- Visual impact of the facility. - Transmission line visual intrusion.	- Local residents - Sensitive receivers	Yes - concerns about visual impacts when walking and diminished	Visual Impact Assessment rating impact as "Minor-Negligible" with screening recommendations. Night Light



Theme	Category	Interest and/or identified issue	Stakeholders who raised this	Also raised in the Jindera and Glenellen Consultations?	Addressed in other technical assessment
	<i>in the area and could be affected by the project</i> <i>the economic, environmental and social impacts of the project</i>	• Need for screening vegetation. • Night lighting effects.	• Greater Hume Council.	landscape were previously raised.	Impact Assessment confirming compliance with standards.
Decommissioning and recycling	<i>the economic, environmental and social impacts of the project</i>	• End-of-life battery management. • Recycling of lithium-ion batteries. • Site rehabilitation.	• Local residents.	Not specifically mentioned in previous consultations.	Project description addressing decommissioning plans and waste management approaches.
Aboriginal cultural heritage	<i>community engagement</i> <i>the economic, environmental and social impacts of the project</i>	• Protection of cultural heritage sites. • Consultation with First Nations people. • Potential disturbance of undiscovered heritage items.	• Aboriginal organisation representatives • Survey respondents.	Not specifically mentioned in previous consultations.	Aboriginal Cultural Heritage Assessment identifying sites, consultation process, and management recommendations.
Water resources	<i>the economic, environmental and social impacts of the project</i>	• Water supply with Jindera's projected growth. • Extension of water supply line to BESS site. • Sustainable water management.	• Greater Hume Council.	Not specifically mentioned in previous consultations.	Project description addressing water requirements and management during construction and operation.



5.2.3 Online community survey

The project team developed an online community survey to gather community input and identify key concerns in preparation for the EIS application. The survey was open from 27 September until 21 October 2024 and aimed to capture feedback on a range of issues related to biodiversity, cultural heritage, visual and noise impacts, traffic, water resources, and potential social and economic benefits.

During this period, three survey submissions were received, all three submissions were from local community members. Two of the survey responders were between 55 and 64 years old and one was above 65 years old. The insights collected are critical for addressing stakeholder concerns and informing the mitigation. This section provides an analysis of the responses, highlighting the key issues raised by the respondents, accompanied by proposed mitigation measures.

5.2.4 Host landholder

Ongoing discussion have been held with the host landowner via phone, email and face to face meeting throughout the duration of the planning and development process. Legal lease agreements are in place with the landowner and GDA and include the required mitigation measures such as noise wall, tree/vegetation removal, tree planting, APZ management and noise impacts. The landowner has provided owner's consent for lodgement of the SSD application.

5.3 Agency Consultation

During the preparation of the EIS discussions were held with several government and private agencies, detailed in Table 25.

Table 25 Agency Discussion During EIS Preparations

Stakeholder	Correspondence
DPHI	A pre-scoping meeting was held with DPHI to introduce the project. Discussions and feedback from DPHI aligned with the issued SEARs. Following the issue of the SEARs on 18/04/2024, ongoing consultation has been undertaken including a meeting was held with DPHI on 31 October to discuss the project during EIS preparation. Items discussed included the proposed 4m noise wall, changes to the water arrangements and general EIS preparation matters.
TfNSW	Preliminary engagement was undertaken with TfNSW with details of the Project provided via email on 8 December 2023. The intent of preliminary engagement was introduce TfNSW and the Project, to facilitate consultation on any key design or assessment considerations. Prior to SEARS being released a proposal package was provided to TfNSW for comment. A response was received via email (January 2024) which largely reflects the SEARs as issued, including that the TIA address: • Traffic volumes inclusive of background and project related traffic. • Traffic characteristics including; ratio of heavy to light vehicles, peak times, hours of transportation, capacity analysis. • Heavy vehicle and OSOM routes (NVHR approved) including a logistics route analysis, locations where civil works are required, pinch points and the like. • Cumulative impacts, including projects nearby with overlapping construction periods. • Consideration of accommodation and transport needs/facilities.



Stakeholder	Correspondence
	- Road safety assessment of haulage routes. - Project schedule including shift details and construction timeframes. - Origins, destinations and routes for commuter vehicles, heavy vehicles and OSOM vehicles. - Any road upgrades required, with strategic drawings. - Internal road layouts. - Impact on rail corridors and level crossings. - SEPP 33 / dangerous goods controls. - Draft TMP managing impacts of project related traffic. These matters have been addressed in the TIA at Appendix M. A further meeting was held with TfNSW (26 Sept 2024) and the project traffic engineer to discuss the SEARs requirements and OSOM route analysis.
Transgrid	The BESS will connect to the existing Transgrid substation via transmission line. It is not yet confirmed whether the Proponent or Transgrid will complete the works associated with the grid connection for the Project. On-going consultation between the Proponent and Transgrid has been occurring since December 2022. The following engagement has been undertaken to date: December 2022 - Initial Connection Enquiry with Transgrid. January 2023 - Transgrid Connection Enquiry Response: February 2023 - Transgrid update meeting. Ongoing liaison between GDA with Transgrid throughout scoping and EIS preparation to discuss the easement and substation upgrades. Owner's consent will be provided for works on the Substation Site.
NSW RFS	A meeting was held with the Glenellen RFS area manager to introduce the Project.
Krakatoa Resources Pty (KR)	Correspondence to KR was made via email, to provide details of the project. A response was received via email (25 July 2024), where KA confirmed that at this point in time, the Subject Sites are not within a geological area that is considered a priority for exploration. GDA will advise Krakatoa once the Project is approved.
Federal Minister for Farrer	Correspondence was received from the Member via email (20 September 2024) requesting ongoing engagement, particularly on the specific on the community consultation and the results from this. GDA will provide the consultation report and SIA on lodgement.
Crown Lands	Crown Lands have been kept informed of the Project during the design phase and will be providing consent for the works over Crown Lands.
Greater Hume Shire Council	Preliminary engagement occurred with the Council, with details of the Project provided via email on 8 December 2023. The intent of preliminary engagement was to introduce the Council and the Project. A written response was received from Council on 15 January 2024, with preliminary advice summarised below: - Noted close proximity to the approved Jindera and Glenellen Solar Farms, and need to consider cumulative impacts on traffic, noise and air quality. - Visual impacts of the Project will need to be considered and Council would like to see the proposed BESS be assimilated with the rural landscape. - Traffic implications of the Project will be an issue for Councils consideration and information will be needed on traffic generation of the development during construction, operation and decommissioning.



Stakeholder	Correspondence
	• Council's will be requesting the applicant to enter into a Voluntary Planning Agreement (VPA) with Council with the value of the VPA amounting to 1% of the capital investment value. • Impacts on the hydrology of the site and surrounds as a result of the Project should be addressed. • Other impacts to be considered include a hazards and risks analysis, biodiversity, land resources, aboriginal cultural heritage, historical heritage, waste and resource use, noise and socio-economic factors. A proposal package was subsequently provided to Council during the scoping stage, in which Council provided a written response (15 January 2024), preliminary comments included: • Need to consider cumulative impact with the 2 approved solar farms in the vicinity and traffic, air quality and noise. • Visual impacts and rural character of the area. • Traffic generation and impacts. • Entering into a VPA, likely with annual payments over the life span of the project. • Impacts on hydrology of the site and surrounding. • Other impacts to be addressed: hazards & risk, biodiversity, land resources, Aboriginal heritage, heritage, waste, noise and socio-economic factors. The FIRA was sent to Council for review as requested in the SEARs and Council advised on 6 May 2025 they did not have any further comments at that stage. Owner's consent has been provided by Council for the works in the road reserve.
NSW SES Flood specific	The FIRA was sent to the SES for comment on the flood report. Correspondence was received April 1 2025 with general comments including: - Consideration of the Flood Risk Manual 2023 and associated; - Consideration of flood on broader road network to ensure people are able to evacuate the site; - Consideration of flood resilient infrastructure; - Seeking advice from DCCEW regarding impact of development on surrounding area (to be done via referral); and - Incorporating flooding into a Business Emergency Plan.

Emails to introduce the project were sent to the agencies below, with no response received to date (other than those received as part of the SEARs):

- State Member for Albury
- NSW DPI
- NSW EPA
- Heritage NSW
- Business NSW
- Albury Business Connect
- Rural Care Link Inc.
- Murray Darling Wetlands Working Group
- NSW SES (general project review)



5.4 Amendment of the Project in Response to Matters Raised

Table 26 summarises the changes to the proposal which were undertaken as a result of the consultation process.

Table 26 Project Amendments

Item	Action
Noise impact	- Construction of an acoustic wall to minimise operational impacts. - Implementation of a Construction Noise Management Plan (CNMP) and notifying nearby residents when construction will commence and cease.
Visual impact	- Large tree planting in west front of the acoustic wall to soften impact. - Colour treatment of the wall to reduce visual impact.
Traffic impacts	Sealing of Ortlipp Road between the BESS Site entrance and Glenellen Solar Farm.
Fire and hazards	- Moving the water tank to the entrance of the site, as opposed to being dispersed throughout, as per the RFS guidelines. - Noting the fitting and fixtures of the tanks, as per the RFS guidelines. - Connecting the water tank to town water supply to ensure ongoing availability, in lieu of trucking water in when required. - Implement APZs to reduce fire risk.
Ecological Impacts	Realignment of the TL to avoid hollow bearing trees where possible.

5.5 Ongoing and Future Engagement

Table 27 below provide a summary of the suggested ongoing engagement and recommendations to be undertaken by GDA to keep relevant stakeholders and the wider community informed about the project during the final planning stages, construction and ongoing operations.

Formal notification of the project will be undertaken by DPHI during the assessment period for the SSD, with the proponent committed to responding to all relevant issues and queries arising during this period through DPHI's formal response to submissions process.

During construction, consultation and engagement will be undertaken with relevant parties in accordance with Section 3 of the CSEP and will include notification of the commencement of works and consultation on works with the potential for impact on nearby receivers. The Proponent and their contractors will continue to engage and work with all relevant agencies and authorities to meet all regulatory requirements and ensure compliance with conditions of consent.

As the project progresses, refinement of this document and the tools located within the engagement strategy may be required to ensure the ongoing effectiveness of engagement measures proposed.



Table 27 Action Plan Post Lodgement (SLR Consultation Report, 2025)

Phase	Tool	Activity	Stakeholder
Realignment	Kick off, ways of working and internal connections	- Realignment workshop to discuss and agree on: - Key processes, systems, and ways of working. - Opportunities to leverage internal GDA connections, including marketing and communications. - Action plan priorities from which a program schedule can be developed.	Internal
	Program schedule	Development of a high-level program of events and activities to identify opportunities for efficiencies / activity consolidation. The program schedule should plot dates for community events, key communications activities, and campaigns for the next phase.	All
Targeted key stakeholder engagement	Collateral review	- Update existing collateral to reflect learnings from engagement undertaken to date including additional Factsheets and FAQs, simplified Project description for information sheet and poster, and project updates on the website - Collateral upload on webpage with regular updates.	All
	Key stakeholders campaign	- Develop targeted key stakeholder campaign to identify potential key stakeholders participation opportunities. Campaign to include: - Key stakeholder participation-specific collateral such as tailored letters. - Expressions of interest form to capture key stakeholders contacts for future use.	Key stakeholders
Sensitive receivers engagement	Sensitive receivers engagement	Personal contact with target Project sensitive receivers to seek appetite for face-to-face meeting. <i>Sensitive receivers meetings to be coordinated with consideration to availability, willingness to participate, and will not be limited to the public consultation period.</i>	Sensitive receivers
Broader community engagement opportunities	Events and workshops	Coordination of branded booth materials – tablecloths, banners, display items to ensure GDA brand is effectively represented.	Community
	Local Council engagement	Strategic communications and engagement touchpoints with Greater Hume Shire Council to provide Project updates and explore opportunities for Project-related community benefits sharing opportunities and VPA. Timings of engagement to consider potential for engagement fatigue.	Greater Hume Shire Council





06 Assessment of Impacts

Battery Energy Storage System - Jindera

FOR: BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00001

Revision: 1.5



6.0 Assessment of Impacts

This chapter provides a detailed assessment of the key environmental issues and recommended mitigation measures for the Project and addresses the requirements of the SEARs and outlines the mitigation measures proposed to address any potential impacts.

The following key issues were identified in the EIS Scoping Study and in the SEARs for detailed assessment:

- Biodiversity
- Aboriginal cultural heritage
- Historic heritage
- Land and soils
- Land use conflict
- Visual impact & light spill
- Noise and vibration
- Traffic and transport
- Surface water
- Ground water
- Flood
- Hazards, risk & health
- Health
- Bushfire
- Social impact
- Economic impact
- Waste management

The below discussion provides a summary of the specialist studies prepared, which are appended to the EIS.

6.1 Biodiversity

This section presents the findings of a Biodiversity Development Assessment Report (BDAR) (SLR Consulting, 2025) prepared in response to the SEARs, refer to Appendix F. The BDAR includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project.

6.1.1 Existing Environment

The Subject Sites are located within the South Western Slopes Interim Biogeographic Regionalisation of Australia (IBRA) region and Lower Slopes IBRA subregion. The site is positioned at a 220m above sea level elevation and is flat. The *Reconnaissance Soil and Land Resources of the Murray Catchment* (DCCEE 2024a) maps the soil landscapes of the land as Kindra in the north (the rural lot) and Yarra Yarra in the south (the Substation Site and a small portion of the southern tip of the BESS Site).

The Kindra soil landscapes are generally composed of broad gently sloping plains formed on colluvium below metasedimentary hills, with slopes of 1-3% and local relief <5m. The geology is quaternary slopewash derived from Ordovician metasediments. Parent materials consist of gravel, sand, silt and clay colluvial deposits. Soils are red chromosols (red-brown earths), red dermosols (brown podzolic soils and non-calcic brown soils), and red kurosols (red podzolic soils).

The Yarra Yarra soil landscapes are characterised by gently inclined footslopes and fans on granite-derived colluvium, with Slopes 2-8%, and local relief 10-30m. The geology is quaternary colluvium derived from the adjacent Jindera Granite, with some scattered outcrop. Soils on upper and midslopes are very deep (>1.5m), imperfectly to moderately well-drained red, brown and yellow chromosols (podzolic soils). Soils on lower slopes are typically deep (1.0-1.5m), imperfectly drained brown and grey sodosols and kurosols (soloths and solodized solonetz soils). Fans contain very deep (1.5-5.0m), well-drained orthicthenosols (earthy sands).



There is one mapped watercourse within the subject land, being Kilnacroft Creek which is mapped as occurring in the western corner of the Transgrid site. Kilnacroft Creek is a third order ephemeral stream meandering east-west through the landscape buffer. There are also two small dams within each property.

The BESS Site has undergone historic clearing although various patches of native vegetation remain. The northern property is currently used for farming, whilst the southern property forms a transmission sub-station.

The assessment area occurs entirely within the Brokong Plains Mitchell landscape. The Brokong Plains is described as quaternary alluvial plains. The general elevation is 170m and local relief is under 10m. Soils are red-brown texture-contrast soils, that have been extensively cleared and cropped. Vegetation types were formerly woodland to open forest of *Eucalyptus microcarpa*, *Eucalyptus melliodora*, *Eucalyptus blakelyi* and *Callitris glaucophylla*.

A review of the available wildlife corridor mapping on the SEED portal (NSW DCCEEW, 2025) indicates that there is no mapped wildlife corridor associated with the subject land. An examination of aerial imagery and regional vegetation mapping (NSW DCCEEW 2022) for the assessment area suggest that the vegetation and habitats within the subject land are generally connected to vegetation and habitats in the broader landscape. The vegetation within the subject land is likely to aid wildlife movements in a northeast-southwest direction.

6.1.1.1 Surveys Undertaken

A detailed overview of the fieldwork surveys undertaken to inform the Biodiversity assessment is outlined in the BDAR at Appendix G. The survey efforts included:

- Plot-based vegetation surveys in accordance with Biodiversity Assessment Method (BAM) Subsection 4.2.1 were undertaken by SLR in winter and spring 2024.
- Vegetation integrity surveys were in accordance with BAM Subsection 4.3.4. The number of vegetation integrity plots sampled in each vegetation zone was determined in accordance with Table 3 of the BAM. Within the subject land, six 20m by 50m (1,000m²) plot/transect ('BAM plot') containing a nested 20m by 20m (400m²) floristic plots were established and sampled, with four plots in one zone (containing moderate condition vegetation) and two plots in another zone (containing low condition vegetation).
- Field surveys to assess habitat constraints and microhabitats were undertaken by RPS (2023). These were supplemented by surveys of the subject land by SLR in 2024/2025.
- Targeted threatened flora surveys, to target *Swainsona sericea*, *Swainsona recta* and *Cullen parvum*, were undertaken in spring/summer 2024. Due to project timeframes, the survey of the proposed water pipeline route was unable to be conducted during the correct survey months for the *Swainsona* spp, which are September, October, November. The design and alignment of the water pipeline was not available until after this survey period had passed. Therefore, these two species have been assumed present within the water pipeline route due to the presence of suitable habitat (but not within the BESS Site due to absence of sightings during surveys).
- Conversely, surveys for *Cullen parvum* were conducted in the water pipeline route during the survey period (December and January), but not within the BESS Site. Accordingly, *Cullen parvum* has been assumed present within the BESS Site due to presence of suitable habitat (but not within the water pipeline route).



- Various field surveys to assess habitat constraints and microhabitats (see Section 6.1) were undertaken by SLR in 2024/2025. Specific habitat assessment survey techniques for threatened species of fauna include:
 - Mapping of hollow-bearing trees.
 - Searches for areas of rocky ground.
 - Koala SAT surveys, including searches for Koala scratches and scats.
 - Opportunistic and incidental observations of fauna species during field surveys, including opportunistic observations of fauna activity such as scats, tracks, burrows, or other traces.
- Surveys undertaken by SLR to target threatened species of fauna include:
 - Call playback surveys to target Bush Stone-curlew, Barking Owl, Masked Owl and Koala.
 - Spotlighting to target the Koala and Squirrel Glider.
 - Nest surveys to target Little Eagle.
 - Arboreal remote camera recording and spotlighting to target the Eastern Pygmy Possum.
 - Diurnal bird/habitat surveys to target Superb Parrot, Gang-gang Cockatoo, Little Eagle, Square-tailed Kite, White-bellied Sea-Eagle, Bush Stone-curlew and Grey-headed Flying-fox.
 - Targeted bat surveys to target the Southern Myotis.
- An aquatic habitat assessment of Kilnacraft Creek within and proximal to the subject land was completed to aid in the description of aquatic habitat and to assess the likelihood of occurrence of threatened or migratory species, threatened population or ecological community identified with potential to occur within the assessment area.

Threatened flora surveys as were undertaken with reference to the *BAM Surveying threatened plants and their habitats* guide (DPIE, 2020) and survey notes within the TBDC.

Threatened fauna surveys were undertaken with reference to the survey notes within the TBDC, as well as the following survey guidelines:

- Koala BAM survey guide (DPE, 2022).
- 'Species credit' threatened bats and their habitats NSW survey guide for the Biodiversity Assessment Method (DPIE, 2021).
- Survey guidelines for Australia's threatened birds (DEWHA, 2010).

In accordance with BAM Subsection 5.2.4, candidate species listed in Table 28 and Table 29 are determined to be present within the subject land based on:

- Assumed presence within the subject land,
- An important habitat map (for dual credit species);
- Targeted threatened species surveys; or
- An expert report.

For the candidate species listed below, presence was determined using targeted surveys or by assumed presence. No species were determined present via important habitat map or expert report. Species in grey shading are those determined to be present on site.



Table 28 Determining the Presence of Candidate Flora Species Credit Species

Common Name	Scientific Name	Listing Status		Method Used to Determine Presence (Target Survey/ Assumed Present/ Important Habitat Mapped Area/ Expert Report)	Present? (Yes/ No/ Assumed Present)	Further Assessment Required? (BAM Subsections 5.2.5 and 5.2.6) (Yes/ No)
		BC Act	EPBC Act			
Small Scurf-pea	<i>Cullen parvum</i>	E	-	Target survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (BESS and powerline areas)	Yes (partially)
Small Purple-pea	<i>Swainsona recta</i>	E	E	Target survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes (partially)
Silky Swainson-pea	<i>Swainsona sericea</i>	V	-	Target survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes (partially)

Listing status: V=vulnerable, E=endangered

Table 29 Determining the Presence of Candidate Fauna Species Credit Species

Common Name	Scientific Name	Listing Status		Method Used to Determine Presence (Target Survey/ Assumed Present/ Important Habitat Mapped Area/ Expert Report)	Present? (Yes/ No/ Assumed Present)	Further Assessment Required? (BAM Subsections 5.2.5 and 5.2.6) (Yes/ No)
		BC Act	EPBC Act			
Bush Stone-curlew	<i>Burhinus grallarius</i>	E	-	Target Survey	No	No
Gang-gang Cockatoo	<i>Callocephalon fimbriatum</i>	E	E	Target Survey	No	No
Eastern Pygmy-possum	<i>Cercartetus nanus</i>	V	-	Target Survey	No	No
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>	V	-	Target Survey	No	No
Little Eagle	<i>Hieraaetus morphnoides</i>	V	-	Target Survey	No	No
Square-tailed Kite	<i>Lophoictinia isura</i>	V	-	Target Survey	No	No
Southern Myotis	<i>Myotis macropus</i>	V	-	Target Survey	No	No
Barking Owl	<i>Ninox connivens</i>	V	-	Target Survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes (partially)
Squirrel Glider	<i>Petaurus norfolcensis</i>	V	-	Target Survey	Yes	Yes
Koala	<i>Phascolarctos cinereus</i>	E	E	Target Survey	No	No
Superb Parrot	<i>Polytelis swainsonii</i>	V	V	Target Survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes (partially)
Grey-headed Flying-fox	<i>Pteropus poliocephalus</i>	V	V	Target Survey	No	No
Masked Owl	<i>Tyto novaehollandiae</i>	V	-	Target Survey/ Assumed Present	No (in areas surveyed)/ Assumed Present (water pipeline)	Yes (partially)

Listing status: V=vulnerable, E=endangered



6.1.1.2 Biodiversity Features

The subject land is approximately 40.81ha, and the native vegetation extent within the subject land is approximately 16.76ha or 41% of the site area. Native vegetation extent is mapped in Figure 29.

Native vegetation within the subject land has been assessed as aligning with the BioNet Vegetation Classification Plant Community Type (PCTs) identified Table 28 and the extent is shown in Figure 29.

The PCT found on the site is 4.2.2 PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland, which comprised 16.34 ha of the subject land area. A detailed description of this PCT is provided in Section 4.2 of the BDAR (SLR Consulting, 2025) at Appendix G.

Two condition states have been mapped for PCT 277 within the subject land:

- Moderate, being areas that contain a mature canopy with a degraded understorey, refer to Photo 4.
- Low, being areas of regrowth, with a degraded understorey, refer to Photo 5.

Photo 4 PCT 277 Blakely's Red Gum - Grassy Woodland - Moderate (SLR, BDAR, 2025)



Photo 5 PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland – Low (SLR, BDAR, 2025)



PCT 277 is associated with a Threatened Ecological Community (TEC) within the BioNet Vegetation Classification, being *White Box-Yellow Box- Blakely's Red Gum Grassy Woodland and Derived Native Grassland in the NSW North Coast, New England Tableland, Nandewar, Brigalow Belt South, Sydney Basin, South Eastern Highlands, NSW South Western Slopes, South East Corner and Riverina Bioregions* ('Box Gum Woodland'). All 'PCT 277_Mod' and 'PCT 277_Low' areas across the subject land are considered to meet the definition of this TEC based on the following criteria from the Scientific Determination (TSCC 2025):

PCT 277 is associated with an EC listed under the EPBC Act within the BioNet Vegetation Classification, being *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland*. As detailed in the BDAR, the Box Gum Woodland TEC is in a degraded form and is not considered to meet the condition threshold requirements for EPBC Act listing.

Species polygons are indicated in Figure 31. Species polygons are based on the methods identified in the threatened biodiversity data collection and the results are summarised in Table 30 and Table 31.



LEGEND

Subject Land

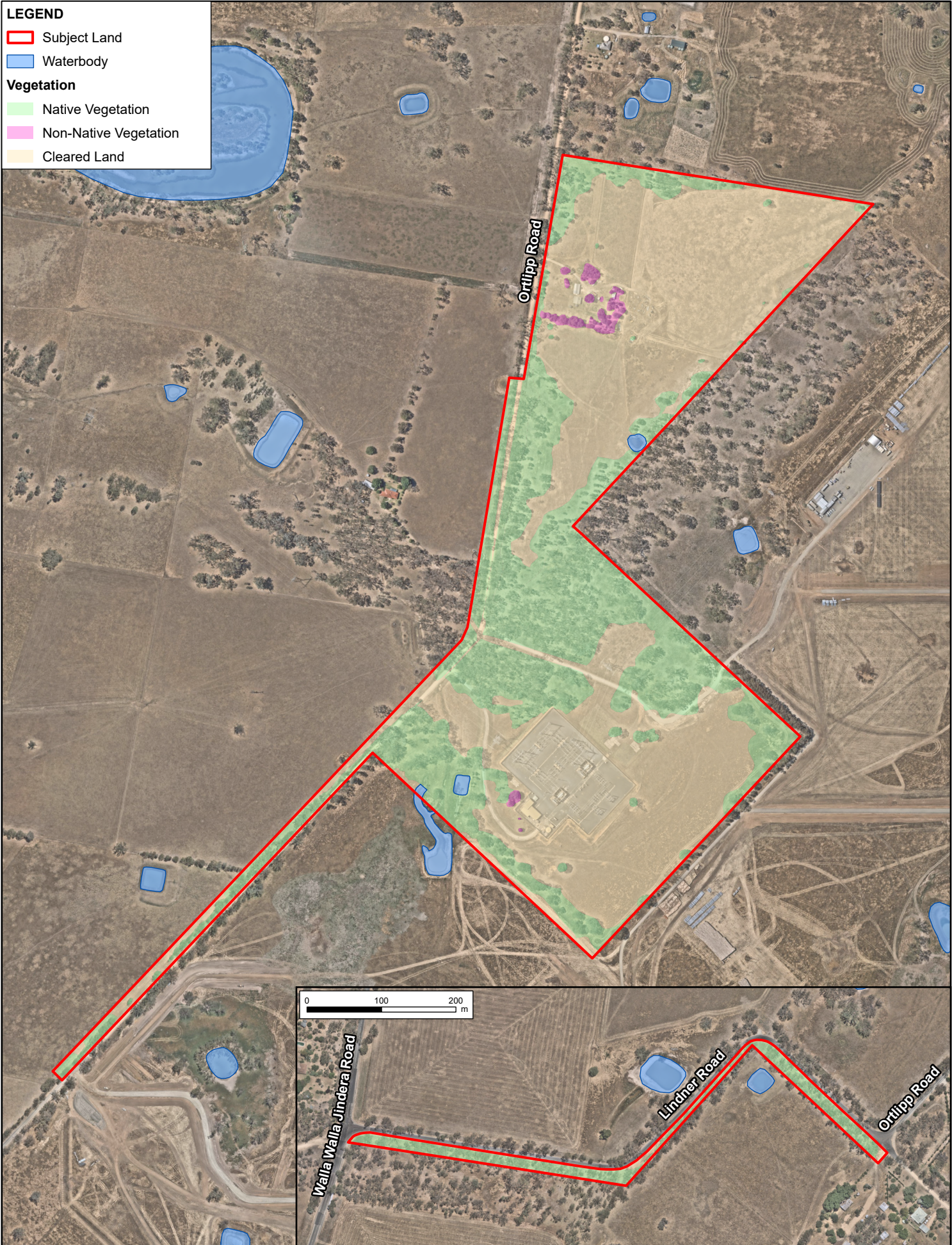
Waterbody

Vegetation

Native Vegetation

Non-Native Vegetation

Cleared Land



0 100 200 m

Scale: 1:7,200 at A4
Coordinate System: GDA2020 MGA Zone 55

Date Drawn: 07-May-2025
Project Number: 620.041088

Data Sources:
NSW SS (2024)
Aerial Imagery: Nearmap (November 2024)



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NATIVE VEGETATION EXTENT

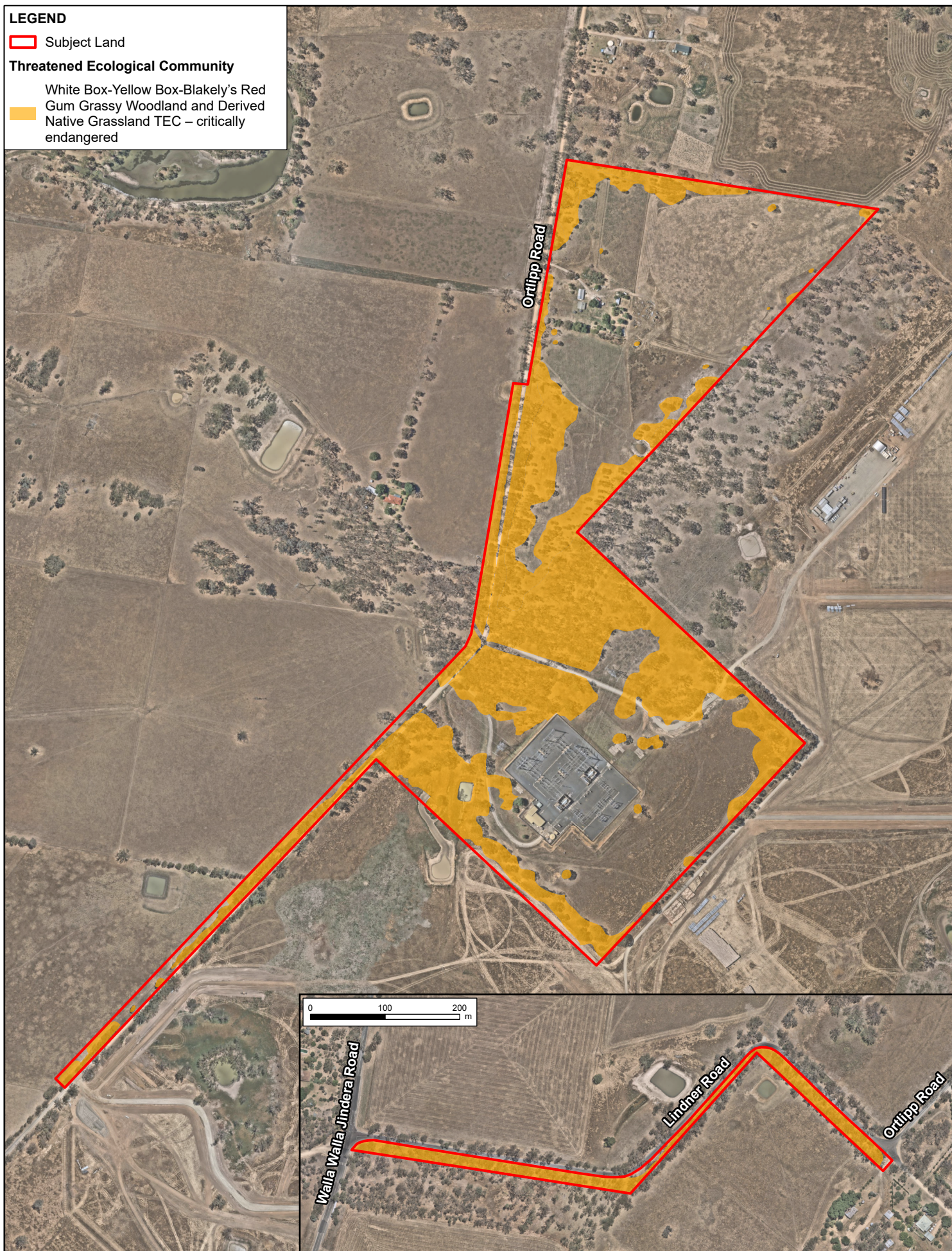
FIGURE 29

LEGEND

 Subject Land

Threatened Ecological Community

 White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC – critically endangered



0 100 200 m

Scale: 1:7,200 at A4
Coordinate System: GDA2020 MGA Zone 55



Date Drawn: 07-May-2025
Project Number: 620.041088

Data Sources:
NSW SS (2024)
Aerial Imagery: Nearmap (November 2024)



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

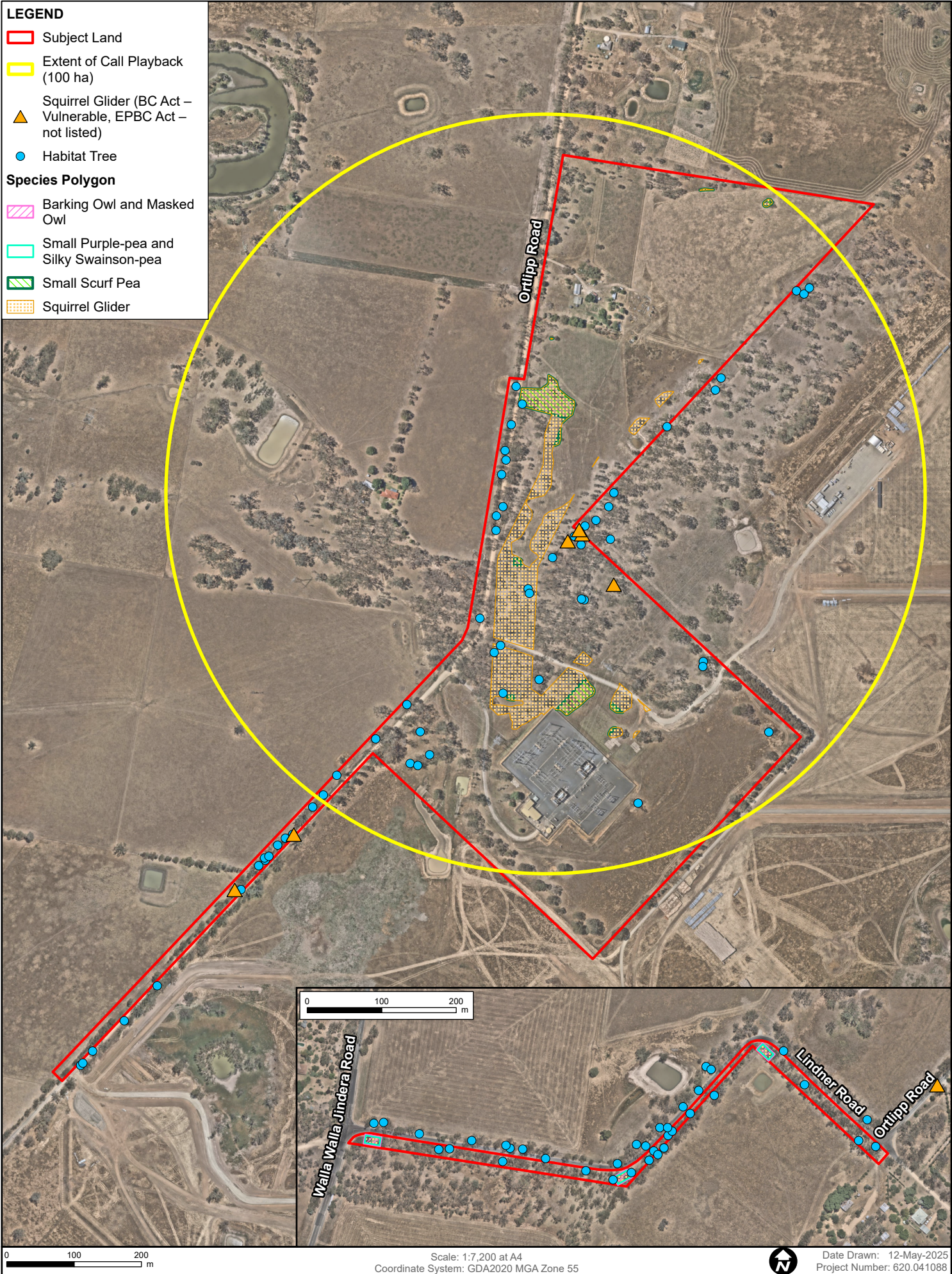
**THREATENED ECOLOGICAL
COMMUNITIES AND
ECOLOGICAL COMMUNITIES**

FIGURE 30

Table 30 Results for Present Species (SLR, BDAR, 2025)

Common Name	Scientific Name	Biodiversity Risk Weighting (BAM-C & TBDC) (Very High 3, High 2, Moderate 1.5, Low 1)	SAll entity (BAM-C & TBDC) (Yes/No)	Habitat Constraints / Microhabitats Present on the Subject Land / Vegetation Zone	Abundance – No. Individual Plants Present on Subject Land (Flora with Unit of Measure of Count)	Extent (ha) of Suitable Habitat Present on Site (Flora or Fauna with Unit of Measure of Area)	TBDC Info (e.g. Buffers, General Comments, Where Relevant)	Habitat Condition (VI score for each Vegetation Zone in the Polygon – Area Species Only)
Barking Owl	<i>Ninox connivens</i>	High (2)	No	Trees with hollow >20cm diameter and >4m above the ground	n/a	0.06	Trees with hollow >20cm diameter and >4m above the ground	277_mod is 58.6
Squirrel Glider	<i>Petaurus norfolcensis</i>	High (2)	No	PCT 277 with hollow-bearing trees	n/a	2.88	n/a	277_mod is 58.6, 277_low is 30.5
Superb Parrot	<i>Polytelis swainsonii</i>	High (2)	No	PCT 277 trees with hollows >5cm diameter and >4m above ground or trees with a DBH of >30cm	n/a	0.06	Circular buffer with a 100m radius around the nest tree. We have assumed all areas would be within appropriate buffer areas.	277_mod is 58.6
Small Scurf-pea	<i>Cullen parvum</i>	High (2)	No	PCT 277	n/a	0.46	n/a	277_mod is 58.6, 277_low is 30.5
Small Purple-pea	<i>Swainsona recta</i>	Moderate (1.5)	No	PCT 277	n/a	0.06	n/a	277_mod is 58.6
Silky Swainson-pea	<i>Swainsona sericea</i>	High (2)	No	PCT 277	n/a	0.06	n/a	277_mod is 58.6
Masked Owl	<i>Tyto novaehollandiae</i>	High (2)	No	Trees with hollow >20cm diameter and >4m above the ground	n/a	0.06	Trees with hollow >20cm diameter and >4m above the ground	277_mod is 58.6





Data Sources:
NSW SS (2024)
Aerial Imagery: Nearmap (November 2024)



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

CANDIDATE SPECIES CREDIT SPECIES RECORDS AND SPECIES POLYGONS

FIGURE 31

Table 31 Results for EPBC Act Listed Species Present (SLR, BDAR, 2025)

Common Name	Scientific Name	Abundance – No. Individual Plants Present on Subject Land (Flora with Unit of Measure as Count)	Extent (ha) of Suitable Habitat Present on Site (Flora or Fauna with Unit of Measure as Area)
Small Purple-pea	<i>Swainsona recta</i>	n/a	0.06
Superb Parrot	<i>Polytelis swainsonii</i>	n/a	0.06

The Squirrel Glider has been recorded in the northeastern corner of the sub-station site and along Ortlipp Road to the southwest. As such it is likely that the species dens and forages in these areas and the proposed powerline represents a 60m wide barrier to existing movements. It is noted that Squirrel Gliders may glide up to 100m in distance and the existing feeder that runs in a northwest direction from the substation represents a similar barrier and based on the location of recent records does not appear to significantly impact Squirrel Glider movements. Squirrel Glider linkages are likely to exist throughout the locality where breaks in the native vegetation and canopy trees are under 100m.

The assessment area does not contain any karst, caves, crevices, cliffs, rocks and areas of geological significance. There are no areas of outstanding biodiversity value, as identified under the (BC) Act, within the subject land and assessment area.

Areas that are not native vegetation are indicated on Figure 29 and include planted non-native vegetation around the dwelling and substation or cleared land, being areas of maintained pasture.

6.1.1.3 Aquatic Biodiversity

This section provides a description of the existing environment within the subject land and assessment area based on the outcomes of the desktop background review and the field inspection of Kilnacraft Creek that was completed.

The Study Locality does not encompass any critical aquatic habitat declared under the *Fisheries Management (FM) Act 1994* or the EPBC Act.

Kilnacraft Creek is identified as a third-order ephemeral stream with minimal aquatic habitat and poor water quality during inspections. An examination of numerous historical aerial maps (Nearmap, 2025) of Kilnacraft Creek within the subject land over a number of years (back to around 2010) revealed that minimal water and low flow were likely present during periods prior to and following aerial map image capture. This suggests that Kilnacraft Creek is ephemeral in nature and flow within Kilnacraft Creek is minimal, with the exception of periods of high rainfall.

During the recent site inspection, minimal water was present within Kilnacraft Creek, with only small standing pools of disconnected shallow water scattered sporadically along the creek line throughout the subject land and beyond. A larger dam, immediately to the south-west of the south-west subject land boundary, was present and was the only substantial waterbody observed along the creek during the site inspection. The site inspection of the creek indicated a lack of potential quality aquatic habitat within the creek such as large woody debris and snags, instream native macrophytes, gravel beds and undercuts throughout the creek within and proximal to the subject land.

Riparian vegetation within the subject land included some canopy covering Eucalypt species and mostly pasture grasses and exotic weeds with *Juncus* spp. interspersed throughout. Further upstream of the subject land, larger pockets of woody riparian vegetation were



observed, although lack of connectivity and completeness of the woody riparian strip was evident. Bed stability and creek bank stability was generally stable due to the density of pasture grasses binding bank soils.

The aquatic habitat of Kilnacraft Creek within the assessment area was considered mostly ephemeral and did not support native aquatic or wetland vegetation. Although indicative distribution maps for Flathead Galaxias and Southern Pygmy Perch (both listed as threatened species under the FM Act;) suggest that these species may occur within Kilnacraft Creek within the vicinity of the subject land, it was considered that there is a lack of suitable aquatic habitat for these species for viable populations to rely on this watercourse during any part of their life cycle.

6.1.2 Construction and Operational Impact Assessment

Impacts likely to occur on the subject land after steps are taken to avoid and minimise impacts are identified in Table 32.

Table 32 Summary of Residual Direct Impacts

Direct impact (Describe the impact on PCT/TEC/EC or threatened species and their habitat)	BC Act status	EPBC Act status	SAIL entity	Project phase/timing of impact (e.g. construction, operation, rehabilitation)	Extent (ha, number of individuals)
Clearing of PCT 277 Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	Critically endangered	n/a	Yes	Construction	2.88
Clearing of Squirrel Glider habitat	Vulnerable	n/a	No	Construction	2.99
Clearing of potential habitat for Barking Owl	Vulnerable	n/a	No	Construction	0.06
Clearing of potential habitat for Superb Parrot	Vulnerable	Vulnerable	No	Construction	0.06
Clearing of potential habitat for Masked Owl	Vulnerable	n/a	No	Construction	0.06
Clearing of potential habitat for Small Scurf Pea	Vulnerable	n/a	No	Construction	2.82
Clearing of potential habitat for Small Purple-pea	Endangered	Endangered	No	Construction	0.06
Clearing of potential habitat for Silky Swainson-pea	Vulnerable	n/a	No	Construction	0.06

Parts of the operation footprint (i.e. powerline easement and APZs) will retain native ground cover and therefore will have a vegetation integrity score above zero after development. Management actions to maintain the integrity of the remaining vegetation and prevent further decline include clearing protocols, limiting access to these areas during construction and rehabilitation of any areas of inadvertent ground layer disturbance using native species typical of PCT 277 at the site.

Table 33 documents the residual indirect impacts (likely to occur on native vegetation, threatened entities and their habitat beyond the development footprint). Indirect impact areas are identified on Figure 32 where relevant.



Table 33 Summary of Residual Indirect Impacts

Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	Impacted entities (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	Extent (ha or zone reference)	Frequency	Duration (long-term/ short-term/ medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
<i>2a. Inadvertent impacts on adjacent habitat or vegetation</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Daily for the duration of construction (10 months). Sporadically during operation.	Short-term and long-term	Construction and operation	Low likelihood. Reduced condition of vegetation and habitats.
<i>2b. Reduced viability of adjacent habitat due to edge effects</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Daily for the duration of construction (10 months). Sporadically during operation.	Short-term and long-term	Construction and operation	Low likelihood. Reduced condition of vegetation and habitats.
<i>2c. Reduced viability of adjacent habitat due to noise, dust or light spill</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Daily for the duration of construction (10 months). Sporadically during operation.	Short term and long-term	Construction and operation	Moderate likelihood. Reduced suitability of directly adjoining habitats for foraging and breeding activities.
<i>2d. Transportation of weeds and pathogens from the site to adjacent vegetation</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Monthly	Long-term	Construction and operation	Moderate likelihood. Reduced condition of vegetation and habitats.



Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	Impacted entities (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	Extent (ha or zone reference)	Frequency	Duration (long-term/ short-term/ medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
<i>2e. Increased risk of starvation or exposure, and loss of shade or shelter</i>	Squirrel Glider habitat and potential habitat for threatened fauna species assumed present	13.5	One off	Short term	Construction	Low likelihood. Reduced suitability of directly adjoining habitats for foraging activities.
<i>2f. Loss of breeding habitat</i>	Squirrel Glider and potential habitat for threatened fauna species assumed present	13.5	One off	Short term	Construction	Low likelihood. Reduced suitability of directly adjoining habitats for breeding activities.
<i>2g. Trampling of threatened flora species</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2h. Inhibition of nitrogen fixation and increased soil salinity</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2i. Fertiliser drift</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2j. Rubbish dumping</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Potentially daily or weekly	Long term	Construction and operation	Moderate likelihood. Reduced vegetation and habitat condition.
<i>2k. Wood collection</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Potentially every few months or years	Long term	Construction and operation	Low likelihood. Reduced condition of vegetation and habitats.



Indirect impact (Describe impact, e.g. transport of weeds and pathogens from the site to adjacent vegetation)	Impacted entities (PCT/threatened entity and their habitats and where relevant, EPBC Act listing)	Extent (ha or zone reference)	Frequency	Duration (long-term/ short-term/ medium-term)	Project phase/ timing of impact (e.g. construction, operation, rehabilitation)	Likelihood and consequences
<i>2l. Removal and disturbance of rocks, including bush rock</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2m. Increase in predators</i>	Squirrel Glider habitat and potential habitat for species assumed present	13.5	Daily	Long-term	Operation	Low likelihood. Loss of breeding habitat or deaths.
<i>2n. Increase in pest animal populations</i>	n/a	n/a	n/a	n/a	n/a	n/a
<i>2o. Changed fire regimes</i>	PCT 277 which represents Box Gum Woodland TEC, Squirrel Glider habitat and potential habitat for species assumed present	13.5	Fires might occur every 5-10 years	Long term	Operation	Moderate likelihood. Reduced extent and condition of vegetation and habitats.
<i>2p. Disturbance to specialist breeding and foraging habitat (e.g. beach nesting for shorebirds).</i>	Squirrel Glider habitat and potential habitat for fauna species assumed present	13.5	Daily	Long-term	Operation	Low likelihood. Reduced suitability of directly adjoining habitats for foraging activities.



The construction of the powerline easement will interrupt habitat connectivity for the Squirrel Glider, although following construction the species is likely to be able to glide between the vegetation remaining on either side of the powerline. The area of reduced habitat connectivity is 60m by 200m. The BDAR notes potential for short term disruption of habitat connectivity for the Squirrel Glider, which could result in reduced foraging and breeding successes. Measures are recommended to mitigation these potential impacts.

Impacts to water bodies, water quality and hydrological processes could affect the condition of receiving waters, as well as watering habitat for threatened species of fauna. The risk of groundwater contamination due to the project is assessed as negligible based on "lack of stored chemicals and oils, depth to water and layered clay lithology in the region" (Water Technology 2025). Impacts on water bodies, water quality and hydrological processes could lead to erosion, sedimentation, pollution, increased phosphorous in soils, weed invasion and changes to native species composition. Measures are recommended to mitigation these potential impacts. The aquatic impact assessment concludes that the project area has limited sensitive aquatic habitats, and with proper mitigation measures, significant ecological impacts can be avoided.

6.1.3 Serious and Irreversible Impacts (SAIL)

Following the implementation of mitigation measures recommended in the BDAR, and summarised in Section 6.1.4, the residual direct impacts require further assessment for SAIL (BAM Section 9.1) and to determine a credit requirement (BAM Section 9.2). Residual indirect or prescribed impacts for which no mitigation measures are proposed require an adaptive management strategy (BAM Section 8.5). Other indirect and prescribed impacts that remain after the avoid, minimise and mitigate measures have been applied, may be offset using additional biodiversity credits (above the credit requirement generated by the BAM-C for direct impacts) and/or other conservation measures.

Entities at risk of an SAIL that are relevant to the Project were identified in the BDAR, and White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland was identified. However, the BDAR concludes there are no threatened species at risk of a serious and irreversible impact.

6.1.4 Mitigation and Management Measures

6.1.4.1 Offsetting Requirements

Table 34 identifies impacts that require an offset (as per BAM Subsection 9.2.1(1.)). Thresholds for assessment and offsetting impacts are identified in Figure 32.

Table 34 Impacts That Require an Offset – Ecosystem Credits

Vegetation zone	PCT name	TEC	Impact area (ha)	Current VI score	Future VI score	Change in VI score	Biodiversity risk weighting	Number of ecosystem credits required
277_Mod	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	1.75	58.6	32.6	-31.4	2	27



Vegetation zone	PCT name	TEC	Impact area (ha)	Current VI score	Future VI score	Change in VI score	Biodiversity risk weighting	Number of ecosystem credits required
277_Low	Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion	White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	1.13	30.5	14.5	-19.1	2	11
Total credits								38

6.1.5 Impacts on Threatened Species and their Habitat (Species Credits)

Table 35 identifies impacts on threatened species (species credits) that require an offset (as per BAM Subsection 9.2.2(2.)).

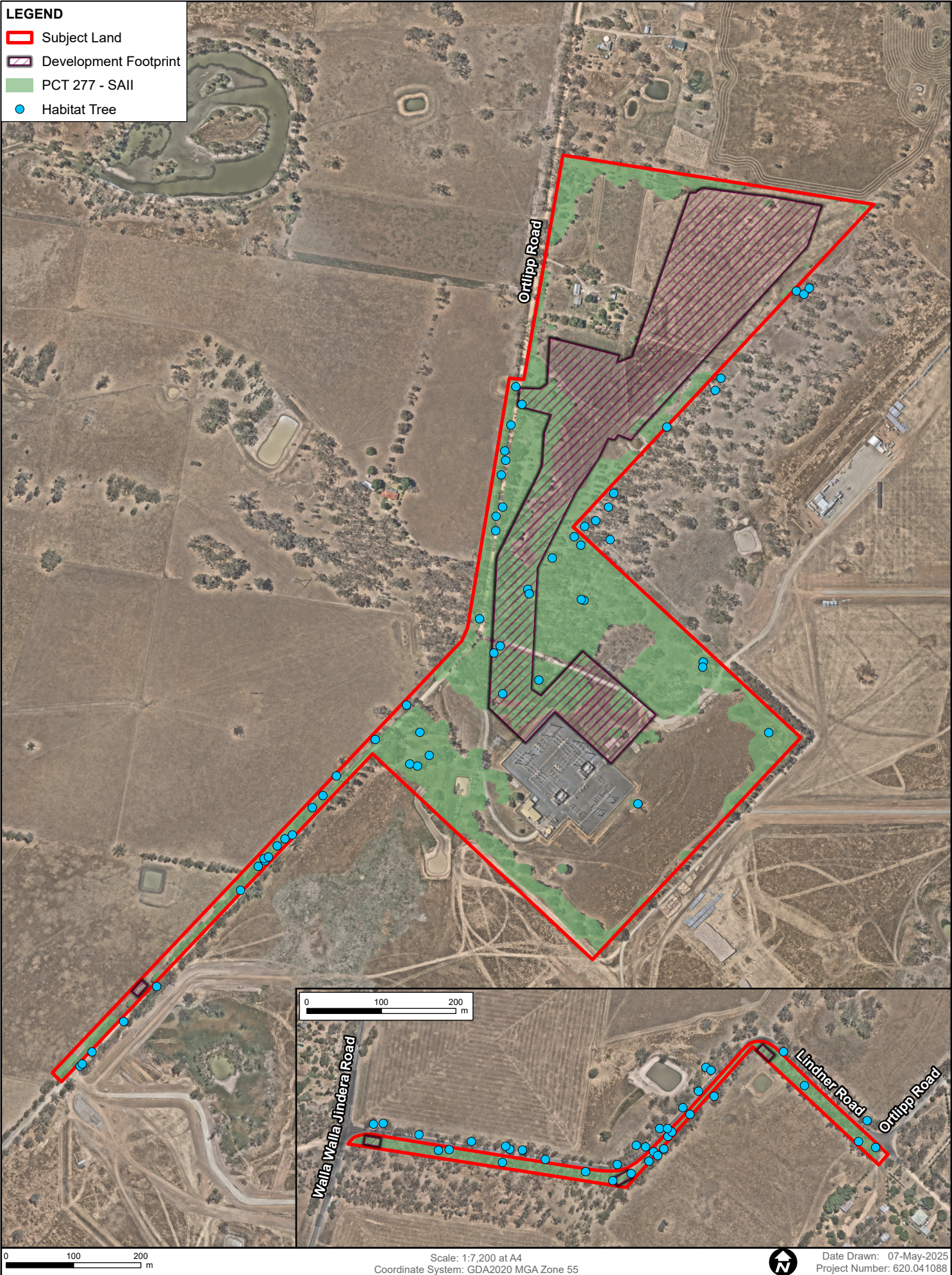
Table 35 Impacts That Require an Offset – Species Credits

Common name	Scientific name	BC Act status	EPBC Act status	Loss of habitat (ha)	Biodiversity risk weighting	Number of species credits required
Small Scurf-pea	<i>Cullen parvum</i>	E	-	0.46	2	6
Barking Owl	<i>Ninox connivens</i>	V	-	0.06	2	1
Squirrel Glider	<i>Petaurus norfolcensis</i>	V	-	2.9	2	38
Superb Parrot	<i>Polytelis swainsonii</i>	V	V	0.06	2	1
Small Purple-pea	<i>Swainsona recta</i>	E	E	0.06	1.5	1
Silky Swainson-pea	<i>Swainsona sericea</i>	V	-	0.06	2	1
Masked Owl	<i>Tyto novaehollandiae</i>	V	-	0.06	2	1
Total credits						49



LEGEND

- Subject Land
- Development Footprint
- PCT 277 - SAll
- Habitat Tree



0100200m

Scale: 1:7,200 at A4
Coordinate System: GDA2020 MGA Zone 55

Date Drawn: 07-May-2025
Project Number: 620.041088

Data Sources:
NSW SS (2024)
Aerial Imagery: Nearmap (November 2024)



DISCLAIMER: All information within this document may be based on external sources. SLR Consulting Pty Ltd makes no warranty regarding the data's accuracy or reliability for any purpose.

**SERIOUS AND IRREVERSIBLE
IMPACTS**

FIGURE 32

6.1.6 Indirect and Prescribed Impacts

The retirement of biodiversity credits may be used with other conservation measures to mitigate prescribed impacts or the indirect impacts of a proposal on areas of native vegetation, TECs and/or threatened species, or their habitat adjacent to the subject land. SLR is of the opinion that all indirect and prescribed impacts are minor in nature and/or will be sufficiently mitigated and managed by implementing measures outlined in the BDAR (SLR Consulting, 2025). As such, additional biodiversity credits to mitigate indirect or prescribed impacts are not proposed.

6.1.7 Impacts that do not Need Further Assessment

Table 36 identifies impacts that do not need further assessment for ecosystem credits (as per BAM Section 9.3(1-2)).

Table 36 Impacts That Do Not Need Further Assessment for Ecosystem Credits

Impact	Location within subject land	Justification why no further assessment is required
Cleared Land	Most of the subject land	No native vegetation or habitats for threatened species present

Full details are outlined in the BDAR at Appendix F.

6.1.7.1 Further mitigation measures

- ECO1 - A comprehensive Vegetation Management Plan and Wildlife Management Plan will be prepared prior to the commencement of any clearing or substantive site works. The following measures will be included:
 - Design adjustments to retain hollow-bearing trees where possible.
 - Use of protective barriers to minimize impacts on adjacent habitats.
 - Active monitoring and response plans for pollution, invasive species, and other operational risks.
 - Wildlife passage maintenance to ensuring connectivity corridors remain viable for species like the Squirrel Glider.
 - Maintain riparian buffer zones to minimise soil erosion.
 - Implement a comprehensive Environmental Management Plan (EMP) during construction and operation phases.
- ECO1 - The Wildlife Management Plan will incorporate the recommendations of the BDAR, including:
 - Limit clearing and construction during Squirrel Glider breeding season.
 - Instigating clearing protocols, including pre-clearing surveys, daily surveys and staged clearing, and using a trained ecologist or licensed wildlife handler during clearing events.
 - Relocating habitat features (e.g. fallen timber, hollow logs) from the development or clearing site, to adjacent retained vegetation.
 - Using light shields, or daily/seasonal timing of construction and operational activities to reduce impacts of light spill.



- Erecting temporary fencing to protect significant environmental features, such as riparian zones.
- Training staff and conducting site briefings to communicate environmental features to be protected and measures to be implemented.
- Providing for the ecological restoration, rehabilitation and/or ongoing maintenance of retained native vegetation habitat on, or adjacent to, the development or clearing site.
- Using sediment barriers or sedimentation ponds to control the quality of water released from the site into the receiving environment.

6.2 Aboriginal Cultural Heritage Assessment

This section presents the findings of the Aboriginal Cultural Heritage Assessment Report (ACHAR) (Virtus Heritage, 2025) prepared in response to the SEARs, refer to Appendix G. The ACHAR includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project. As a result of the outcomes of the ACHAR, Virtus subsequently prepared an Archaeological Assessment (AA) and Archaeological Research Design and Methodology (ARDM) at Appendix G.

The ACHA, AA and ARDM were undertaken in accordance with the *Guide to Investigation, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011) and the Code of Practice for the *Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010) and the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010).

6.2.1 Existing Environment

The landscape consists of low hills and rises, with a combination of flat and gently inclined landforms. Kilnacroft Creek, an intermittent watercourse, runs to the south of the project area, while Table Top Mountain, a site of cultural significance to the local Aboriginal community, is visible from the area.

The soil in the Subject Sites belongs to the Kindra Great Soil Group, consisting of Quaternary slope wash deposits derived from Ordovician metasediments. These soils are likely to contain clay, silt, sand, and gravel. While there are no major geological outcrops, materials such as quartz, feldspar, biotite, slate, phyllite, greywacke, siltstone, mudstone, and shale may be present. Quartz artefacts have been recorded in the region, reflecting past Aboriginal use of these materials.

Much of the native vegetation in the Subject Sites has been cleared due to agricultural activities, which have been ongoing since at least 1892. However, some remnant native tree species remain, including Blakely's Red Gum, River Red Gum, and Yellow Box. These species have historically been used by Aboriginal people for tool-making, medicinal purposes, and food sources. The region also supports a variety of native fauna, including eastern grey kangaroos, wombats, echidnas, and possums, which were significant in traditional Wiradjuri diets. Water-based species, such as yabbies and crayfish, are also present, particularly near Kilnacroft Creek.

Historically, the land has been used for farming, with infrastructure developments including the construction of the Transgrid Substation in 1987. Ortlipp Road and Lindner Road were established by 1892, and surface grading and clearing have further altered the landscape over time.



Water features play an important role in the environmental and cultural landscape of the project area. Kilnacroft Creek originates approximately 6.5km west of the site and, despite being intermittent, holds cultural and ecological significance. Archaeological sites in the region are often located near water sources, reinforcing the historical importance of these waterways for Aboriginal habitation. Modifications to surface water flows due to agriculture have altered drainage patterns, but the area retains key hydrological features.

Culturally, the project area has strong significance for the local Aboriginal community. It is associated with spiritual connections to Table Top Mountain and Kilnacroft Creek, both of which are important in Wiradjuri cultural practices. AHIMS search of a 5km buffer identified artefact sites (84%) and scarred trees (14%) are the most frequent types recorded in the area, refer to Figure 33. These sites provide evidence of the area's historical and ongoing connection to Aboriginal traditions.

6.2.2 Subject Sites Surveys

The site surveys were conducted on two separate occasions, these surveys were undertaken by Virtus Heritage in collaboration with Registered Aboriginal Parties (RAPs) to assess the cultural heritage significance of the project area. Surveys were undertaken on 29th October 2024 and 12th February 2025.

The attendees at the 29th October 2024 survey were:

- Archaeologist, Virtus Heritage.
- Registered Aboriginal Parties:
 - Bundyi Aboriginal Cultural Knowledge – 1 attendee.
 - Southern West Yiradyuri Clans, Land, Water and Sky Country Aboriginal Corporation – 2 attendees.
 - Independent Representative – 1 attendee.
- Independent Representative – 1 attendee:
 - Albury and District Local Aboriginal Land Council (ADLALC) – 1 attendee.

The attendees at the 12th February 2025 survey were:

- Principal Archaeologist, Virtus Heritage – 1 attendee.
- Registered Aboriginal Parties (RAPs) Representatives (as above).
- Additional Aboriginal Stakeholder Participation – 1 attendee.

Consultation undertaken emphasised the **importance of waterways**, cultural practices, and potential archaeological findings.

6.2.2.1 Findings

Two previously unknown Aboriginal sites were identified and recorded during the surveys, being Jindera IF1 and Potential Archaeological Deposit (PAD), and Jindera ST1, detailed below and in Figure 33.

Jindera IF1 (AHIMS # 55-6-0294) - Stone Artefact Site and PAD:

Jindera IF1 is located just outside of the northeast boundary of the Subject Sites.

The PAD associated with Jindera IF1 is within the BESS site area. The area is considered as PAD based on the presence of an adjacent Aboriginal object, being a sensitive landform for potential Aboriginal occupation (i.e. hillcrest - elevated and flat to very gently inclined), and the lack of observable significant disturbances /modifications to the landform. Bundyi



Aboriginal Cultural Knowledge also identified the hillcrest landform (i.e. the BESS site area) as a PAD (refer ACHA Appendix G).

Jindera ST1 (AHIMS #55-6-0295) - Scarred Tree:

Jindera ST1 (AHIMS #55-6-0295) is a scarred tree with a single scar located toward the south west end of the project area along Ortlipp Road. Jindera ST1 is located in the area identified for the water main extension.

Despite the extensive modifications due to agricultural and infrastructure activities, the existing environment of the Jindera BESS project area remains significant from both a cultural and ecological perspective. It retains elements of its original landscape, including native flora, fauna, and watercourses, which continue to hold value for the Aboriginal community. The presence of recorded Aboriginal sites highlights the need for careful management to protect and preserve cultural heritage in the area.

6.2.3 Construction Impact Assessment

The Project requires ground disturbance that may disturb archaeological items. The landform at Jindera IF1 has moderate archaeological potential. Research contained in the ACHAR demonstrates that archaeological materials might still be found in agricultural areas, especially near freshwater sources. These areas were often occupied by Aboriginal people but have experienced some disturbances, affecting the integrity of deposits. Elevated landforms like crests and ridges are common sites for Aboriginal occupation, particularly near water. However, further investigation is needed to confirm this potential.

Jindera ST1 (AHIMS #55-6-0295) is in an area where the soil around the tree has been disturbed by subsurface activities like Telstra optic fibre cabling and drainage works.

Jindera IF1 (AHIMS 55-6-0294) – Stone Artefact Site & PAD

The stone artefact site is just outside the project area, but the associated PAD (hillcrest landform) falls within the BESS site. The ACHAR identifies that there will be partial direct harm to the PAD due to excavation and construction activities. Without appropriate mitigation, there is a risk of potential disturbance or destruction of buried cultural materials that have yet to be uncovered.

Jindera ST1 (AHIMS 55-6-0295) – Scarred Tree

The Scarred Tree is located along Ortlipp Road within the area impacted by the proposed water main extension. The ACHAR identified that the Project could impact Jindera ST1, through direct harm due to underboring works for watermain installation, potentially causing instability or damage to the tree. Without appropriate mitigation, there is a risk of loss of a culturally significant modified tree.

As a result of the survey findings and ACHAR outcomes and subsequent Archaeological Assessment (Virtus Heritage, 2025) and Archaeological Research Design and Methodology (Virtus Heritage, 2025) were prepared and are included as appendices in the ACHAR.

6.2.4 Operational and Decommissioning Impact Assessment

Since no ongoing physical or earthworks are required in the operation phase, there are no anticipated impacts on Aboriginal cultural heritage. No additional impacts are anticipated during decommissioning works.





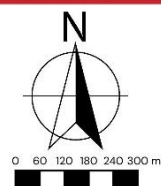
536 Jindera BESS Aboriginal Cultural Heritage Assessment
Jindera, NSW
Figure 2. Survey Results

Author: Antonella Skepasianos
Date: 13/03/2025
Scale: 1:15000 @ A4
Datum: GDA2020 / MGA zone 55
Source: ©Department of Customer Service - Spatial Services 2024

Maps and figures contained within this document may be based on third party data, may not be to scale and are intended for use as a guide only. Virtus Heritage does not warrant the accuracy of such maps or figures.

Legend

- Project Area
- Restricted Area
- Jindera IP1 with PAD
- Jindera ST1
- AHIMS Site Locations
- Watercourses



Area, AHIMS, Newly
Identified Sites

FIGURE 33

6.2.5 Mitigation and Management Measures

The ACHAR concludes that the proposal is likely to impact Jindera ST1, and the PAD associated with Jindera IF1. Therefore, prior to commencement of proposed works appropriate archaeological mitigation is required in the area of impacts., rather a design methodology is proposed to be drafted in consultation with RAPs. The following mitigation measures are proposed:

- ACH1 – A design methodology will be drafted in consultation with RAPs and will include/consider:
 - The Jindera IF1 (AHIMS ID 55-6-0294) and PAD site to have fencing erected along the project boundary to demarcate the location of the artefact in close proximity to the project area.
 - The PAD associated with Jindera IF1 (AHIMS ID 55-6-0294) to undergo archaeological investigation (i.e. archaeological testing) only within the parts of the landform designated for project impacts.
 - Management of Jindera ST1 (AHIMS ID 55-6-0295) as part on an Aboriginal Cultural Heritage Management Plan (ACHMP) in consultation with RAPs, the expert advice of a professional arborist with experience in culturally modified trees, and the proponent to reduce the likelihood of the dead tree breaking and splitting.
 - Fencing of Jindera ST1 (AHIMS ID 55-6-0295) to demarcate the location of the site during project works in consultation with RAPs and as advised by an appropriately qualified and experienced arborist.
 - Cultural monitoring during initial ground disturbance works within Area 1, and initial underboring works in Area 3 and Area 4 (as identified by the ACHAR).
 - Development of a more detailed care and control strategy in consultation with RAPs to manage any artefacts in a manner acceptable to RAPs and enable the cultural value of the artefacts to be documented and partially conserved. Reburial may be an option as close as possible to the original location of salvaged objects back on Country.
- ACH2 - All site workers and personnel involved in site impact works associated with the proposed work should be inducted and briefed on the identification of Aboriginal sites and objects during works and their responsibilities according to the provisions of the NPW Act 1974, in case any additional unknown objects or items are uncovered during proposed works. The induction and briefing material will incorporate the recommendations of the ACHAR, including consideration provided for RAP input and delivery of these inductions.
- ACH3 - If Aboriginal objects (excluding human remains or sites such as grinding groove complexes/engravings, rock art) are detected during ground disturbance, NPWS unexpected finds procedures (NSW National Parks and Wildlife Service 2020: 17) will be observed. The unexpected finds procedures for the Project will be included in the Construction Environmental Management Plan (CEMP) and will also incorporate the recommendations of the ACHAR.

6.2.5.1 Archaeological Methodology

The ACHAR recommended that an Archaeological Research Design and Methodology (ARDM) be drafted for the Project. The ARDM has been prepared and is documented at Appendix D of the ACHAR.



A staged approach for archaeological works at site Jindera IF1 (AHIMS #55-6-0294) and associated PAD is recommended including:

- Stage 1 – Exploratory Pits.
- Stage 2 – Manual Excavation (if required).
- Stage 3 – Community Collection/Cultural Salvage.

Stage 1 Exploratory Pits

As part of Stage 1, a row of 50cm x 50cm test pits, spaced 20m apart, will run south-west, north-east along the eastern hillcrest of Jindera IF1 PAD the exact placement decided onsite with archaeologist and RAPs. A second row of similar pits will run north-west and south-east at the southern end of Area 1, aligned tangentially to the first row; location also determined in the field. At least 35 exploratory pits will be completed.

Pits will be hand-excavated in 10cm layers until impact depth, bedrock, or sterile soil is reached; fill may be removed as one unit. Discovery of more than 10 artefacts in a pit will trigger Stage 2. Stage 2 would also commence if intact features like hearths, knapping evidence, or rare tool types are found.

Further details on the methodology are outlined in the ARDM at Appendix D of the ACHAR.

Stage 2 Manual Salvage (if required)

If triggered by Stage 1 investigations, Stage 2 will involve manual salvage that will be carried out by at least three RAP representatives (if available) and three archaeologists.

As conservation of areas of archaeological potential is the goal, manual salvage would be limited to areas of impact. Salvage excavation would be undertaken to no greater than 40 m² or the maximum impact footprint for ground disturbing works, if harm cannot be avoided, whichever is smaller. Excavation pits would be placed in consultation with representatives of RAPs present on the day and target areas of relatively less disturbance soils as guided by the outcomes of Stage 1.

Artefact type and/or density triggers for expansion of salvage pits to maximum of 20 m² total salvage excavation area within the project area and limited to areas where harm cannot be avoided. If only low density, and/or out of context objects are identified, Stage 3 community collection/cultural salvage will be triggered.

Further details on the methodology are outlined in the ARDM at Appendix D of the ACHAR.

Stage 3 Community Collection / Cultural Salvage

The opportunity for community collection/cultural salvage has been identified to enable cultural collection by RAPs. All initial ground disturbing works will be supervised by the general contractor and at least two representatives from the Registered Aboriginal Parties (RAP).

If any Aboriginal objects or sites are identified, it should be recorded by a qualified archaeologist, other suitably qualified person, or experienced cultural heritage sites officer, in accordance with the recommendations of the ARDM.

6.3 Historic Heritage

This section presents the findings of the Heritage Impact Assessment (HIA) (Premise, 2025), refer to Appendix H. The HIA includes a detailed analysis of the existing environment and outlines the methodology and criteria utilised to form an assessment of the Project. The HIA was prepared with regard to the NSW heritage regulations, including the *NSW Heritage Manual* and the *NSW DPE Guidelines for preparing a statement of heritage impact 2023*.



6.3.1 Existing Environment

As detailed in Section 2.2.2, the Subject Sites are neither heritage-listed nor within a designated heritage conservation area. However, several heritage sites are located nearby, including:

- The Glenellen School (former) approximately 1.6km north.
- Drumwood Homestead around 1.8km south.
- The Jindera Pioneer Museum and other significant sites about 4.5km away.

A site inspection was conducted as part of the HIA to assess the potential heritage impacts.

The BESS Site was found to be agricultural with no significant historic fabric, and it was not considered likely that relics would be identified across the site in future. The Substation Site was assessed as having low heritage value. Overall, the Subject Sites retain no historic heritage significance to the local or statewide community.

The Glenellen School (former) was assessed for potential visual impacts which may result from the proposed development. Due to the distance between to the Subject Sites, physical and visual impacts are not expected. In addition, vegetation and mature native trees located along Ortlipp Road further reduce potential visual impacts.

6.3.2 Construction, Operational and Decommissioning Impact Assessment

None expected, as outlined in the section below an unexpected heritage find protocol will be implemented.

The HIA concluded that the proposed development is not expected to physically or visually impact any surrounding heritage items due to the distance and existing vegetation, from either the construction or operational phase.

6.3.3 Mitigation and Management Measures

- HER1 - In the unlikely event of an unanticipated heritage object (relic) being identified during the construction of the BESS, all works must cease, and an appropriately qualified heritage consultant should be engaged to assess the find and provide management advice for the relic.

6.4 Land Use Conflict Risk Assessment

This section discusses the Land Use Conflict Assessment (LUCRA) findings, prepared by Premise (2025) at Appendix S. The LUCRA identifies and assesses the likelihood of land use conflicts arising between neighbouring land uses, where one use may be seen to impact the rights, values, or amenity of another. This process supports the development of appropriate risk reduction and management strategies to help minimise or prevent such conflicts. The LUCRA has been prepared in accordance with the Land Use Conflict Risk Assessment Guide (DPHI 2011).

6.4.1 Existing Environment

The Subject Sites and surrounding area are zoned RU1 – Primary Production under the LEP. This zoning is intended to support sustainable primary industry, encourage diversity in agricultural practices, protect valuable resource lands, and minimise conflict between different land uses, refer to Figure 7.

Land ownership within the development site is primarily held by a single private agricultural landholder, who owns the BESS Site. Additional parts of the project, such as access roads, a transmission easement, and water infrastructure extensions, cross land owned by



Transgrid, Council and the NSW State Government, including the Crown over unformed road reserve. The broader locality includes a mix of private rural residential holdings and NSW Government-owned land along key access roads, refer to Figure 5.

The existing land use in the locality is predominantly agricultural, with land dedicated to cropping, grazing native vegetation, and grazing modified pastures. According to the *NSW Land Use 2017* dataset, the BESS Site is mapped as residential and farm infrastructure, while the surrounding area includes other land use types such as utilities, transport, and wetlands. There are no dwellings or major farm infrastructure located directly within the development site, though some minor infrastructure such as dams, fences, sheds and access tracks are present. The nearest residential dwelling is approximately 330 metres west of the proposed BESS area, with several other nearby properties identified as potential sensitive receivers.

The Subject Sites are situated within the Riverina Murray Region, specifically the Murray Sub Region, which is a significant contributor to NSW's agricultural economy. The region reported a gross value of agricultural production (GVP) of over \$1.09 billion in 2015–2016, with the LGA contributing more than \$219 million. Major commodities include beef, broadacre crops, and wool. However, the Subject Sites are not mapped as Strategic Agricultural Land, meaning it is not classified under the Strategic Regional Land Use Policy for biophysical significance.

A range of infrastructure services the area, as outlined in Section 2.2.3.

A Before You Dig Australia (BYDA) search has identified the presence of service infrastructure within the locality, and continued coordination with service providers will be undertaken during detailed design to ensure proper management of these assets.

The site is generally cleared of vegetation due to historic agricultural activities. A review of the *NSW Government Historical Imagery Viewer* (NSW Government, 2024) has confirmed that the development site and locality have been used for rural agricultural land uses since at least 1961. The Substation Site was utilised for cropping activities since at least 1961, prior to the construction of the substation between 1973 and 1987. The Host Receiver (H1) has been present since at least 1987.

6.4.2 LUCRA Methodology

A risk ranking of potential land use conflicts is considered in the LUCRA (Premise, 2025), and is based on probability and consequence, and a revised risk ranking is determined based on implementation of identified management strategies.

The LUCRA (Premise, 2025) aims to reduce the risk of each identified land use conflict to a score of 10 or below by implementing tailored management strategies and setting performance monitoring targets. These strategies are designed to minimise the likelihood and impact of conflicts, while the monitoring targets ensure their effectiveness is measured and maintained.

A risk ranking of 25 is the highest magnitude of risk; a highly likely, very serious event. A rank of 1 represents the lowest magnitude or risk an almost impossible, very low consequence event. Risk Rankings have been categorised in terms of their probability and consequence as follows:

- Low Risk, risk ranking between 1 and 10.
- Moderate Risk, risk ranking between 11 and 19.
- High Risk, risk ranking between 20 and 25.



6.4.3 Construction and Operational Impacts

A total of 38 potential land use conflicts have been identified in the LUCRA (Premise, 2025).

The initial risk ranking evaluates the likelihood and consequence of potential land use conflicts without the implementation of management strategies. The initial risk ranking identified 12 low risks and 26 moderate risk conflicts.

The revised risk ranking evaluates the likelihood and consequence of potential land use conflicts following the implementation of management strategies. The revised risk ranking for all identified land use conflicts has been reduced to a value of less than 11, which is consistent with the LUCRA objective to lower the revised risk ranking to 10 or below.

The risk assessment in Table 37 below provides a summary of the LUCRA assessment, that identifies and evaluates potential land use conflicts associated with the proposed development.

Table 37 Summary of Detailed Risk Assessment (LUCRA, Premises, 2025)

Land Use	Stakeholders	Category	Initial Risk	Revised Risk
All Land Uses	All Stakeholders	Health and safety - EMF	14	10
		Risk to property - fire	18	9
		Risk to property - flood	13	5
		Competing industries - cumulative impacts	18	9
Agriculture	- Private property owners - Individuals - Business operators - Associations	Competing industries – agricultural expansion	13	9
		Competing industries – land suitability	13	5
		Access and traffic - interaction	8	5
		Nuisance – livestock behaviour	8	5
		Nuisance – air quality (dust)	8	5
		Environmental concern – weeds	13	9
		Nuisance - waste	5	3
		Amenity - waste	8	5
Infrastructure	- Public authorities and companies - Service Providers	Risk to property - infrastructure	13	9
		Land ownership – public authorities	17	8
		Access and traffic – access/services	17	8
		Competing industries – future project expansion	17	8
		Nuisance – air quality (dust)	8	5



Land Use	Stakeholders	Category	Initial Risk	Revised Risk
Renewable Energy Generation	• Business operators • Public authorities and companies	Access and traffic - access/services	17	8
		Competing industries – future project expansion	17	8
		Economic interests - insurance	17	8
Residential	• Private property owners • Individuals • Public authorities and companies • Service providers	Economic interest - demand	13	8
		Access and traffic - commute	8	5
		Access and traffic - access/services	8	5
		Nuisance - noise	17	8
		Nuisance - waste	5	3
		Quality of life	13	8
		Security	13	8
		Privacy	13	9
		Health and safety – air quality	8	5
		Nuisance – air quality (dust)	8	5
		Amenity - visual	13	8
		Land ownership - foreign	8	2
		Economic interest - insurance	17	8
Resource Protection	• Public authorities and companies • Associations • Individuals • Indigenous community	Environmental concerns - heritage	13	9
		Environmental concerns - water	13	9
		Environmental concerns - biodiversity	13	9
Water storage and supply	• Public authorities and companies • Business operators • Private property owners • Indigenous Community	Risk to property - infrastructure	13	8
		Health and safety - water	13	8
Average risk ranking			12.39	7.00

In summary the overall average risk ranking of all identified potential land use conflicts has been reduced by the implementation of management measures from an initial risk ranking of 12.39 to a revised risk ranking of 7.00 which is considered low risk.



The effective implementation of management strategies is likely to minimise the risk of potential land use conflicts. Performance monitoring is required to ensure management strategies minimise the risk of potential land use conflicts during all stages of the project. Mitigation measures are discussed below.

6.4.4 Decommissioning Impacts

The LUCRA (Premise, 2025) has determined that the Project is not expected to prevent the establishment of other future land uses. The development site would be able to support a variety of future land uses after decommissioning such as agriculture, or other developments subject to a development consent.

6.4.5 Mitigation and Management Measures

- LUC1 – The following management plans will be prepared, and will provide documented requirements for performance measures and monitoring during each stage of the project. Performance will also be monitored through the outcomes of consultation during all phases of the project. Monitoring community feedback and concerns are key to assessing the performance of management strategies:
 - Construction Environmental Management Plan (CEMP).
 - Operational Environmental Management Plan (OEMP).
 - Decommissioning Management Plan (DMP).
 - Any other management plan specified in the EIS or conditions of consent.

6.5 Landscape Character and Visual Impact Assessment

This section presents the findings of the Landscape Character and Visual Impact Assessment (LCVIA) (SLR Consulting, 2025), refer to Appendix K. The LCVIA includes baseline condition studies, viewshed analysis, and photomontage simulation to evaluate the scale and nature of visual change. The report includes identification of landscape character zones (LCZs), key visual receptors, and proposed mitigation measures to manage residual impacts. The LCVIA has been prepared in accordance with the *Large Scale Solar Energy Guidelines* (DPE, 2022) and the *Guideline for Landscape and Visual Impact Assessment 3rd Edition* (Landscape Institute 2013).

A Light Spill Assessment is provided at Appendix V, to consider the impact of proposed night time lighting.

6.5.1 Existing Environment

The Subject Sites lie within the Hume Slopes, a region of ridges, tablelands, and hills that descend westward into valley floors. These landforms are shaped by underlying geological structures and feature moderately to highly weathered bedrock. Surrounding the site to the west, south, and east are the East Victorian Uplands, characterised by rugged, dissected high plateaus and isolated plains, also formed by weathering and erosion of various rock types.

The Jindera region's landscape, shaped by diverse topographical features, plays a key role in defining its landscape character. The key topographical features include

- Gently sloping plains and terraces.
- Granite ridges and outcrops.
- Deflation basins and aeolian sand deposits.



- Narrow drainage lines and ephemeral streams Rural residential.

The rural residential zoning in Jindera aligns with the Council's goal to balance rural character with residential needs. Jindera, being part of a larger strategic vision for Greater Hume, provides a lifestyle that attracts residents seeking rural living while remaining close to urban amenities in Albury and Wagga Wagga.

Residential zones within Jindera are primarily defined by single detached houses with residential development on larger lots to the south and opportunities for smaller lot expansion to the west. The commercial areas of Jindera are designed to provide essential services to local residents, supporting the town's rural setting whilst addressing the needs of its growing population. The Jindera Country Golf Course is a small, volunteer-maintain golf course located on the outskirts of Albury at 204 Drumwood Road Jindera approximately 1.8km from the subject site. The club offers a 9-hole course with fairways lined with established eucalyptus trees.

In relation to the consideration of night light spill, the closest dwellings to the proposed Subject Sites are the Host Lot (H1), approximately 135m from the nearest Project Site equipment and Sensitive Receivers R5 and R6, approximately 230m from the boundary of the Project Site.

Landscape Character Zones

Landscape Character Zones (LCZs) are defined areas within a broader landscape that exhibit consistent patterns of physical, natural, and cultural characteristics—such as landform, vegetation, land use, and settlement. Incorporating LCZs into the Landscape LCVIA methodology allows for a structured and focused analysis. By recognising the distinct qualities and sensitivities of each zone, the assessment can more accurately evaluate the potential impacts of a proposed development. This zone-by-zone approach supports targeted recommendations that help maintain or enhance the visual and character values of the landscape. Seven LCZs were identified within a 5km radius of the site and are detailed in Figure 34.



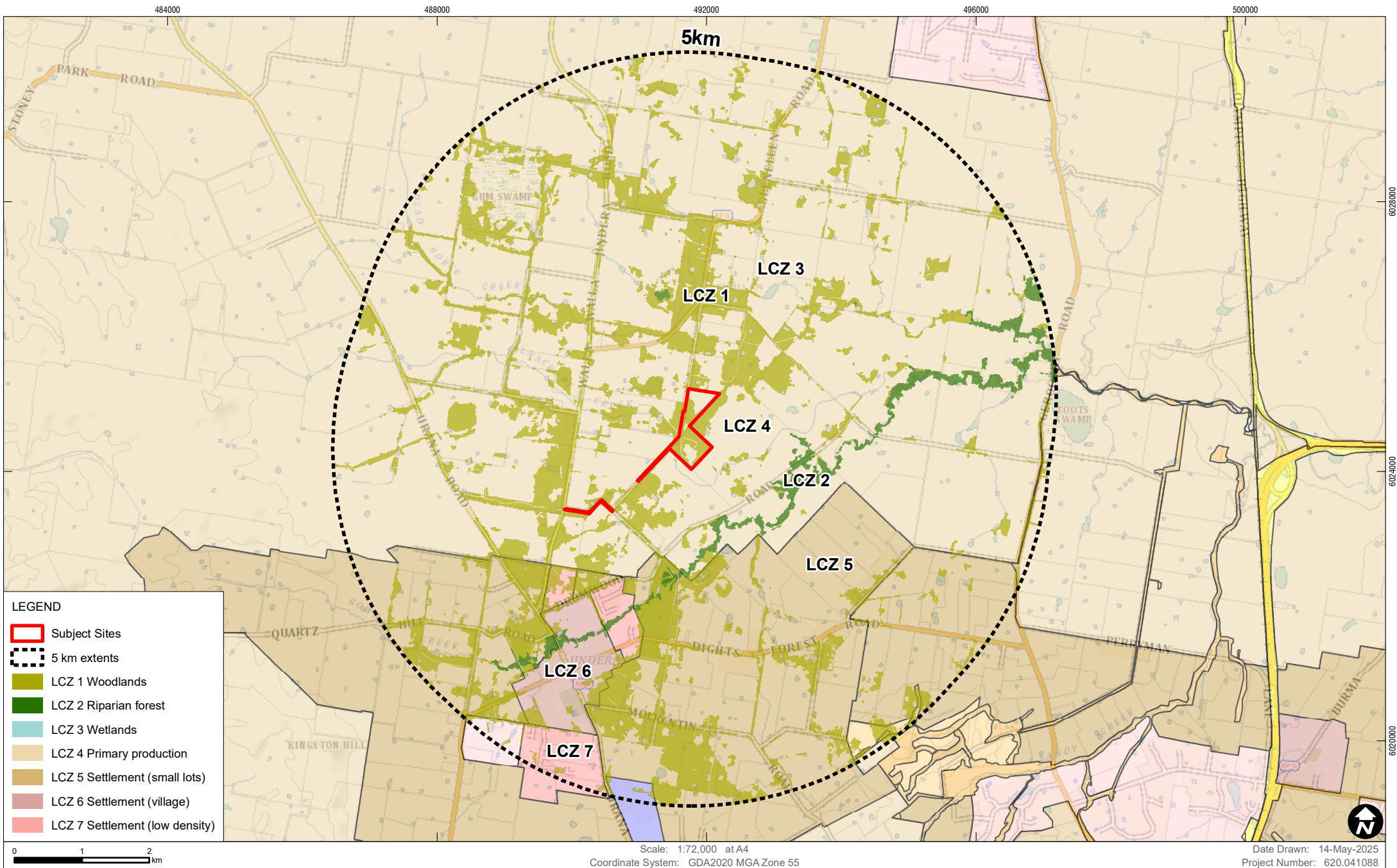


Table 38 summarises the attributes of the LCZ in proximity to the Subject Sites.

Table 38 Description of Landscape Character Zones

LCZ	Description	Impact Assessment Summary
LCZ 1 – Woodlands	Tall, open-canopied woodlands with rich understorey vegetation. Visually defined by height, openness, and forest texture. Acts as a visual backdrop and containment for adjacent agricultural areas.	LCZ 1 is highly visible in the region and plays a key role in framing the rural landscape. Despite very low current levels of change, its high sensitivity makes it vulnerable to future fragmentation. The impact significance is minor to moderate, highlighting the need for careful management to preserve its scenic and ecological values.
LCZ 2 – Riparian Forest	Very tall open wetland forest along Bowna Creek. Canopy reaches up to 30 metres with dense grassy understorey. Forms a visual corridor within inner floodplains of the NSW Southwestern Slopes and eastern Riverina.	LCZ 2 has moderate sensitivity due to its ecological value and role in the rural landscape. While risks like fragmentation and visual degradation exist, current changes are minimal and rarely noticeable. The impact significance is minor, indicating the zone is relatively resilient but still requires careful management to preserve its distinct character
LCZ 3 – Wetlands	Saturated soils supporting diverse flora and fauna. Surrounded by River Red Gum swamp and Grassy Box woodlands. Features large hollow-bearing trees, sedges, rushes, and grasses.	Though remotely located, LCZ 3 is highly sensitive due to its rarity and ecological and scenic value. Threats like vegetation loss and weed invasion could harm its visual and environmental character. While no nearby projects are currently affecting it, the magnitude of change is very low, with minimal visible impact. As a result, the impact significance is rated minor to moderate, reflecting the need to protect this unique and sensitive landscape.
LCZ 4 – Primary Production	Expansive agricultural landscape with cultivated fields and grazing lands. Seasonal patchwork of textures and colours. Visual elements: livestock, haybales, machinery, homesteads, sheds, barns, silos. Dominant landscape zone defining the rural character of Jindera.	This zone has high sensitivity to land use changes, particularly from housing and energy development. Its visual prominence and the sensitivity of nearby receptors highlight its regional importance. Although current changes are limited and generally well-integrated, they are noticeable in some areas. As a result, the impact significance is rated as moderate, suggesting that while the primary production landscape largely maintains its character, future developments may gradually affect its visual integrity.
LCZ 5 – Settlement (Small Lot Production Residential)	Compact agricultural parcels on the outskirts of Jindera. Mix of cropping, horticulture, and small-scale livestock. Visual elements: rows of crops, trellised vines, farmhouses, sheds, fences.	This area supports the rural character near Jindera and Albury and is visible from regional roads like Urana Road. Although no major changes are currently planned, the zone has moderate sensitivity due to nearby rural industries and private properties. Potential impacts from developments like low-density housing are minimal, with little to no noticeable change to key views or local character. As a result, the overall impact significance is minor,



LCZ	Description	Impact Assessment Summary
		and the existing character is expected to remain largely unchanged.
LCZ 6 – Settlement (Village)	Traditional village setting with modest residential and small commercial buildings. Central street focus with wide footpaths and ornamental deciduous trees. Blends closely with surrounding rural landscape.	LCZ 6 faces moderate sensitivity due to pressures from low-density housing and alternative energy developments, particularly regarding potential land use conflicts. Visual exposure is mainly around the village core, with medium visual prominence and receptor sensitivity. However, the magnitude of change is very low, and expected impacts on views or character are minimal. Therefore, the impact significance is minor, suggesting the village's existing character will largely remain intact.
LCZ 7 – Settlement (Low Density Residential)	Dwellings on small domestic lots with landscaped gardens and open lawns. Homes generally set back with minimal fencing. Low topography allows long views toward surrounding granite ridges.	LCZ 7 has a stable character, featuring set-back homes, large lawns, and mixed plantings. While scenic quality is low, the built form complements the village setting. The zone has low sensitivity to change and limited visual exposure, mainly near the village centre. With minimal anticipated effects on local character or key views, the impact significance is rated as minor to negligible, indicating strong resilience to landscape change.

Seven landscape character zones (LCZs) were identified within a 5km radius of the site. The assessment concluded that the proposed development would result in minor to moderate impacts to local landscape character, with no zones receiving high or very high impact significance ratings. The presence of established infrastructure, open topography, and the relatively low vertical scale of the BESS components reduce the degree of landscape intrusion.

Public Viewing Locations

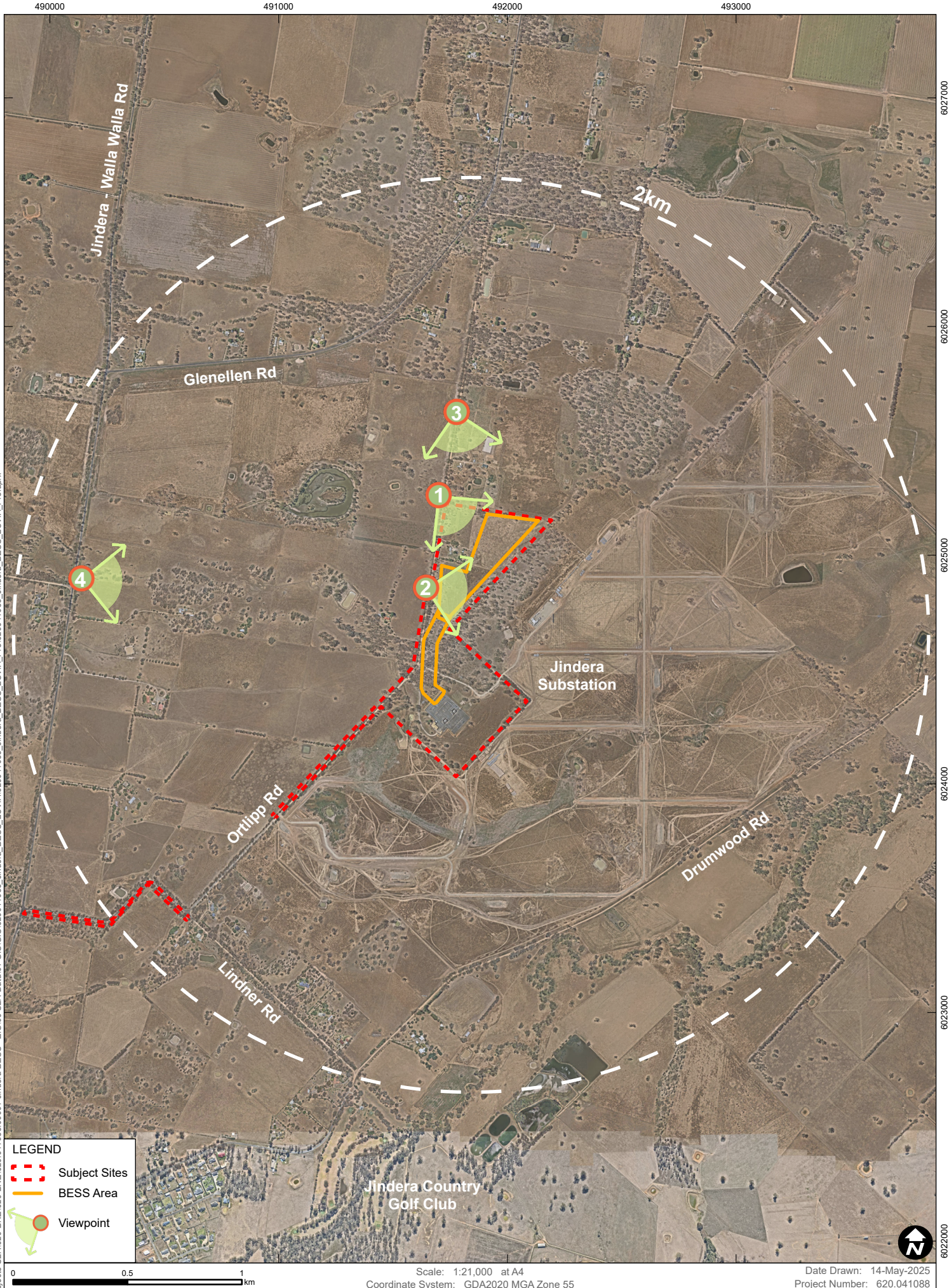
Public viewpoint locations were identified having regard to considerations including local significance and elevated positions that are visited by locals and tourists to experience the valued landscape character and scenic rural setting.

As outlined in the LCVIA, four key public viewpoints were assessed, and are identified on Figure 35:

- VP1 - 204 Ortlipp Road, Glenellen
- VP2 - Ortlipp Road South
- VP3 - 238 Ortlipp Road Glenellen
- VP4 - Jindera-Walla Walla Road



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Private Property Viewing Locations

The visual impact assessment on private receptors included the evaluation of:

- Proximity, site elevation, dwelling orientation and, exposure of habitable spaces.
- Terrain and established vegetative screening.
- Potential views and vistas of the Subject Sites.
- Impact significance rating to indicate the degree of visual impact.

A total of thirty-seven (37) private receptors within a 2km radius were evaluated that are located within a 2km radius of the proposed development site. Refer to Table 7 (Chapter 2) and Figure 36 for locational details.

The identified private receptions were ground-truthed during field visit, to confirm where noticeable change may be observed within the surrounding landscape. It was also confirmed that visibility beyond 2km radius was extremely unlikely due to the extent of existing vegetation and undulating terrain.

Localised Viewing Locations

Three localised view corridors were identified through the LCVIA (SLR Consulting, 2025), being viewing locations on access roads surrounding the Subject Sites that are assumed to be frequented by walkers, cyclist, horse riders and motorists. These locations are shown on Figure 35.

6.5.2 Construction Impact Assessment

Visual impacts during the construction phase are expected to be temporary and localised, associated with activities such as site preparation, crane operation, machinery movement, and the establishment of construction compounds. These impacts may result in short-term visual disruption for nearby residents and road users, particularly along Ortlipp Road.

However, as these effects are transient and will cease upon completion of construction, the LCVIA focuses on the enduring presence of built infrastructure and associated mitigation measures. Construction-related visual impacts will be managed through standard site management practices and will be limited to the construction period only.

6.5.3 Operational Impact Assessment

6.5.3.1 Visual Impact

The Project will introduce infrastructure into a predominantly rural landscape. The primary visual components include the BESS units, inverter stations, a 4-metre-high acoustic barrier, and overhead transmission line infrastructure. While these additions represent a localised change in character, their overall impact on the broader landscape is considered manageable.

A visual impact assessment was undertaken for four key viewpoints along Ortlipp Road and Jindera-Walla Walla Road, Jindera. The assessment considered baseline landscape characteristics, the nature and scale of proposed changes, receptor sensitivity, and overall visual prominence. The view points were assessed for their perceived receptor sensitivity and the magnitude of change. In summary:

- VP1 (204 Ortlipp Road) received minor-negligible impact ratings, with visual mitigation (e.g. vegetative screening and fencing) reducing visibility of infrastructure. This viewpoint presents a rural setting defined by an unsealed road with a corridor of mature vegetation and scattered rural structures. The proposed acoustic wall is set



back from the road, partially screened by existing vegetation and finished in muted tones that blend with the landscape. The wall's height remains below the tree canopy, maintaining a consistent rural outlook.

- VP2 (Ortlipp Road South) received a minor-moderate impact rating, due to partial exposure of infrastructure across open pasture. This location features an open paddock with scattered trees and limited built form. The proposed BESS will alter the open visual character, introducing noticeable change at close range. However, the presence of surrounding vegetation will assist in screening views from other locations.
- VP3 (238 Ortlipp Road) received minor-negligible impact ratings, with visual mitigation (e.g. vegetative screening and fencing) reducing visibility of infrastructure. A semi-enclosed rural residential setting with low-intensity land use and typical rural structures. The proposed development will result in minimal visible change due to existing screening and the development's setback.
- VP4 (Jindera-Walla Walla Road) also rated as minor-negligible impact rating, owing to its distance and vegetative buffers. This broad, open rural landscape maintains high scenic integrity and is largely unaffected by the proposed solar farm developments. Views consist of expansive paddocks and sparse vegetation, with limited built form. No significant visual change is expected from this location.
- The acoustic wall will be positioned behind an existing fence line and partially obscured by existing roadside vegetation. These measures further diminish its visibility, preserving the open, low-scale character of the Ortlipp Road corridor and minimising disruption to existing view lines. A planted landscape buffer will also be established along the roadside edge of the wall. In addition to enhancing visual integration, the vegetation will contribute to broader ecological connectivity and reinforce the established landscape character. As the planting matures, it will increasingly screen the structure, further reducing its visibility and reinforcing its contextual fit within the rural setting.

Across all assessed viewpoints, the proposed developments are either minimally perceptible or suitably screened by vegetation and landscape form. The visual impacts range from Minor–Negligible to Minor–Moderate, with the most noticeable change occurring in close-range views to the BESS location. Overall, the rural landscape character and amenity are expected to be largely retained.

In summary, the Project is consistent with the existing and emerging infrastructure context of the area. The proposed BESS facility can be accommodated within the landscape without causing significant adverse impacts on key scenic destinations that surround the township of Jindera and the greater Albury region.

6.5.3.2 Light spill

Consideration of the effect of light spill from outdoor lighting impacting on residents, transport users, transport signalling systems and astronomical observations is governed by the Australian Standard: AS 4282-2023 Control of the Obtrusive Effect of Outdoor Lighting.

A conservative approach has been taken with the light expected to be operational at night-time. The following has been assumed:

- Areas that may require lighting are the entrance to the Project Site from Ortlipp Road and the ends of the battery rows.
- Lighting will likely be pole-mounted and directed downward to illuminate any required areas.



- The mounting heights for any lights are expected to range between 4m and 6m.
- The maximum luminous intensity will be less than or equal to 1000 candela (Cd).

Based on a conservative assessment and assumptions aligned with AS/NZS 4282:2023, the proposed lighting associated with the Project is not expected to result in light spill exceeding allowable thresholds at nearby sensitive receptors. While some lighting may be visible from surrounding properties, impacts are considered negligible due to distance, limited lighting intensity, and the presence of intervening vegetation and built features.

Adherence to best-practice lighting design principles during detailed design will ensure light impacts remain minimal and compliant with relevant standards.

Decommissioning Impacts Decommissioning at the end of the Project life cycle is anticipated to have minimal and temporary visual impacts. Activities will generally involve the removal of infrastructure such as BESS units, inverters, security fencing and lighting, ancillary items and specifically the acoustic barrier, with the site returned to a condition similar to its pre-development state and rural setting.

6.5.4 Mitigation Measures

The BESS will result in localised visual changes, particularly near the site boundaries. However, due to careful siting, mitigation treatments, and the rural context's relatively high visual absorption capacity, the overall visual impact is low and consistent with State Significant Development expectations. The following measures will further mitigate any potential impacts from the Project.

- VIS1 – Where possible, recessive colours and non-reflective finishes will be used for enclosures. The acoustic wall along Ortlipp Road will have a recessive and low-reflective green finish applied to the outer surface.
- VIS2 - A planted buffer of native vegetation will be established along the roadside edge of the wall. Plant species will be locally appropriate, selected for their height, form, and ability to provide effective year-round screening. The intent is to break up the wall's linear form and soften its visual impact from public vantage points.
- VIS3 - AS/NZS 4282-2023 Control of the Obtrusive Effect of Outdoor Lighting sets out general principles that should be applied when designing outdoor light to minimise any adverse effect of the light installation. The following principles will be applied when designing the site lighting:
 - Direct lights downward as much as possible.
 - Use luminaires that are aimed to minimise light spill, e.g. full cut off luminaires where no light is emitted above the horizontal plane.
 - Avoid wasted energy and increased light pollution from over-lighting.
 - Wherever possible use floodlights with asymmetric beams that permit the front glazing to be kept at or near parallel to the surface being lit.
 - Lighting should be aimed inward the middle of the site where possible and away from the site boundaries.

6.6 Noise and Vibration

This section presents the findings of the Noise and Vibration Impact Assessment (NVIA) (SLR Consulting, 2025) at Appendix L. The NVIA includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project.



The NVIA has been prepared in accordance with the *Interim Construction Noise Guideline* (ICNG) and the *NSW Noise Policy for Industry* (NPfI). This report presents applicable noise criteria, assessment methodology, results and management strategies to demonstrate compliance with the project's day, evening and night noise criteria as prescribed by the ICNG and NPfI during construction and operation of the BESS.

6.6.1 Existing Environment

The rural nature of the site means that the existing noise environment is dominated by natural sounds and intermittent human activities, such as natural sources (wind through vegetation, occasional wildlife sounds), human activity and vehicular noise. The existing Jindera Substation may contribute minor operational noise, although this is not a significant factor in the baseline noise environment.

A total of 37 sensitive receivers have been identified within a 2km radius of the BESS Site and may be impacted by the Project, these receivers are identified in Figure 36 and Table 39. An additional receiver H1, is the host receiver within the BESS Site. The predicted noise levels at the closest seven noise sensitive receivers (one being the project host) for construction and operation were assessed against the various requirements of the NPfI and the Interim Construction Noise Guideline.

The nearest sensitive receivers to the BESS site are shown in Table 39 with a detailed listing contained in Appendix L.

Table 39 Closest Sensitive Receivers to the BESS Site

Receptor ID	Address	Receiver Type	Distance
H1	204 Ortlipp Rd, Glenellen	Host	45m
R1	156 Glenellen Rd, Glenellen	Residential	1456m
R2	304 Ortlipp Rd, Glenellen	Residential	1479m
R3	284 Ortlipp Rd, Glenellen	Residential	1235m
R4	66 Blight Rd W, Glenellen	Residential	1658m
R5	238 Ortlipp Rd, Glenellen	Residential	751m
R6	151 Ortlipp Rd, Glenellen	Residential	330m

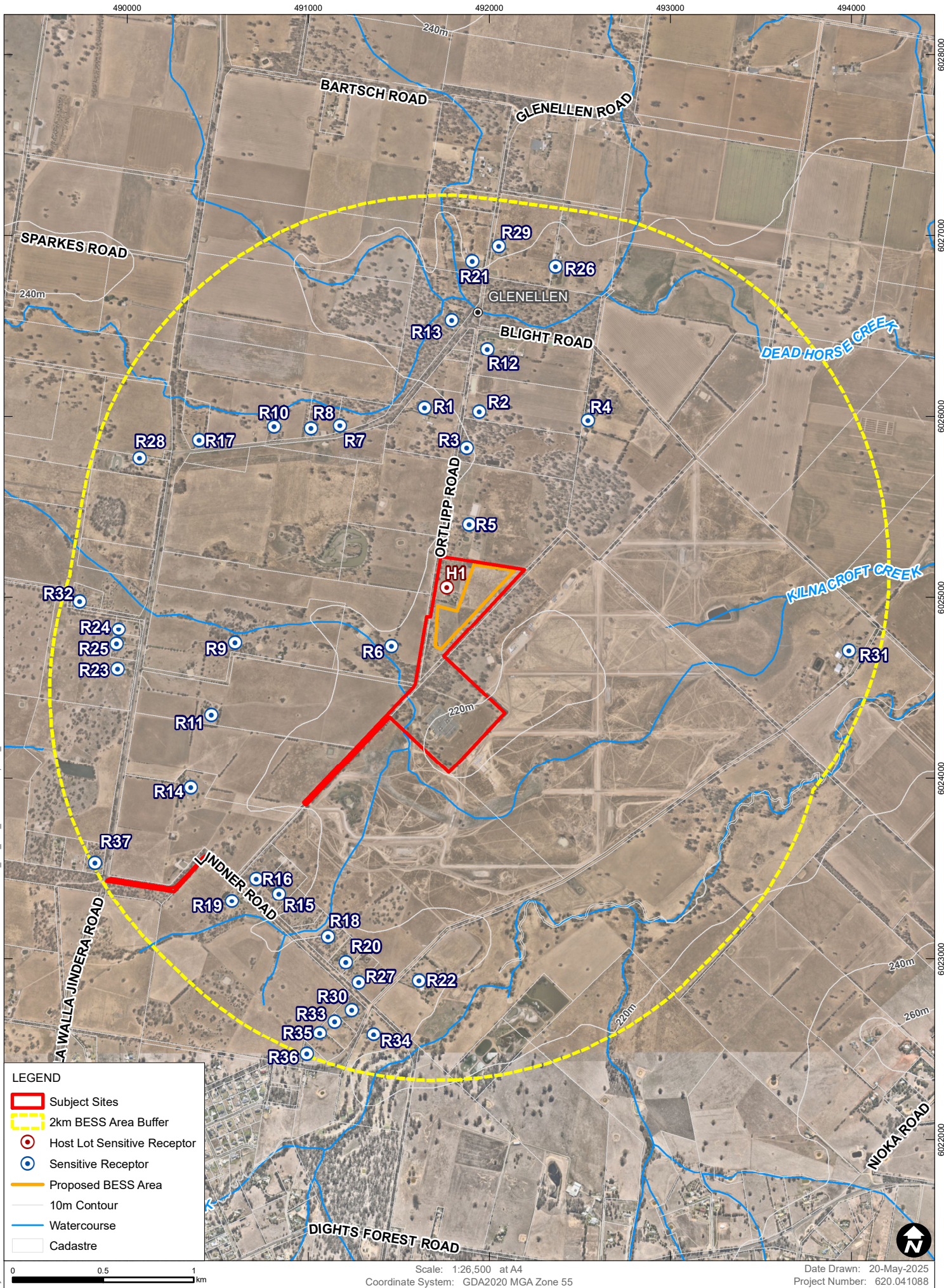
Consideration of the water main extension works was also undertaken, with potentially impacted receivers considered identified in Table 40.

Table 40 Closest Sensitive Receivers in Proximity to Water Main Works

Receptor ID	Address	Receiver Type
R16	91 Lindner Road, Jindera	Residential
R19	96 Lindner Road, Jindera	Residential
R37	12 Five Chain Rd, Jindera	Residential



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6.6.1.1 Background Noise Monitoring

SLR (2025) conducted background noise monitoring between 23 May to 29 May 2023 at the host receptor (H1) to establish baseline conditions. The measured noise levels were used to determine the ambient and to establish existing background noise levels at the nearest noise-sensitive receivers, for the development of the construction and operational criteria. The key observations were:

- Baseline noise levels are low, typical of rural environments with minimal industrial activity.
- Night-time Rating Background Levels (RBLs): Around 24-27 decibels (dBA), indicating a quiet environment.
- The project trigger level is the minimum project intrusiveness noise level:
 - Day period: 40 dBA, LA_{eq} , 15 min
 - Evening: 35 dBA, LA_{eq} , 15 min+
 - Night: 35 dBA, LA_{eq} , 15 min

The area is characterised by minimal ambient noise, making it more sensitive to changes in sound levels, especially tonal or low-frequency noises from industrial operations.

Full details of the noise monitoring results are presented in the NVIA (SLR Consulting, 2025) contained in Appendix L.

6.6.2 Construction Impact Assessment

The NSW Interim Construction Noise Guideline (ICNG) is used to assess and manage impacts from construction noise on residences and other sensitive land uses in NSW.

The ICNG contains procedures for determining project specific Noise Management Levels (NMLs) for sensitive receivers based on the existing background noise in the area. The 'worst-case' noise levels from construction of a proposal are predicted and then compared to the NMLs in a 15-minute assessment period to determine the likely impact of the proposal.

The NMLs are not mandatory limits, however, where construction noise levels are predicted or measured to be above the NMLs, feasible and reasonable work practices to minimise noise emissions are to be investigated.

A 3D noise model was constructed within the modelling software SoundPLAN 8.2 to predict construction noise levels at the nearby sensitive receivers.

The effects of vibration in buildings can be divided into three main categories (in increasing levels of vibration exposure):

- Annoyance or disturbance of occupants.
- Disturbance of objects within the structure and cosmetic damage.
- Structural damage.

Vibration limits are commonly designed to minimise the risk of cosmetic damage and are set well below the levels that have potential to cause structural damage. The EPA publication Assessing Vibration: a technical guide (DEC 2006) provides preferred values for continuous and impulsive vibration levels associated with a low probability of annoyance from occupants. The applicable damage risk and annoyance risk vibration velocity criteria are summarised in Table 41.



Table 41 Vibration velocity damage risk and annoyance risk criteria

Receiver Area	Damage Risk (mm/s)		Annoyance Risk (mm/s)	
	Horizontal	Vertical	Horizontal	Vertical
Residential/Dwellings	7.5	7.5	1.2	0.45
Commercial/Offices	25	25	1.6	0.6
Industrial/Workshops			3.2	1.2
Reinforced structures (ie concrete buildings)			-	-

6.6.2.1 Construction Noise Assessment

Construction noise modelling was undertaken using SoundPlan v8.2 software. In considering the potential construction noise impacts, the following scenario has been adopted for the Project:

- The following standard construction hours are proposed for the Project:
 - Monday to Friday - 7am to 6pm.
 - Saturday – 8am to 1pm.
 - Sunday and Public Holidays - No works to be undertaken.
- No works are proposed to be undertaken outside of the standard construction hours. In the event this is required, out of hours (OOH) approval would be sought, and all works would be undertaken in accordance with the appropriate OOH protocols and approval processes.

Construction activities, particularly during site establishment and road building, are expected to generate noise. Site establishment and the initial construction of roads are thought to be the most impactful stages with regards to noise. Subsequent construction stages would likely include flatbed trucks, franna cranes, forklifts, concrete trucks/pumps, elevated work platforms, boring equipment and hand tools. Their total noise emission however is not expected to be greater than what is proposed as part of the initial site establishment stage, and therefore the site establishment and initial road construction stage was considered worst case for the construction of the site and hence why it has been modelled.

Sound power levels of typical mobile construction plant and equipment, taken from SLR's noise database of filed measurements and BS 5228-1:20092, refer to Table 42. For a worst-case assessment it was assumed that all equipment is operating continuously over the assessment period, due to sequencing of equipment usage that often occurs on site, this represents a conservative approach.

Table 42 Construction Noise Sources (SLR, NVIA, 2025)

Qty	Plant Item	Individual Sound Power Level (SWL), Leq dBA
BESS Construction Works		
1	Auger Drill Rig	116
2	Excavator CAT 330 – 30T	106
1	Dozer CAT D8	113
2	Grader	103



Qty	Plant Item	Individual Sound Power Level (SWL), Leq dBA
2	Dump Truck	105
1	Vibratory Roller	105
1	Water Cart	106
Water Main Extension		
1	Vacuum Truck	111
1	Excavator	108
1	Horizontal Directional Drilling Rig (Generator)	106
1	Generator	93
1	Pump	98

Sensitive receptors within a 2 km radius (37 identified, 7 evaluated in detail) are all private residences, with the most affected detailed in Table 43.

Table 43 Construction Noise Assessment Results (SLR, NVIA, 2025)

Receptor	Predicted Noise Level, dBA	Noise Affected NML (RBL+10)	Margin of Compliance
BESS Construction Works			
R1	44	45	1
R2	45	45	0
R3	47	45	-2
R4	43	45	2
R5	54	45	-9
R6	53	45	-8
H1	61	45	-16
Water Main Extension			
R16	58	45	-13
R19	60	45	-15
R37	58	45	-13

It should be noted that the results represent the worst-case noise levels where all equipment in each scenario is working concurrently. Accordingly for most construction activities, it is expected that the construction noise levels would frequently be lower than predicted.

Given the potential for construction noise to exceed the Noise Management Level, a draft Construction Noise Management Plan (CNMP) is discussed in the NVIA at Appendix L. The Draft CNMP provide details regarding how the impacts would be minimised through the use of all feasible and reasonable mitigation measures. The Draft CNMP also contains procedures for handling complaints, should they occur, and detail any compliance monitoring requirements.

Access to the BESS site will be via a new driveway from Ortlipp Road, with an internal access road designed for heavy construction vehicles. Most construction workers will stay in local short-term accommodations during the project. Over the 10-month construction period,



approximately 3,807 inbound and 3,807 outbound trips are expected—averaging 15–16 trips in each direction per day. Traffic data shows existing volumes on Walla Walla Jindera Road average around 1,001 vehicles daily, and the projected increase in construction traffic is not expected to raise road noise by more than 2 dBA—an amount that is generally imperceptible. Given the modest traffic increase and the high existing volumes, noise as a result of construction traffic is not expected.

Based on the findings of NVIA and following the implementation of the recommendations and/or safeguards are applied, the proposal is considered appropriate having regard to construction noise impacts.

6.6.2.2 Qualitative Construction Vibration Assessment

Minimum working distances for typical vibration intensive construction equipment are provided in the NSW Roads and maritime *Construction Noise and Vibration* Guideline (CNVG) and shown in Table 44.

The minimum working distances are for cosmetic damage (from BS 7385) and human comfort (from the EPA *Assessing Vibration: A Technical Guide*). Works that occur further from receivers the minimum distances are unlikely to result in vibration impacts.

Table 44 CVNG Recommended Minimum Working Distances from Vibration Intensive Equipment

Plant Item	Rating/Description	Minimum Working Distance	
		Cosmetic Damage	Human Comfort
Vibratory Roller	1-2 tonne	5 m	15 m to 20 m
	2-4 tonne	6 m	20 m
	4-6 tonne	12 m	40 m
	7-13 tonne	15 m	100 m
	13-18 tonne	20 m	100 m
	>18 tonne	25 m	100 m
Small Hydraulic Hammer	300 kg (5 to 12 t excavator)	2 m	7 m
Medium Hydraulic Hammer	900 kg (12 to 18 t excavator)	7 m	23 m
Large Hydraulic Hammer	1,600 kg (18 to 34 t excavator)	22 m	73 m
Piling Rig – Bored	≤ 800 mm	2 m (nominal)	4 m
Jackhammer	Hand held	1 m (nominal)	2 m
Note: More stringent conditions may apply to heritage or other sensitive structures			

Based on the equipment and activities identified for the proposed construction, potential sources of vibration are limited and would likely only occur during site preparation, bulk earthworks and road works. Given the large distance offsets to non-project involved receivers (the closest are of the order of 200 m), vibration is unlikely to be detectable and impacts unlikely to occur.

It is therefore expected that vibration generated by the construction works will comply with the requirements of the human comfort and cosmetic damage criteria.



6.6.3 Operational Impact Assessment

Sound power levels (SWL) and quantities of noise producing equipment presented in Table 45 are based on the Original Equipment Manufacturer (OEM) data with silencing treatment.

The battery container SWL is based on measured data of Lithium containerised batteries fitted with splitter silencers developed by the OEM. The battery chillers have also been oversized to operate at a reduced cooling load of 75%. The high voltage transformer SWL is based on historical field measurements of similar sized units.

All equipment items are assumed to be in operation for the entirety of a 15 minute assessment period. Noise emissions of the BESS equipment is typically dominated by cooling noise sources, which can be variable depending on the percentage of maximum power (charge/discharge) and the subsequent temperatures, both ambient and that being generated by the equipment.

Noise sources during ongoing operations are shown in Table 45.

Table 45 Equipment and Sound Power Levels (SLR, NVIA, 2025)

Qty	Item	SWL, per unit $L_{eq\ 15\ min}$, dBA
200	Battery Container	78
100	Inverter	86
100	Medium Voltage Transformer	63
1	High Voltage Transformer	86

The modelling assumptions included the mitigation measures outlined in Table 46.

Table 46 Modelled Mitigation Measures

Item	Mitigation	Benefit
Batteries	- Oversized HVAC units requiring operation at lower fan speeds. 1.5 m long splitter silencers on the HVAC outlet.	Both of these mitigations achieve a total of 14 dB reduction at the source compared with the original, unsilenced model.
Inverters	Silencing kit developed by the OEM. This takes the form of lined ducts on both inlet and outlet	The silencing kit achieves a 7 dB reduction at the source
Noise Wall	4 m noise wall around part of the northern and eastern boundary - The wall shall be of solid construction with no gaps, and - Have a surface density of at least 15 kg/m² - Lightweight aerated concrete, 75 mm thickness ('Hebel' panel), is an example of a suitable material.	The wall achieves an insertion loss of up to 6 dB at the closest sensitive receivers

Predicted noise levels at sensitive receptors show compliance with night-time noise limits (35 dBA) at all non-project-involved receptors except H1, refer to Table 47.



Table 47 Operational Noise Assessment Results (SLR, NVIA, 2025)

Receptor	Predicted Noise Level, dBA	Noise Characteristic Adjustment1	Adjusted Noise Level	Night Time Criterion, dBA	Margin of Compliance
R1	17	-	17	35	18
R2	21	-	21	35	14
R3	22	5	27	35	8
R4	26	-	26	35	9
R5	30	5	35	35	0
R6	30	-	30	35	5
H1	36	5	41	35	-6
Note 1: a 5 dB adjustment was added to R3, R5 and H1 for tonality					

The predicted noise levels show the following:

- The highest noise levels are predicted at the host receiver H1. H1 is the closest receiver (approximately 382m) from the proposed development.
- Noise levels are predicted to be approximately 6 dBA higher at H1 after the tonal adjustment has been applied during the night time period.
- The predicted noise from the proposal complies with the Project Noise Trigger Levels at all other receivers during all periods and weather conditions.
- Predicted LAeq, 15 minute noise levels are also compliant with the sleep disturbance screening level of 40 dBA.

Based on the results and findings discussed above, recommended safeguards and provisions for monitoring will be implemented, as outlined in Section 6.6.5.

Based on the findings of NVIA and following the implementation of the recommendations and/or safeguards are applied, the proposal is considered appropriate having regard to acoustic and vibration impacts.

6.6.4 Decommissioning Impacts

Decommissioning of the Project at the end of life cycle is expected to generate temporary noise and vibration impacts associated with the use of machinery and heavy vehicles during the dismantling and removal of infrastructure, it is anticipated that the required equipment and vehicles would be similar to those during construction. These impacts would be short-term and limited to standard construction hours, with typical sources including cranes, trucks, and hand tools. Given the rural location and generally low density of nearby sensitive receivers, the overall noise and vibration levels are anticipated to be minor and unlikely to cause significant disturbance.

Mitigation measures used during construction would also be implemented during the decommissioning stage. Noise and vibration effects during decommissioning are expected to be low and well within acceptable limits.



6.6.5 Mitigation and Management Measures

- NV1 – A Construction Noise Management Plan (CNMP) will be included in the CEMP, and will including the following measures contained in the draft CNMP including:
 - Use quieter and less vibration emitting construction methods where feasible and reasonable.
 - Notifications to residences detailing work activities, dates and hours, impacts and mitigation measures, and contact telephone numbers for complaints.
 - Training would be provided to all personnel on noise and vibration requirements for the Project. Inductions and toolbox talks to be used to inform personnel of the location and sensitivity of surrounding receivers.
 - All plant and equipment must be maintained in a proper and efficient condition, operated in a proper and efficient manner, and feature standard noise amelioration measures where applicable.
 - Where practicable, tonal reversing alarms (beepers) would be replaced with non-tonal alarms (squawkers) on all equipment in use (subject to occupational health and safety requirements).
 - Where practicable, install purpose-built screening, i.e. the wall on the north and west boundary early in the construction phase to provide shielding for construction equipment that have the potential to impact nearby receivers
 - Where complaints are received, work practices would be investigated and reviewed. Where the investigation validates the complaint having regard to the relevant approval conditions a review of feasible and reasonable practices would be conducted and implemented where practicable to minimise any further impacts.
- NV2 - The following standard construction hours are proposed for the Project:
 - Monday to Friday - 7am to 6pm.
 - Saturday – 8am to 1pm.
 - Sunday and Public Holidays - No works to be undertaken.
- No works are proposed to be undertaken outside of the standard construction hours. In the event this is required, out of hours (OOH) approval would be sought, and all works would be undertaken in accordance with the appropriate OOH protocols and approval processes.
- NV3 - A 4m acoustic attenuation wall will be constructed in accordance with the Project plans, on the northern and eastern boundaries. The wall shall be of solid construction with no gaps and have a surface density of at least 15 kg/m². The wall shall be lightweight aerated concrete, 75mm thickness ('Hebel' panel), is an example of a suitable material.
- NV4 – The BESS will implement the following design measures:
 - Batteries- Oversized Heating, Ventilation, and Air Conditioning (HVAC) units requiring operation at lower fan speeds, and 1.5m long splitter silencers on the HVAC outlet.
 - Inverters - Silencing kit developed by the manufacturer. This takes the form of lined ducts on both inlet and outlet.



- NV5 – Host receiver mitigation will be investigated, and may include:
 - Upgrade façade elements, such as windows, doors or roof insulation to further increase the ability of the building façade to reduce internal noise levels.
 - Providing mechanical ventilation/comfort condition systems to enable windows to be closed without compromising internal air quality/amenity
 - Entering a suitable commercial agreement with the impacted receiver.

6.7 Traffic and Transport

This section presents the findings of the Transport Impact Assessment (TIA) (SLR Consulting, 2025) prepared in response to the SEARs and TfNSW requirements, refer to Appendix M. The TIA includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project.

6.7.1 Existing Environment

The existing traffic environment is summarised in Table 48.

Table 48 Existing Traffic Environment (SLR, Traffic, 2025)

Item	Condition
Surrounding road network & intersections	• The highest-order intersection providing access to the site is Urana Road and Jindera-Walla Walla Road. This intersection was recently upgraded with a 100m-long deceleration lane and basic left turn (BAL) arrangements. The eastern leg was widened to accommodate concurrent B-Double vehicles. • The second highest-order intersection, Jindera-Walla Walla Road and Lindner Road was also recently upgraded with basic right turn (BAR) and BAL arrangements. It was widened to accommodate heavy vehicle movements, including the one-off transformer transportation. • The lowest-order intersection, Lindner Road and Ortlipp Road, was upgraded by widening and sealing to enable concurrent heavy vehicle movements.
Public and active transport infrastructure	• Due to the rural nature of the area, public transport access is limited. The nearest public transport services are in Jindera, approximately 5.4km from the site, with the closest train station in Albury (22km away, about a 30-minute drive). • There is no formalised active transport infrastructure (e.g., bike lanes, pedestrian pathways) in the immediate vicinity.
Background traffic growth	A conservative 2% annual growth rate was applied to estimate 2025 traffic volumes based on 2024 survey data.
Crash history	Crash data from 2019 - 2023 was reviewed to identify any safety deficiencies in the surrounding road network. The crash data is illustrated in the TIA (Figure 8 and Table 5 of the TTIA).
Railway Corridors and Level Crossings	No rail crossings or corridors in NSW or Victoria will be impacted along the route to/ from the site.



6.7.1.1 Traffic Surveys and Demand

In the absence of sufficient publicly available traffic volume data and to ascertain the existing traffic demands of the road network surrounding the site, SLR commissioned Automatic Traffic Counter surveys and Intersection Count surveys in September 2024 outside the school holiday period.

The following peak periods were identified:

- AM peak period: 07:45 - 08:45
- PM peak period: 15:15 - 16:15.

Signalised and Unsignalised Intersection Design and Research Aid (SIDRA) modelling for the intersections was undertaken and confirms both the Urana Road / Jindera – Walla Walla Road and the Jindera – Walla Walla Road / Lindner Road intersections currently operate at a level of service (LOS) A.

6.7.2 Construction Impact Assessment

6.7.2.1 Proposed Access to Site

The containerised batteries, other materials (e.g. aggregates), and construction machinery will be transported to the site from Albury and Wodonga via Urana Road.

The site will be accessed from Ortlipp Road, a predominantly sealed road. It is proposed that access to/ from the development will be provided via a new crossover on Ortlipp Road. The crossover location is approximately 340m north of the driveway of the existing substation. The crossover is designed to accommodate the heavy vehicles required during the project's construction, operation, and decommissioning phases.

The project proposes maintaining a single point of ingress and egress to assist in controlling equipment and construction staff movements. The arrangement will, in turn, help manage the potential movement of biohazards and weeds by vehicles.

The internal access tracks to the site office and the laydown areas will be gravel as the generally short-term use does not warrant a more permanent construction standard. Following the conclusion of the construction period, access to the site will be limited to maintenance activities only.

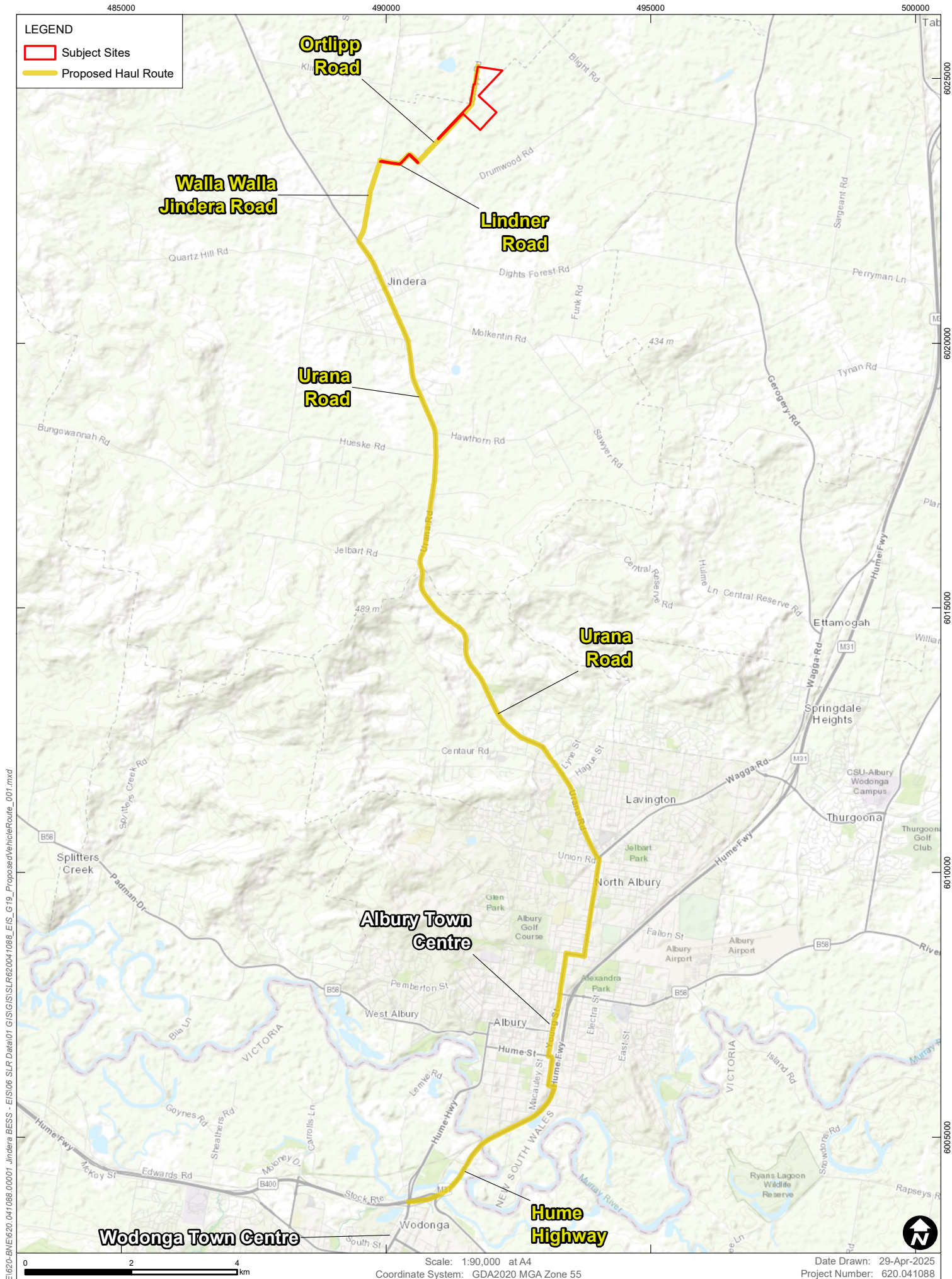
Two route options (Lindner Road and Glenellen Road) were considered for getting onto Ortlipp Road, the site access road. It was observed from a site visit that Lindner Road is now a 7m wide sealed road and is the shortest route from Urana Road via Jindera-Walla Walla Road to access the proposed development.

The following access arrangements are proposed:

- All light and heavy vehicles to approach from the southeast on Urana Road and turn right into Jindera-Walla Walla Road via the existing CHR-S arrangement (recently upgraded).
- All light and heavy vehicles to approach from the south on Jindera-Walla Walla Road and turn right into Lindner Road via the existing BAR/BAL arrangement (recently upgraded).
- All light and heavy vehicles to approach the site from the south on Lindner Road and Ortlipp Road after passing the Glenellen Solar Farm (recently sealed from Jindera-Walla Walla Road intersection to the driveway of Glenellen Solar Farm).
- It is proposed that all light and heavy vehicles adopt the approach route in reverse order while departing.

Almost all heavy vehicles will approach the site from Albury/ Wodonga via Urana Road. The proposed heavy vehicle route is shown in Figure 37.





H:\Projects\SLR\620-BNE\620_04.1088_0001_Jindera BESS - EIS\06 SLR Data\01 GIS\GIS\SLR\620041088_EIS_G19_ProposedVehicleRoute_001.mxd



Data Source: Basemap supplied by ESRI and other sources
Other data sources include Gransolar Group,

**Proposed Heavy
and Light
Vehicle Route**

FIGURE 37

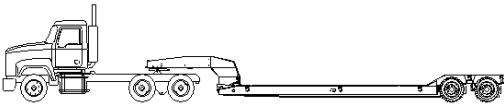
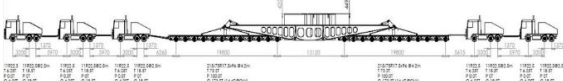
During their inbound journey, all heavy vehicles will travel along Hume Motorway (M31) to Albury and will use Young Street, North Street, Mate Street, Guinea Street and Urana Road. This route is the shortest that could accommodate the largest design vehicle (26m B-Double) of the anticipated construction fleet. A review of the proposed route undertaken by SLR also confirmed that the proposed route is consistent with the National Heavy Vehicle Regulator (NHVR) Route Planner Tool.

Light vehicles will only be used by supervisors throughout the construction phase. With their accommodation being planned in Albury/ Wodonga, light vehicles will also use the same route as heavy vehicles during construction.

6.7.2.2 Heavy and Light Vehicle Demand

No oversize and over mass (OSOM) vehicles will be required during the construction period except for the one-off transportation of the transformer. It is proposed that the transformer be imported from overseas to the Port of Melbourne, which a specialised OSOM material logistics company will then truck to the project site under escort. Excluding the one-off transportation of the transformer, the largest vehicle that will be utilised will be limited to the size of a standard 26m long B-Double design vehicle. The construction fleet is to be finalised in a post-approval construction traffic management plan (CTMP); however the expected vehicles in the construction fleet are shown in Table 49.

Table 49 Project Construction Vehicle Fleet (SLR, TIA, 2025)

Vehicle	Typical Vehicle Profile	Haulage Material
Private Vehicle (B99 design vehicle)		Supervision Workforce: Assumed occupancy of 1 person per vehicle
Toyota Coaster Bus (22-seater)		Labour Workforce: Assumed occupancy of 19 persons per vehicle
Concrete Truck (7.4 cubic meters)		Concrete
Heavy Rigid Vehicle (12.5m long HRV)		Waste removal
32t truck and dog (17m long)		Aggregates, Quarry Products
Six Axle Articulated (20m long AV)		1 x 40ft Container or 2 x 20ft Containers
B-Double (19m or 26m long)		26m long: 40ft and 20ft Containers 19m long: Energy Storage Batteries, Construction Mobilisation, Construction Demobilisation
Goose-Neck Low Loader (up to 25m long)		Excavators, Bulldozers, Graders, Compactors, Piling Rigs, Energy Storage Batteries
Oversize and Over Mass (OSOM)		One-off transformer transportation



Traffic generated during the construction phase of the Project will primarily involve the transport of materials, equipment, and construction personnel. To streamline traffic calculations, traffic has been categorised into two main groups:

- Construction heavy vehicles.
- Construction workforce vehicles.

Additionally, for greater clarity and ease of analysis, heavy vehicle traffic has been further divided into two phases:

- Site clearance and establishment, refer to Table 50.
- Construction materials, refer to Table 51.

Table 50 Site Clearance and Establishment (SLR, Traffic, 2025)

Element	Assumption	Delivery Method	Anticipated Trips
Site Clearing & Earthworks	1 x Bulldozer, 1 x Grader, 1 x Excavator, 1 x Mulcher, 1 x Compactor	Low Loader	5 inbound and 5 outbound
Water for Dust Suppression	3 x Water Truck	HRV (Water Truck)	100 inbound and 100 outbound
Compacted Road Base for Access Tracks	12,500m x 4m x 0.1m = 7,500m ³ / 14,250t @1.9t per m ³	17m Truck & Dog Combination (32t)	297 inbound and 297 outbound
Compacted Road Base for Site Compound	180m x 120m x 0.2m = 4,320m ³ / 8,208t @1.9t per m ³	17m Truck & Dog Combination (32t)	257 inbound and 257 outbound
Compacted Road Base for Control Room & Transformer	4,324 sqm x 0.2m = 864.8m ³ / 1,643t @1.9t per m ³	17m Truck & Dog Combination (32t)	52 inbound and 52 outbound
Compacted Road Base for BESS pad	6,000 sqm x 0.2m = 1,200m ³ / 2,280t @1.9t per m ³	17m Truck & Dog Combination (32t)	72 inbound and 72 outbound
Site Offices, Switch room, O&M Building	4 Demountable Buildings	20m AV / Low Loader	4 inbound and 4 outbound
Fencing	440m of fencing material = 800 acoustic panels	20m AV	13 inbound and 13 outbound
Lighting and Gates	15 Lights, 3 x 6m wide gates, 2 x 1m wide gates	20m AV	3 inbound and 3 outbound
BESS Containers	80 Containers, 3.12MWh per unit	B-Double (19m or 26m long)	80 inbound and 80 outbound
Switch Room Equipment	4 trips per 100MW	Low Loader (20m)	10 inbound and 10 outbound
TOTAL Trips			896 inbound & 896 outbound



Table 51 Construction Materials (SLR, Traffic, 2025)

Element	Assumption	Delivery Method	Anticipated Trips
Minor Earthworks	10 Piling Rigs, 10 Trenchers	Low Loader	20 inbound and 20 outbound
Concrete Batching Plant Consumables	N/A	20m AV	0 inbound and 0 outbound
Piling	10 x 200 piles = 2,000 piles	20m AV with 40ft Container	4 inbound and 4 outbound
Fuel	N/A	17m Fuel Tanker	50 inbound and 50 outbound
33kV Transmission Wire	50m of wire	20m Low	1 inbound and 1 outbound
330kV Transmission Wire	625m of wire	20m Low Loader or OSOM	2 inbound and 2 outbound
Inverters	40 inverters (1 per 2 BESS units)	20m AV with 40ft Container	5 inbound and 5 outbound
330/33kV Transformer	113 PCUs (4 per 40ft Container)	20m AV with 40ft Container	29 inbound and 29 outbound
TOTAL Trips			111 inbound & 111 outbound

An overview of construction workforce assumptions is shown in Table 52.

Table 52 Construction Workforce Assumptions (SLR, Traffic, 2025)

Element	Assumption/ Anticipated Trips	Note
Travel Arrangements	Labour via 22-seater coaster bus and 2-seater UTEs. Supervisors via private vehicle.	
Workforce (20 for 4 months)	1 x 22-seater coaster bus trip & 6 light vehicle trips daily	Applicant: 50% via minibus, 50% via UTEs. 1 supervisor per 20 workers.
Workforce (80 for 4 months)	2 x 22-seater coaster bus trips & 23 light vehicle trips daily	
Workforce (20 for 2 months)	1 x 22-seater coaster bus trip & 6 light vehicle trips daily	
Roster	6 days on / 1 day off	
Shift Rotation	Weekdays: 11 hrs; Saturdays: 5 hrs; Avg 10 hrs	Applicant: Mon-Fri (7am–6pm); Sat (8am–1pm); No work on Sundays/Public Holidays
Construction Duration	10 months	Monday to Friday and half-day Saturdays.
Construction Deliveries	Spaced across 10 months to minimise disruption	Based on previous similar projects.
Light Vehicle Occupancy	1 driver per vehicle	
Coaster Bus Occupancy	19 passengers per vehicle	



Element	Assumption/ Anticipated Trips	Note
Workforce Distribution	100% from Albury	Accommodation: 100% Albury and Wodonga
Haulage Distribution	100% from Albury	
TOTAL Trips (Workforce)	2,800 inbound & 2,800 outbound	

Based on the information in Table 50, Table 51, and Table 52 it is estimated the Project will generate 3,807 inbound and 3,807 outbound trips in the 10-month construction period (250 working says, including Saturdays).

The peak hour traffic generated by the project was estimated using assumptions in the tables above, considering both light and heavy vehicles. Traffic was modelled as non-linear over the 10-month construction period, with all deliveries assumed to come from Albury via Urana Road and occurring during the morning peak hour to create a conservative scenario. Construction traffic was aligned with existing peak traffic times at key intersections. Workforce traffic was based on a maximum of 80 workers, all assumed to be staying in Albury. Background traffic growth was estimated at a conservative 2%, based on September 2024 traffic data, with construction assumed to start end of 2025.

Average daily traffic for linear workforce and peak daily traffic for a linear and non-linear workforce is shown in Table 53 and Table 54.

Table 53 Average Daily Traffic - Linear Construction Presence (SLR, Traffic, 2025)

Vehicle Type	Daily Vehicle Movements	
	Inbound AM (vpd)	Outbound PM (vpd)
Light Vehicles	4	4
Heavy Vehicles	11	11
Total	15	15

Table 54 Peak Daily Traffic - Nonlinear Workforce Presence (SLR, Traffic, 2025)

Vehicle Type	Peak Period Vehicle Movements	
	Inbound AM (vph)	Outbound PM (vph)
Light Vehicles	23	23
Heavy Vehicles	6	6
Total	31	31

SLR analysed the busiest part of the construction duration for a conservative traffic engineering assessment, with up to 80 workers. The assessment also assumed all materials would be delivered in the morning peak hour (07:45-08:45). On this basis, the information provided in Table 53 was adopted as a basis for the intersection performance and safety assessments.

The SIDRA modelling undertaken for the Project indicates that the Urana Road/ Jindera-Walla Walla Road intersection and Jindera-Walla Walla Road/ Lindner Road intersection will continue to perform at LoS A in all assessed scenarios. On this basis, no upgrades are proposed nor considered necessary at this intersection to enable the proposed project or other approved developments.



6.7.2.3 Sight Distances

SLR conducted a site inspection in September 2024 to assess sight distances at two key intersections, using standards from *Austroads Guides to Road Design* (AGRD) (Parts 3 and 4A). The assessment focused on Safe Intersection Sight Distance (SISD), which ensures drivers on a major road can see and stop safely if a vehicle from a minor road enters their path. SISD was calculated for the intersections of Urana Road with Jindera-Walla Walla Road, and Jindera-Walla Walla Road with Lindner Road.

The SISD calculations, as per Table 3.2 in *Austroads Guide to Road Design Part 4A*, require the following SISD:

- Urana Road/ Jindera-Walla Walla Road intersection:
 - 100 km/h posted speed limit = 110 km/h design speed = SISD 300m with 2.5 seconds reaction time.
 - The site inspection undertaken by SLR identified that the available SISD is in excess of 400m and 600m for the south and north approaches, respectively.
- Jindera-Walla Walla Road/ Lindner Road:
 - 100 km/h posted speed limit = 110 km/h design speed = SISD 300m with 2.5 seconds reaction time.
 - Clear sight distance is visible for 200m from Lindner Road to the crest for the north approach and in excess of 500m for the south approach.
 - Sight distance in the north approach does not satisfy the SISD requirements according to AGRD Part 4A due to a crest on Jindera-Walla Walla Road 200m north of the Lindner Road intersection. Notwithstanding, the existing arrangements are considered sufficient due to the following:
 - Temporary and short-term nature of the proposed construction activities.
 - Low existing traffic volumes on Jindera-Walla Walla Road.
 - The use of this intersection for access is already approved for Glenellen Solar Farm, which generates significantly higher traffic than the proposed Jindera BESS.

6.7.2.4 Turn Lane Warrant Assessment

SLR has undertaken turn warrant assessment for the construction peak periods, to determine whether additional turning lanes should be provided, based on the design traffic volumes. SLR's turn warrant assessments are undertaken for a 10-year design horizon, even longer than the anticipated duration of construction works (10 months) for a conservative assessment.

It was identified that consistent with *Austroads Guide to Traffic Management* and the recent road upgrades completed in 2024 provide the following treatments:

- Urana Road / Jindera - Walla Wall road intersection: channelised right turn (short) CHR-S and Basic Left Turn (BAL1)
- Jindera - Walla Wall Road / Lindner Road intersection: BAR and BAL1

Detailed turn warrant assessments are provided in the TIA, and it was assessed that no further upgrades are considered necessary based on the turn warrant assessment undertaken by SLR at the two study intersections.



6.7.3 Operational Impact Assessment

Limited on-site and regular maintenance is required for the Project and BESS developments in general. Operation traffic demands associated with the Project is expected to be minimal and limited to minor servicing activities. Based on this the operational traffic of the proposal is not considered to be a critical element within the traffic assessment.

6.7.4 Decommissioning Phase Traffic Generation

The site is proposed to be decommissioned and the infrastructure removed following the end of the life of the Project. Works will be undertaken to return the site as close as possible to its original state and use. Detailed consideration of potential traffic demands associated with the decommissioning of the Project has not occurred, as such activity is anticipated to occur after the typically adopted design horizon for assessing traffic impacts. Nevertheless, the traffic demands associated with decommissioning are anticipated to be less than those associated with construction activity, and hence, the sizing of infrastructure to accommodate construction traffic demands is expected to provide sufficient capacity to accommodate decommissioning traffic demands.

6.7.5 Mitigation and Management Measures

- TR1 – A construction traffic management plan (CTMP) will be developed in accordance with the recommendations of the TIA, prior to the substantial commencement of construction activities. The CTMP will outline measures including:
 - Construction traffic will use Lindner Road to enter/ exit Ortlipp Road. To ensure the impacts to motorists within the area are kept to a minimum, construction traffic will remain low.
 - Preparation and execution of Traffic Guidance Schemes (TGS). TGS plans will be implemented, managing the access and the general public's movement around construction activities. They should identify all reasonably foreseeable hazards, assess them, and manage them as best possible by eliminating or minimising the risks. The TGSs shall be monitored and updated accordingly throughout the project.
 - Management of transport from workforce accommodation, including the construction program, accommodation availability and the vehicle fleet that will be used.
 - Drivers Code of Conduct, consistent with the measures outlined in the TIA.
 - All vehicles are to park and load/ unload within the site using the designated parking and loading areas where possible. Vehicles are not parked or loading/ unloading within the public road reserve.
 - Temporary signage must be positioned at critical intersections to inform construction vehicle drivers and to warn the general public about the construction activities in the vicinity.
 - Residents of the area must be informed prior to the commencement of construction works.
 - Heavy vehicles should limit the use of engine or compression braking systems where possible and vehicles are to be turned off when not in use.
 - A risk assessment is intended to identify hazards and risks associated with construction activities.
 - Incident Management Protocol.



- Reporting and monitoring of construction vehicle movements are to be undertaken to ensure that drivers are adhering to restricted times.
- TR2 - At the commencement of works, the TGS setup shall be inspected to confirm accuracy with the intended TGS, as well as to ensure locations of signage and devices are safe and do not cause hazards to traffic. This inspection shall be documented within a site register and repeated at the commencement of each week of the construction program.
- TR3 - A simple OSOM material transportation assessment (A Route Study) will be conducted for the one-off transportation of the transformer from the port of import to the development site, following the approval of the SSD application and the confirmation of the port of import and type/ quantity of the equipment. This report should consider all aspects of the preferred route in its entirety, such as bridge and tunnel clearances (from a vertical perspective) and carriageway widths, such as tight turns (from a horizontal perspective).
- TR4 - The section of Ortlipp Road from the driveway of Glenellen Solar Farm to the access location of the proposed Project be sealed (gravel) for approximately 1.5km, to accommodate the bi-directional movements of the anticipated construction vehicle fleet.
- TR5 - Following the sealing of Linder Road and Ortlipp Road, it is recommended that the applicant confirm the status of B-Double approvals for Lindner Road and Ortlipp Road. If not already in place, an application should be made to NHVR to obtain approvals to operate B-Double design vehicles along these road segments.
- TR6 - Dilapidation surveys will be undertaken to assess the condition of all the road sections, along with intersections along the nominated transportation route, to identify changes prior to and following the proposed construction works.
- TR7 – Consultation with GHSC and TfNSW, requesting consideration of the installation of the following advisory signage:
 - Southbound direction, north of the intersection: side road ahead, crest, trucks crossing or entering, advisory speed.
 - Northbound direction, south of the intersection: crest.

6.8 Hydrology

This section presents the findings of the Flood Risk and Impact Assessment Report (FRIAR) (WaterTech, 2025) prepared in response to the SEARs, refer to Appendix N. The FRIAR includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project. The FRIAR considers potential impacts in relation to groundwater, flooding and surface water, and includes:

- Characterisation of surface water in the project area, review of background information and topographic data.
- The development of baseline hydraulic modelling to reflect the flooding behaviour and mechanisms (depth, water levels and velocities).
- Identification of potential impacts of the project site on surface water including effects on flooding (water levels, depths, velocities).
- Development of a groundwater conceptual model and review of potential contamination.
- Assessment of the likely residual impact of the project on the existing environment.



6.8.1 Existing Environment

6.8.1.1 Groundwater

Local groundwater conditions have been summarised into a site-based hydrogeological conceptual model to inform an assessment of the Project. This assessment ensures the development proceeds in accordance with the WM Act 2000 and Water Management (General) Regulation 2018 (NSW), notably adhering to the following:

- NSW Aquifer Interference Policy.
- NSW Construction Dewatering Guideline.
- Water Sharing Plan for the NSW Murray-Darling Basin Fractured Rock Water Resource Plan (2022).

Within the Murray-Darling Basin, individual water resources are referred to as sustainable diversion limit (SDL) resource units, which generally coincide with geological boundaries. The Subject Site is located within the Lachlan Fold Belt (LFB) SDL resource unit in which groundwater is typically found in fractured rock joints, bedding planes and faults, and cavities (DPIE, 2022). The Subject Site is expected to have unconfined, local, topographically controlled aquifers in saprolite and fractured granites or in colluvial sediments (OEH, N.D.). The groundwater from the LFB SDL resource unit is generally used for stock and domestic purposes.

The LFB consists of deformed and/or metamorphosed marine sedimentary rocks, cherts, siltstones and mafic volcanic basalts (DPIE, 2022). Basement geology at the Subject Site is comprised of Jindera Granite, which is a 'medium- to coarse-grained, biotite granite. The Subject Sites are expected to have unconfined, local, topographically controlled aquifers in saprolite and fractured granites or in colluvial sediments (Office of Environment and Heritage, N.D.).

The site is identified within the Burrumbuttock Hydrogeological Landscape (HGL) which salinity levels are described as less than 800µS/cm. However, there is limited available information regarding the quality of existing groundwater in the area with only 2 existing groundwater bore located within 5km of the site. However, both bores are located outside the sites HGL and may not be representative of groundwater conditions for the site.

Notwithstanding, local hydrogeological information, including lithology, water level, yield, and salinity, were collated from the seven bores located within a 5km buffer of the Subject Sites. No bores have been drilled on the Subject Sites. Lithology records indicate thick layers of clay overlying water bearing zones in all identified bores. Drilling records for bore GW505515 show granite at 95 mBGL, which is consistent with the description of the Jindera Granite unit.

Based on desktop search of the Groundwater Dependant Ecosystem (GDE) Atlas, no terrestrial or subterranean GDEs are located near the Subject Sites with several aquatic GDEs located within 5 km of the Subject Site identified as wetlands. Noting depths of groundwater in the surrounding area, the wetlands identified are most likely the result of localised perched water tables or rainfall fed wetland with restricted groundwater infiltration.

6.8.1.2 Surface Water and Flood

- Based on desktop analysis, two sources of flooding were identified including overland sheet flow from the localised catchment draining towards the Subject Site, and,
- overland sheet flow from catchment to the west that feeds the ephemeral Kilnacroft Creek.



An existing Jindera flood study was commissioned for the GHSC in 2017, highlighting the flood risk through the township and adjacent Four Mile Creek. However, the Subject Sites did not form part of the extent of the study.

As part of the FRIAR, flood modelling was undertaken including hydrological and hydraulics. The particular components included:

- Hydrologic modelling:
 - Runoff routing for the Kilnacroft Creek catchment using rainfall runoff software producing design flow for the catchment in line with the *Australian Rainfall and Runoff* 2019. Two separate hydrographs from the Kilnacroft Creek catchment were determined. These flows were input to the hydraulic model (TUFLOW) which determined the flood extents, depths and velocities for the range of modelled events.
 - Direct rainfall - Hydrology for the catchment local to the BESS was modelled using a Direct Rainfall or Rain on Grid (RoG) approach, which introduces rainfall directly on the model extent for each selected annual exceedance probability (AEP) event.
- Hydraulic modelling:
 - Development of the dynamic numerical model used to predict catchment and surface water flood risk to the Subject Sites. The hydraulic modelling has assessed both the existing and developed conditions associated with the full construction of the Jindera BESS.

Based on the modelling, the 1% Annual Exceedance Probability (AEP) flooding does not produce any major external overland flow paths through the Subjects Sites. Peak velocities across the BESS Site are generally less than 0.5m/s. In the Probable Maximum Flood (PMF) event some localised areas of the BESS Site have velocities in excess of 0.5m/s.

Utilising the *Australian Rainfall and Runoff* 2019 hazard classification system, the flood risk impacting the site is considered to be H1 which represents the lowest risk flood category where conditions are generally safe for vehicles, people, and buildings.

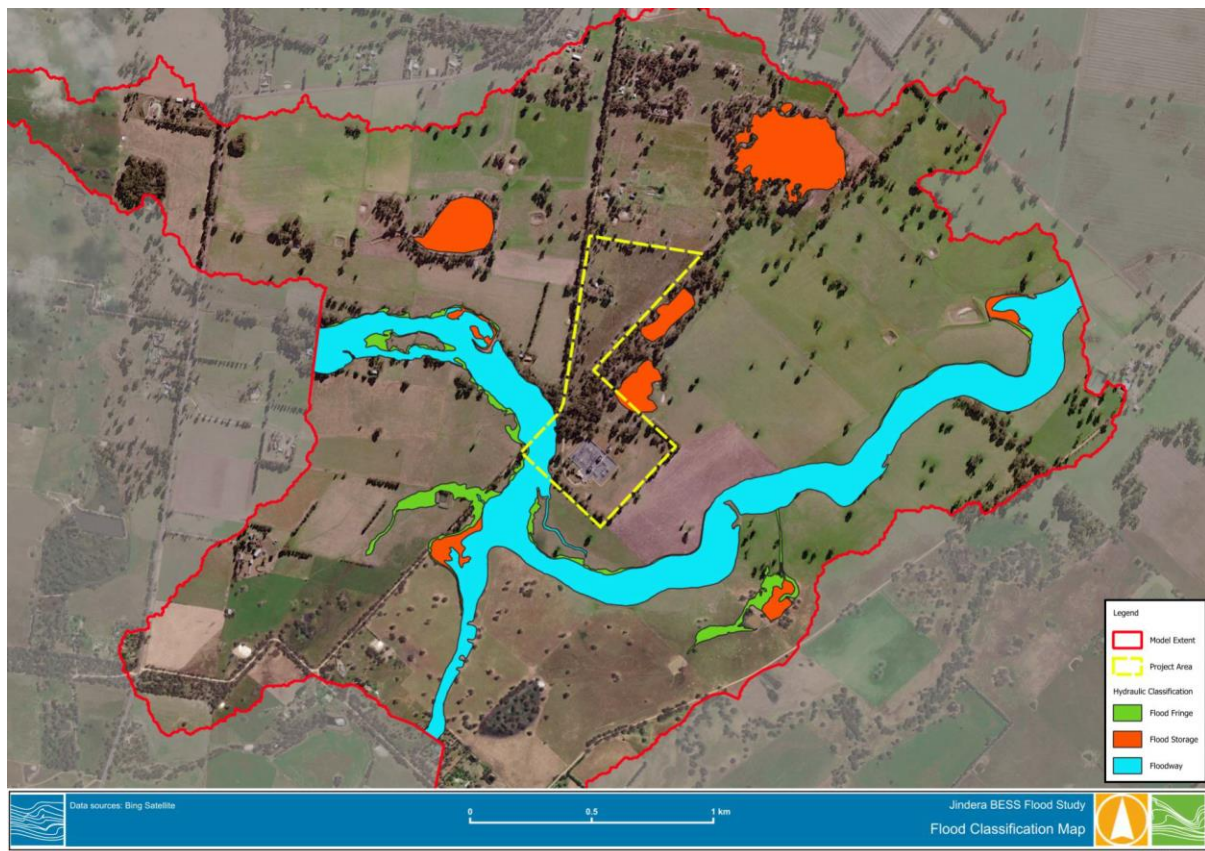
The 1% AEP extent was classified into Floodway, Flood Storage and Flood Fringe areas in line with the Floodplain Development Manual, as per the below:

- Floodway was identified as areas where 1% AEP Velocity x Depth product exceeded 0.1m²/s.
- Flood storage was identified as areas where 1% AEP depth exceeded 0.3m.
- Flood fringe was assigned to the remainder of the 1% AEP flood extent where depth exceeds 0.1m.

The flood classifications impacting the Subject Sites are shown in Figure 38. Areas which fall within the abovementioned classification do not include the development area which reflects the low-risk status of the site.



Figure 38 1% AEP Flood Classification (Watertech, 2025)



To offset the predicted increased in peak surface water level as a result of the Project, stormwater infrastructure in the form of a swale and culvert have been recommended. The inclusion of the swale helps direct attenuated waters around the noise wall or preferentially towards the culvert inlet where some of the excess water is conveyed further east. The location of the culvert outfall could be placed anywhere along the eastern boundary that had sufficient fall and room to establish scour protection.

A majority of the typical design events showed no predicted offsite detriment to residential receptors or nearby fields other than the PMF. The PMF event displayed small areas of increased water levels that were encroaching within the nearby Exclusion Zone and field to the north. Quantifications of the PMF within the region have been given probabilities in the order of 1:1,000,000 to 1:10,000,000 AEP. Considering the uncertainty associated with the estimation of the PMF, the magnitude of the event, the probability of risk is further reduced as a result of the proposed BESS lifetime on Site.

The Project is not predicted to results in indirect or direct damage to the local community in the event of significant flooding. No other detriment, than what is already predicted in the existing scenario, is observed that would impact other nearby receptors or emergency management within the local region with the proposed mitigation in place. Erosion and Sediment

The development area is located adjacent to Kilnacraft Creek; however the nearest BESS works are approximately 400m from the Creek. The hydraulic model results indicates that the nearest proposed works are over 350m from the 1% AEP flood extent for Kilnacraft Creek.

Existing erosion processes may be caused by local rainfall and include:

- Splash erosion - spattering of soil particles cause by the impact of raindrops on soil.



- Sheet erosion - uniform removal of soil in thin layers from sloping land as a result of overland runoff.
- Rill erosion - removal of soil by water concentrated in small but well-defined channels.
- Gully erosion - produces channels deeper and larger than rills (generally greater than 300mm deep).

The location of the proposed BESS works is free from significant inundation (>30mm) up to the 1% AEP rainfall event with erosion risk expected to be low.

6.8.2 Construction Impact Assessment

6.8.2.1 Groundwater

No chemicals, fuels, or oils are proposed to be stored on site. As a result, the potential sources of groundwater contamination would be from minor fuel or hydraulic hose leaks from construction vehicles which are expected to be low.

Groundwater monitoring is not required during the construction of the facility. Based on the assessed understanding of the local hydrogeological regime and site operations during construction and operation, it is considered that there is negligible risk to groundwater or GDEs.

6.8.2.2 Surface Water and Flood

Based on the flood depth, velocity and hazard levels determined by the flood modelling, the BESS Site is generally categorised as having low flood risk. Riverine flood risk is contained within the Kilnacraft Creek floodplain and is predicted to pose no risk.

Developed conditions modelling was undertaken for the proposed raised layout. This scenario showed limited potential for the development to influence regional surface water levels, with local changes to flood level observed within and outside of the project area. It is recommended a mitigation swale and culvert is taken forward for further detailed assessment to redirect attenuated runoff around the development footprint. The modelled mitigation swale and culvert is not predicted to produce detriment to nearby residential receptors.

6.8.2.3 Erosion and Sediment

Potential erosion risks during construction at the Subject Sites include:

- Clearing, excavation and grading: These activities involve moving large amounts of soil, often leaving areas of bare, loose earth that are highly susceptible to erosion, especially during heavy rain.
- Machinery: The use of heavy machinery can compact soil, reducing its ability to absorb water and increasing runoff, which can carry sediment into waterways.
- Material storage: Stockpiles of soil or other materials can also erode if not properly managed, contributing to sedimentation in nearby waterways.
- Stormwater: Without adequate stormwater management practices, construction sites can experience significant runoff, exacerbating erosion and transporting pollutants into the waterway.



6.8.3 Operational Impact Assessment

6.8.3.1 Groundwater

Once operational, the only potential contaminant source is the potential for battery leakages however, the units are self-contained, with anti-leak connections, negating the potential for contaminant release. Potential battery fires are expected to be contained within the individual units, as each unit has internal fire-suppression systems, including flammable gas, smoke and thermal sensors, pressure release systems and aerosol fire extinguishing systems. Therefore, the risk (likelihood and consequence) from small individual fires is not considered significant.

Based on the assessed understanding of the local hydrogeological regime and site operations during construction and operation, it is considered that there is negligible risk to groundwater or GDEs. This conclusion is derived from:

- No potential contaminants will be stored on the Site during construction and operation phases.
- The battery units are self-contained and will control any potential leaks. There is no opportunity for leaching of metals due to the containment and lack of water in the battery units.
- Excavations will be shallow and groundwater is unlikely to be encountered, and no dewatering or abstraction will occur.
- Mapped GDEs are all >5km or more away and are unlikely to be impacted in the unlikely occurrence of groundwater contamination.
- Site management plans will provide details on the clean-up of small spills via spill kits and soil removal.

Potential battery fires are expected to be contained within the individual units, as each unit has internal fire-suppression systems designed and tested to comply with international and/or Australian standards and guidelines. Therefore, the risk (likelihood and consequence) from small individual fires is not considered significant. Additional mitigation includes inspection and removal of contaminated soils post fire which will reduce the risk of migration of contaminants to the groundwater.

Groundwater monitoring is not considered necessary at the Subject Site unless there is a major fire where fire-fighting water or chemicals are used, or another unforeseen leak occurs outside the expected small volumes of stored fuel. Should a major fire or other event occur, then groundwater monitoring wells should be located up and down-gradient of the site and down-gradient to determine any impacts to groundwater.

6.8.3.2 Surface Water and Flood

Based on the flood depth, velocity and hazard levels determined by the flood modelling, the Subjects Sites are generally categorised as having low flood risk.

The hydraulic flood modelling assessment indicated that neither the project area, nor the BESS layout would be impacted by significant flooding, other than sheet flow through the Site.

The construction of infrastructure, such as roads and electrical infrastructure, poses risks to water quality and hydrology. Potential impacts include altered drainage patterns, increased sediment loads downstream, and temporary disruption to surface water flows. Specific concerns include erosion and sedimentation from stockpiles and earthworks, and accidental spills of pollutants entering waterways.



Minor localised changes to drainage patterns and flow paths may be expected due to the introduction of impermeable surfaces, such as hardstands. Careful design and construction hardstand areas are necessary to mitigate these risks. The potential impacts are generally localised to the Site with targeted mitigation strategies recommended to protect downstream water quality. The proposed mitigation measures will also be prevent any impact on the water catchment.

6.8.3.3 Erosion and Sediment

Noting minor alterations to existing surface water flows, erosion processes can all be managed with appropriate drainage and surface treatment in the design of the site.

6.6.4 Decommissioning and Rehabilitation

At the conclusion of the useful life of the Project, infrastructure will be removed, and the site will be graded as close to pre-Project landform as possible, with some revegetation anticipated to be required during this phase. During this phase it is likely there may be disturbance of site soils, and the risk of soil erosion until an effective vegetative cover is established. Potential impacts of erosion are similar to the construction phase and include the potential loss of future land productivity if topsoil is eroded. An ESCP will be implemented to mitigate these impacts.

6.8.4 Mitigation and Management Measures

- FL1 – Any sensitive infrastructure such as inverters and battery storage etc, should be located on raised fill pads with 300 mm freeboard above the maximum of the 1% AEP flood level. It is common for this type of infrastructure to be housed within shipping containers or small sheds with relatively small footprints. Given the shallow depths across the site, raising these small fill pads is highly unlikely to result in any adverse impacts offsite.
- FL2 - The footings should be designed to withstand the flood velocities described which are mostly low (<1m/s) in the BESS Site.
- FL3 - Mitigation measures in the form of swale/cut-off drains and culvert be installed to prevent off-site detriment.
- FL4 - It is recommended that the best practice principles to stormwater and sediment control be incorporated into the design, construction and operation phases of the solar farm site.
- FL5 – The CEMP shall include measures to ensure that construction works not restrict the movement of emergency vehicles on Ortlipp Road, with any scheduled roadworks and vehicle movement.
- GRD1 – CEMP and OEMP shall include measures to prevent chemical spills from reaching the groundwater system or nearby waterways in the unlikely event of leakage. Mitigation measures include:
 - Regular maintenance and inspection of vehicles used during construction.
 - Self-bunded battery storage units.
 - Regular maintenance and inspection of battery storage units.
 - Development of site management plans that detail responses to leaks such as spill kits, removal and appropriate testing and disposal of impacted soils and options for installing groundwater monitoring bores in the case of a significant fire or unexpected leak.



- GRD2 – The OEMP will include measures for groundwater monitoring, which will occur should there be a major hazard event such as major fire where chemicals are used or unforeseen leak events from units despite containment measures designed into the units. Should a major hazard event occur groundwater monitoring wells are to be installed up- and down-gradient of the site to determine any groundwater impacts.
- ESD1 - Construction works and decommissioning works are to be managed under an Erosion and Sediment Control Plan (ESCP). The ESCP should include the following measures:
 - Before construction begins, establish sediment control measures such as silt fences or sediment barriers around the perimeter of the site to prevent soil erosion and runoff. This should include along the south-eastern extent of the Site to capture sediment runoff before it discharges to the adjacent Crown Reserve.
 - Depending on the level of construction activities to be undertaken, the contractor should establish a centralised entry & exit point with all-weather access to Ortlipp Road. This entry and exit point may potentially need to include a vehicle cleaning area to reduce the transport offsite of dust and other debris.
 - Manage soil and material stockpiles by covering them with tarps or other suitable materials to prevent erosion.
 - Install erosion control mats or blankets on exposed soil areas to stabilise the soil and promote vegetation growth.
 - Implement stormwater management practices, such as constructing temporary drainage channels or swales, to direct runoff away from the construction site and prevent sediment from entering Kilnacroft Creek or other nearby waterways. During any intended excavation and establishment of the sub-base table drains or diversions should be established on the high side of the area. The intention is to divert overland runoff from these disturbed areas.
 - Temporary facilities and compounds should be established in areas with a low erosion risk.
 - Conduct regular inspections of erosion and sediment control measures to ensure they are functioning properly and make any necessary adjustments.

6.9 Bushfire

This section presents the findings of the Bushfire Assessment (SLR Consulting, 2025) prepared in response to the SEARs, refer to Appendix J. The Bushfire Risk Assessment Report (BRAR) includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project.

A key input in the assessment of bushfire risk is to determine any Asset Protection Zone (APZ) and the Bushfire Attack Level (BAL) of the project site of interest. The Project BAL has been assessed according to:

- Australian Standard AS 3959:2018, “Construction of Buildings in Bushfire-Prone Areas”.
- NSW RFS, Planning for Bushfire Protection, November 2019 – (PBP-2019).
- NSW RFS, Planning for Bushfire Protection Addendum, November 2022.



6.9.1 Existing Environment

Both the BESS site and transmission line easement fall within bushfire-prone areas, refer to Figure 13 (in Chapter 2). This designation necessitates risk assessments and mitigation plans.

Vegetation Category 2 is found to the northeast, east and south of 204 Ortlipp Road, Glenellen. This vegetation lies partly within the eastern boundary and southern corner of the lot. Vegetation Category 2 is found both within and to the northwest and northeast of 140 Ortlipp Road, Jindera. The Vegetation Category 2 aligns with the PCT 277 Blakely's Red Gum - Yellow Box Grassy Tall Woodland, which also constitutes a threatened ecological community under the Biodiversity Conservation Act 2016. The Subject Sites also contains some areas of Grassland (low-threat vegetation surrounding the facility). The vegetation required for the BAL assessment of the site is the Grassland and Woodland categories immediately surrounding the BESS site to the east and south and within the proposed transmission line easement.

The site is largely flat, with minimal slopes that reduce the risk of fire spreading uphill. The maximum variation in elevation across the site is approximately 5m (RL.225m to RL.220m) over a distance of 1km from north to south. In terms of bushfire risk, the immediate land surrounding the Project site boundaries can be taken as essentially flat, i.e. zero slope in all directions of adjacent land. The Fire Danger Index (FDI) determined for the site is 80.

6.9.2 Construction and Operational Impact Assessment

The BRAR (SLR Consulting, 2025) recommends that the Vegetation Category 2 be provided an APZ up to 30m, to the southeastern boundary of the BESS portion of the facility, including its substation, as well as the TL connecting to Jindera Substation.

The Jindera BESS site is subject to PBP-2019 Section 8 and therefore, a risk assessment based on the nature of the site. The more stringent BAL-12.5 level has been recommended as this would ensure that the maximum exposure at any point of a facility will be below 10 kW/m². This will ensure the safety of firefighters and other emergency workers to safely defend the facility, evacuate personnel if needed and allow access to and from all areas within the Site.

APZs as recommended in the mitigation measures will be required to be implemented during construction. During operations the APZs are to be managed by the BESS operator to ensure no overgrowth and that the cleared distances be maintained.

6.9.3 Mitigation and Management Measures

- BF1 – Prior to the commencement of the BESS, APZs shall be implemented, consistent with the following:
 - 30m from nearest BESS Site equipment to the southeast (woodland).
 - 20m from nearest BESS Site equipment to the other boundaries (grassland).
 - 30m for the transmission line easement and substation extension.
 - The APZ will be maintained as either completely cleared land or a mown area with a grass height of less than 100mm, refer to Figure 39.
- BF2 - Buildings and structures will adopt a BAL of -12.5, and use non-combustible materials, such as fire-resistant concrete and metal.
- BF3 – The general principles and RFS-compliant design recommendations made in the BRAR will be applied to ensure that firefighting vehicles are provided with safe, all-weather access to the proposed BESS facility.



- BF4 – Provide reticulated water supply for the site, in conjunction with a static water supply (150kL tank).
- BF5- The Acoustic barrier shall be made of non-combustible (i.e. fire-resistant) materials, in accordance with the recommendations of the BRAR.
- BF6 - The Bushfire Management Plan (BMP) for the facility (shall contain a provision preventing any other vegetation from taking hold within the proposed APZ zone around the site, thereby reducing the bushfire hazard risk and maintaining adequate access to firefighting personnel and equipment.
- BF7 – The BMP shall include ongoing implementation measures, as outlined in the BRAR including:
 - Access and Egress for the public and for firefighters and their equipment.
 - Adequate Water Supply for fire suppression.
 - Landscape Management.
 - Emergency Response and Management – Preparedness and Planning.

6.10 Hazards and Risk

This section presents the findings of a Hazard and Risk Assessment (SLR Consulting, 2025) (HRA) prepared in response to the SEARs, refer to Appendix I. The HRA includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project.

6.10.1 Existing Environment

The nearest sensitive receptors to the project are shown in Figure 36.

The nearest receptor to the site is the Host Receiver (H1). The receptor is approximately 140m from the nearest BESS units at the site and a similar distance from the nearest equipment in the BESS substation. The next nearest receptors not associated with the Subject Sites are:

- R6: 151 Ortlipp Road - 225m from nearest site boundary (west), 260m to nearest BESS sub-station equipment.
- R5: 238 Ortlipp Road - 235m from nearest site boundary (north), 300m to nearest BESS unit.

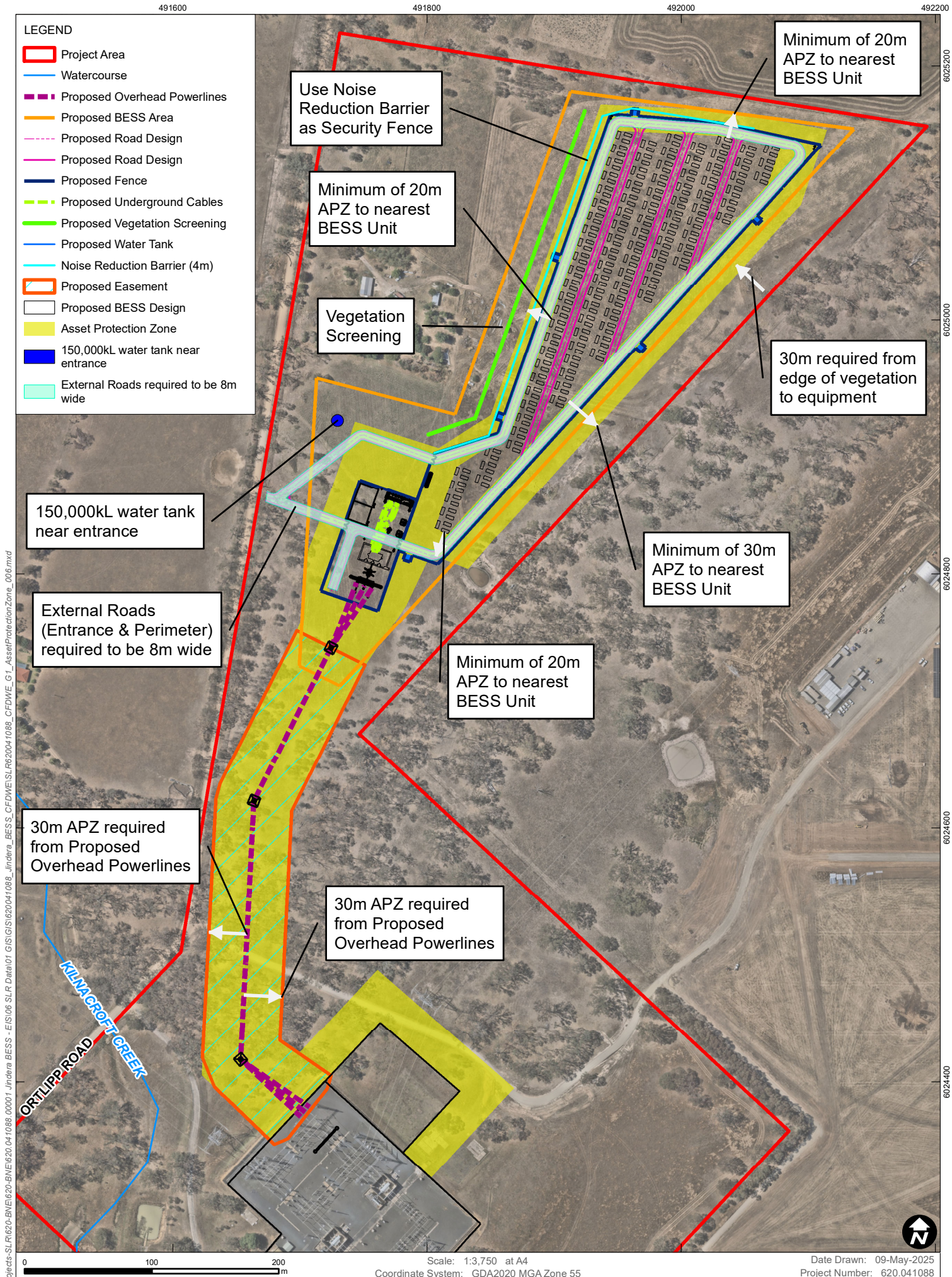
6.10.2 Preliminary Risk Screening

Preliminary risk screening of the proposed development Project is required under the Resilience and Hazard SEPP to determine the need for a preliminary hazard assessment (PHA). The preliminary screening assesses the storage of specific dangerous goods classes that have the potential for significant, off-site effects. Specifically, the assessment involves the identification of classes and quantities of all dangerous goods to be used, stored, or produced on site with respect to storage depot locations as well as transported to and from the site.

As detailed further in Chapter 3 of the HRA (SLR Consulting, 2025), the Project would not require toxic chemicals or processes to be involved in the construction of any Project component. Dangerous goods present on-site during the construction and operational phases are expected to consist of:

- Fuel for use by construction plant and equipment, which will be stored on-site.





- Tiny amounts of clinical waste stored safely by medical or first aid staff at the Project first aid station, to be disposed of at the nearest district hospital or another suitable facility as required.
- Regulated substances expected to be stored on-site (for maintenance, repair, emergency, etc, purposes) during construction include fire extinguishers, machine oils and lubricants, hydraulic fluid, and spare (emergency) fuel, which will be stored in a properly maintained (and code-compliant) storage area with suitable signage, details of personal protective equipment requirements if relevant.
- Products used for ongoing vegetation maintenance would be common over the counter products.
- The transformers that form part of the BESS facility contain transformer oil for insulation and cooling, however toxic Polychlorinated biphenyl are no longer used as a cooling fluid; instead, non-toxic mineral or biodegradable oils are used.

No hazardous chemicals will be produced during operation of the facility, and the decommissioning phase of the Project will mirror the Construction phase in terms of materials and equipment activities.

The dangerous goods that will require transportation and storage at the Project site are detailed in Tables 2 and 3 of the HRA (SLR Consulting, 2025). The final quantity and transportation parameters of the materials listed in will be confirmed during detailed design however as currently foreseen, they do not exceed the relevant storage (or transport) thresholds.

The storage and handling of dangerous goods to be used or stored at the facility and transported to/from the facility is not considered potentially hazardous with regards to the screening thresholds contained in the Resilience and Hazards SEPP. Further detailed analysis via a PHA is therefore not required in relation to this consideration.

6.10.2.1 BESS Units

The Project's BESS units are battery powerpacks consisting of lithium-ion batteries. Lithium-ion batteries are classed as Class 9 Miscellaneous Dangerous Substances and articles, which are excluded from the Resilience and Hazard SEPP screening process. However, the hazards associated with these batteries mandate that a PHA is required to further assess the hazards and risks associated with the lithium-ion batteries.

6.10.2.2 Diesel Storage

Diesel fuel to be stored on site, is not classed as a Dangerous Good, but is classed as a C1 Combustible Liquid, provided no flammable liquids are stored with the diesel. SLR has been advised that no flammable liquids will be stored with the diesel. Accordingly, in the proposed development, Diesel is classed as a C1 Combustible Liquid.

While C1 combustible liquids are not a Dangerous Good under UN (United Nations) classification, they are defined as dangerous goods under NSW workplace legislation.

The total storage on site will be 1 tonne, and accordingly SafeWork NSW Notification is not required and an EPL is not required in accordance with the POEO Act.

6.10.3 Preliminary Hazard Analysis

Where the Resilience and Hazard SEPP identifies a development as potentially hazardous and/or offensive, developments are required to undertake a PHA to determine the level of risk to people, property and the environment at the proposed location and in the presence of controls, and therefore a PHA has been completed in accordance with *Hazardous Industry*



Planning Advisory Paper No.6 - Guidelines for Hazard Analysis (HIPAP6) (DOP, 2011). Detailed methodology for the PHA is contained within Section 4.1 of the HRA (SLR Consulting, 2025).

Potentially hazardous events or scenarios were evaluated to establish if further comprehensive qualitative analysis was required. Details of hazardous events, causes, consequences, and controls are detailed in Table 4 of the HRA (SLR Consulting, 2025), with a summary as follows:

- Bushfire
- Physical damage to BESS (no combustion)
- BESS unit thermal runaway and/or explosion
- Fire starting onsite
- Exposure of equipment to high voltage
- Vehicle collision onsite
- Transformer oil leakage
- Security breach
- Damage due to lightning strike
- Flooding
- Seismic Activity
- Severe Storms
- Exposure to electromagnetic fields (EMF)

Risk levels that are acceptable (less than high) in accordance with the risk matrix below in Table 55 are noted as being adequately addressed via standard engineering design approaches, adherence to the relevant design codes, etc. and do not require further examination in the PHA. Risk levels that are deemed high or greater are noted as requiring further detailed management and mitigation measures.

Table 55 Risk Matrix

Likelihood	Consequence				
	Low	Minor	Medium	Major	Catastrophic
Almost certain	Medium	High	Very High	Extreme	Extreme
Likely	Medium	Medium	High	Very High	Extreme
Possible	Low	Medium	Medium	High	Very High
Unlikely	Low	Low	Medium	Medium	High
Rare	Low	Low	Low	Medium	Medium

In assessing the tolerability of risk from potentially hazardous development, the relevant general principles set out in HIPAP 6 are:

- The avoidance of all avoidable risks.
- The risk from a major hazard should be reduced wherever practicable, even where the likelihood of exposure is relatively low.



- The effects of significant events should, wherever possible be contained within the site boundary.
- where the risk from an existing installation is already high, further development should not pose any incremental risk.

With regard to the latter bullet point, the presence of the nearby substation is noted as being significant.

The following potential hazards could not be eliminated through first review as resulting in a risk level of high and required further examination:

- Hazards associated with bushfire (assessed under Appendix J).
- Hazards associated with lithium-ion batteries in the BESS, specifically overheating and fire.
- Hazards associated with exposure to EMF.

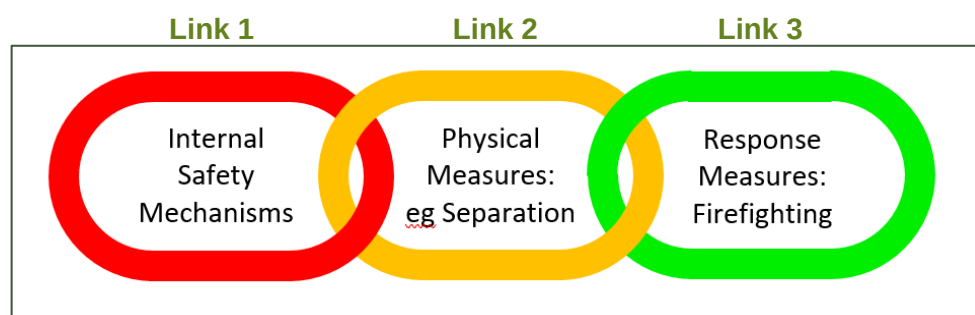
6.10.3.1 BESS Risk and Management Assessment

BESS-related hazards include thermal Runaway; Fire; Explosion, Toxic Gas Venting; Flammable Gas Venting; Electric Arc Flash; Hot Surfaces and Electric Shock. These risks arise from the following two broad areas:

- Risks Associated with Non-Battery Fire Events.
 - Wiring Issues, e.g. short circuits.
 - Electrical Safety System Failures, e.g. fuses, breakers, insulation, etc.
 - Mechanical Interference, e.g. bugs, rodents, mishandling, etc.
- Thermal Runaway:
 - Causes: manufacturer defect, overcharge, over-discharge, mechanical damage, environmental (too hot, too cold).
 - Hazards Produced: heat, flame, off-gassing of mainly H₂ and CO, off-gassing of other toxic gases, deflagration/explosion risk.

The key “links” in managing “internal” fire related risks within a BESS facility are illustrated in the “Fire Response Chain” shown in Figure 40.

Figure 40 Key Strategic Links in Managing BESS Fire-Related Risks –The 'Fire Response Chain' (SLR, HRA, 2025)



Link 1

Globally manufactured, commercially available BESS units (battery packs, convertors, etc) come with a range of sophisticated in-built hazard reduction mechanisms to avoid the onset of a fire event; detect a fire and “announce” it to relevant “stakeholders”, and contain and suppress the fire until external firefighting resources can be brought to bear to shut the fire down, if it has not already been contained.

Link 2

In between the Link 1 automatic fire-management systems and the Link 3 intervention of firefighting resources are a series of physical measures, e.g. separation of BESS units, APZ zones, etc, designed to limit the spread of a fire event until firefighting resources arrive to shut down the fire, if it has not already been contained.

Typically, BESS battery packs have a minimum clearance distance to the nearest boundary of their enclosure of between 5 m to 6 m. This is based on the radiant heat flux from a theoretical BESS battery pack fire that might be experienced by site personnel.

Rows of adjacent BESS battery pack units will also be separated by a minimum clearance which will vary in terms of the front and end walls and side walls. This is based on the radiant heat flux from a theoretical BESS battery pack fire that an adjacent BESS unit might experience in relation to its structural integrity.

SLR’s literature search of worst-case BESS fire simulations based on the above assumptions indicate the following approximate minimum separation distances:

- 6m = minimum distance from either the front, end or side walls of any BESS battery pack to the associated enclosure fence perimeter (based on the 4.7 kW/m² criterion).
- 3m = minimum distance between adjacent BESS battery pack side walls (based on the 12.6 kW/m² criterion).
- 4m = minimum distance between adjacent BESS battery pack front and end walls (based on the 12.6 kW/m² criterion).

On the basis of the above, various possible configurations of BESS battery packs within a rectangular area can then be assessed for a given total area allocated to the facility.

Link 3

Appropriate access for firefighting vehicles, availability of an adequate water supply for firefighting, emergency response planning, etc, form the last link aimed at being able to shut a fire down before it has the chance to spread beyond the BESS perimeter and into the surrounding community.

The following issues, related to Link 3, are addressed separately in the stand-alone Bushfire Risk Assessment Report:

- Asset Protection Zones, Landscaping and Construction Standards: including non-combustible security fencing to be installed around BESS units and related infrastructure and the APZ around the external boundary fence, to be managed as an inner protection zone.
- Access: to the BESS facility with both an internal 8 m wide perimeter road and fire trail access around the BESS compound perimeter fence but within the site.
- Water Supply: including a supply pipe from the proposed 150kL static water tank, positioned close to the BESS compound to enable responding fire fighters to access this water supply.



- Bushfire Management Plan
- Ease of access for emergency vehicles.

6.10.4 Conclusion

The HRA emphasises that a strong Link 1 places less onus on Links 2 and 3, and that strong Links 1 and 2 place less onus on Link 3.

This section has shown that:

- BESS-related and other equipment-related fire risk issues can be adequately mitigated.
- Accordingly, the facility's BESS will not in itself pose an additional fire hazard that has the potential to increase the extent or severity of a bushfire event on surrounding property, people and the environment.
- Finally, the proposed 500 MWh BESS capacity can be comfortably accommodated within the site space with appropriate separation distance for protection of both personnel and equipment.

On the basis of the Risk Matrix and assessment in the HLA, SLR considers the residual risk associated with the BESS-initiated or other equipment-related fire hazard to be low, and hence adequately mitigated.

6.10.4.1 EMF Risk and Management Assessment

The Project's electrical equipment will comply with relevant Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) and International Commission on Non-Ionizing Radiation Protection (ICNIRPP) standards for exposure to electromagnetic radiation.

While the final design selection for all of the Project electrical equipment has not been made (solar panels, cabling, inverters, synchronous condensers, substation, BESS units, etc), it is a Project Commitment that the Project's electrical equipment will comply with relevant ARPANSA and ICNIRP Standards for exposure to electromagnetic radiation.

The magnetic fields produced by all of the equipment within the proposed BESS facility should be comfortably below the exposure limits detailed Table 13 of the HRA (SLR Consulting, 2025) even at close distances from the relevant equipment and certainly at background levels at the nearest relevant perimeter fence of the Project.

The only measurable EMFs present outside the border of the Project site would almost entirely be from the existing transmission lines which run along the north-eastern boundary of the broader Project site.

During the Project construction phase, construction staff may be intermittently exposed to EMFs when working near selected equipment (e.g. inverters) once testing of the BESS facility begins. Potential EMF impacts are possible, in particular for sensitive workers (e.g. workers with implanted medical devices), however these impacts are likely to be short term and negligible and will be managed according to the Project's Occupational Health and Safety Management Plan.

The PHA for EMF risk concludes that EMF fire risk issues can be adequately mitigated, for both the public and site workers.

On the basis of the risk matrix in Table 55, the residual risk associated with EMF risk is assessed to be low, and hence adequately mitigated.



6.10.4.2 Electric Shock and Arc Flash

There is potential for the occurrence of electric shock to anyone entering any of the Project's electrical cabinets such as combiner boxes, disconnect switches, inverters, or transformers. A second source of electrical hazard is a so-called "arc flash", which is a sudden burst of energy that can occur in a short circuit situation. Arc flashes cause both a flash of heat and a localised shockwave, both of which can cause serious injury.

Properly equipped on-site facility technicians will have received training to safely install, test and repair all relevant equipment, but there is always some risk of injury when hazardous voltages and/or currents are present.

The Engineering Operation and Maintenance Management Plan for the facility will include all measures aimed at managing these risks, including specific targeted measures detailed in the Project Emergency Response Plan.

This section has shown that EMF hazard issues can be adequately mitigated, for both the public and site workers. On the basis of the Risk Matrix shown in Figure 6 of the HRA, SLR considers the residual risk associated with the EMF hazard to be low, and hence adequately mitigated.

6.10.5 Decommissioning Impacts

Decommissioning of the Project presents low and manageable hazards and risks, primarily associated with the handling and removal of electrical equipment, potential chemical exposure from residual battery materials, and the operation of heavy machinery. These risks can be effectively mitigated through adherence to established safety protocols, including isolating and discharging battery systems prior to removal, implementing spill containment measures, and ensuring all personnel are trained and equipped with appropriate personal protective equipment.

A detailed decommissioning and safety management plan would be prepared and implemented to address potential hazards, ensuring risks remain low and are appropriately controlled throughout the process.

6.10.6 Mitigation and Management Measures

- HRA1 - Electrical Shock and Arc Flash - An Engineering Operation and Maintenance Management Plan should be prepared for the facility to include all measures aimed at managing hazards and risks, including specific targeted measures detailed in the Project Emergency Response Plan:
 - Adequate warning signs throughout the facility, based on the level of danger posed by the relevant voltages and current involved, especially focussed on first responders in an emergency situation, e.g. firefighters attending the site, hazmat attendees, etc.
 - Instructions available to all authorised personnel (including firefighters, etc) regarding the level of personal protective clothing required to be worn, respiratory protection required, minimum evacuation zone distances, etc.
 - Instructions covering safe shut-down and isolation procedures for all equipment to be readily available for emergency service personnel as well as on-site staff.
 - Security fencing around individual equipment items as required (based on risk principles) and the entire site itself, properly maintained throughout the life of the Project, all with adequate hazard warning signs.



- A safety protocol for the site which prevents untrained individuals from inspecting, testing, or repairing any aspect of the facility's electrical equipment and systems.
- HRA2 – EMF - The design of the facility will be developed in accordance with (i) Energy Networks Association (ENA), “*ENA Policy Statement on Electric and Magnetic Fields*”, adopted by the ESAA Board in 1991 and reconfirmed by the ENA EMF Committee, March 2006; and (ii) Nutall, K., Flanagan, P. and Melik, G., “Prudent Avoidance Guidelines for Power Frequency Magnetic Fields”, 23rd Annual Conference of the Australasian Radiation Protection Society, 1998.
- HRA3 - The integrity of all Project site security fencing will be maintained through the lifetime of the Project to ensure adequate exposure separation for all members of the public.
- HRA4 -The following management plans will be prepared and included in the CEMP and OEMP:
 - Emergency Response Plan (ERP).
 - Water Management Plan (WMP).
 - Fire Safety Study (FSS).
 - Spill Management Plan (SMP).
 - Fire and Bushfire Management Plan (FBMP).

6.11 Social Impact

This section presents the findings of the Social Impact Assessment (SIA) (SLR Consulting, 2025) prepared in response to the SEARs, refer to Appendix O. The SIA includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project.

The SIA was conducted in accordance with the NSW Social Impact Assessment Guideline for State Significant Projects (SIA Guideline) (DPHI, 2023). The methodology involved extensive stakeholder consultation, social baseline analysis, impact prediction and evaluation, and development of mitigation strategies. The assessment was informed by findings from other technical studies, including economic impact, visual impact, noise and vibration, bushfire risk, and traffic analyses.

6.11.1 Existing Environment

Greater Hume Shire, with a population of 11,149 residents as of the 2021 census, is known for its rich agricultural heritage and scenic rural landscapes, which contribute to a strong farming and livestock sector, particularly sheep and cattle.

The Study areas considered in the SIA are described below:

- Local Study Area (LSA): this includes the suburbs of Jindera (ABS Suburbs and Localities (SAL) area code SAL12041) and Glenellen (SAL area code SAL11667), where residents are likely to experience direct impacts from the Project, such as effects on local amenity and traffic.
- Local Government Area (LGA): covering the Greater Hume Shire LGA and the Albury LGA, this area provides the broader strategic policy and socioeconomic context for the Project. Residents here may encounter indirect impacts, including employment opportunities, workforce accommodation needs, and changes in service accessibility.

The social baseline analysis reveals several key considerations for the Jindera BESS Project's Social Impact Assessment:



- **Population growth and demographic change:** Greater Hume Shire and Albury are experiencing population growth above the NSW average, which may increase demand for energy infrastructure while potentially increasing the number of people affected by the project.
- **Strong community connections:** High volunteerism rates in Jindera (25%) and Greater Hume Shire (26.7%) indicate strong community bonds and social capital. The project should consider potential impacts on these community networks and how to engage effectively with this active community.
- **Family-oriented community:** Jindera has a significantly higher proportion of family households (82.1%) than state and national averages, with many young children (24.5% aged 0-14). This demographic profile suggests that particular consideration should be given to the potential impacts on family life and children. Conversely, Glenellen exhibits a much older demographic profile, noting a population that may be more susceptible to health and wellbeing impact.
- **Housing affordability:** The relatively affordable housing in the region (lower rents and mortgage payments compared to NSW averages) is a key community asset that should be preserved. However, it should be noted that prices have seen substantial increases in the last five years. The project should consider potential housing availability and affordability impacts, particularly during the construction phase.
- **Limited public transport access:** High vehicle ownership (>90% of households) and limited public transport options indicate a car-dependent community. The project should carefully assess traffic impacts and the effects on community access to essential services.
- **Regional economic context:** The project intersects with a diverse regional economy spanning agriculture, manufacturing, and services. Understanding potential impacts on and opportunities for local businesses will be important, particularly given the area's slightly lower unemployment rates compared to state averages.
- **Aboriginal and Torres Strait Islander considerations:** With Aboriginal populations in Jindera (3.0%), Greater Hume (3.4%), and Albury (3.7%) close to the NSW average, the project should ensure appropriate consultation with Indigenous communities and consideration of potential impacts on cultural heritage.
- **Emergency services planning:** Given the rural context and bushfire risks identified in technical assessments, coordination with local emergency services will be essential for project planning and community safety.

These findings provide context for evaluating potential social impacts and developing appropriate mitigation measures and benefit enhancement strategies for the Jindera BESS Project.

6.11.2 Impact Assessment

The SIA assesses the social impacts arising from the construction and operation of the Project, including measures to enhance social benefits and mitigate potentially negative impacts as per the principles set out in the *SIA Guideline* and aligns with requirements set out in the *Technical Supplement for Social Impact Assessment Guidelines for State Significant Developments* (DPIE, 2023).

The assessment identifies the potential social impacts of the Project as a result of amenity impacts, changes to community cohesion and character due to an influx of construction workers during construction into a relatively small rural community, traffic and construction



based disruption, potential loss of Aboriginal cultural heritage values and residents concern about the risk of fire from the BESS.

As outlined in Section 6.11.4, a number of measures are recommended to ensure that any impacts are mitigated through the project life.

Table 56 provides a summary of the residual risk of social impacts, following the implementation of the mitigation measures.

The management of social impacts will primarily be achieved through:

- Integration with the project's environmental management and reporting frameworks, as many social impacts are directly related to environmental factors such as noise, visual amenity, and traffic.
- Implementation of specific social management measures targeting impacts that cannot be fully addressed through environmental management alone.
- Ongoing stakeholder engagement to monitor community sentiment and respond to emerging concerns.
- Ongoing reporting and regular auditing of performance and mitigation measures on public platforms including the project website and collateral.

Given the relatively short construction timeframe and even shorter peak construction period, the plan will emphasise timely response to issues rather than long-term trend analysis. The management approach will:

- Focus on effective communication mechanisms managed in real-time.
- Address issues promptly as they emerge.
- Adjust management strategies based on feedback and observations.
- Apply learnings from similar BESS projects in the region.

By implementing the recommended mitigation and enhancement measures outlined in this report, GDA can deliver the Jindera BESS project with social outcomes that align with community expectations and generate lasting benefits for the Greater Hume region. Ongoing stakeholder engagement, transparent communication, and adaptive management will be essential to maintaining social performance throughout the project lifecycle.



Table 56 Residual Risk Assessment

Social Impact	Stakeholder Affected	Pre-Mitigation Social Risk Rating (Likelihood + Magnitude)	Mitigation and management measures	Residual impact significance		
				Likelihood	Magnitude	Residual Social Risk Rating
Amenity impacts during construction activities, including noise, vibration, dust, and odour, affect residents' wellbeing and the way they use and enjoy their private space.	Project sensitive receivers	Minor + Possible = Medium	Managed through environmental performance requirements. Ongoing engagement through the CSEP will support residents' capacity to plan for and adapt to change. Where Project works overlap with the Glenellen or Jindera Solar Farm works, the proponent will seek to consult with each relevant proponent to identify concurrent activities that may result in heightened negative impacts on stakeholders and plan accordingly to minimise impacts.	Possible	Minor	Medium (Negative)
Changes to community cohesion and character due to an influx of construction workers during construction into a relatively small rural community.	Local community	Minimal + Possible = Low	Further management not required.	Minimal	Possible	Low (Negative)
Delays and disruption to local traffic networks resulting from construction activity, including increased	Local community road users and project-	Minor + Possible = Medium	Managed through environmental performance requirements.	Unlikely	Minor	Low (Negative)



Social Impact	Stakeholder Affected	Pre-Mitigation Social Risk Rating (Likelihood + Magnitude)	Mitigation and management measures	Residual impact significance		
				Likelihood	Magnitude	Residual Social Risk Rating
truck movements and heavy and oversized vehicles, affect residents' movement patterns and perceptions of safety on the road network.	sensitive receivers		Ongoing engagement through the CSEP will support residents' capacity to plan for and adapt to change. Where Project works overlap with the Glenellen or Jindera Solar Farm works, the proponent will seek to consult with each relevant proponent to identify concurrent activities that may result in heightened negative impacts on stakeholders and plan accordingly to minimise impacts.			
Increased demand for temporary accommodation providers in the local area during construction results in limited accommodation options for seasonal workers, local needs, and tourists.	Various stakeholders require short-term accommodation for tourist, business and personal needs.	Minimal + Unlikely = Low	No further management is needed. However, once the extent of local employment is determined and accommodation requirements are known, the proponent will coordinate with nearby temporary accommodation businesses to locate willing providers and assess tourism accommodation availability, working to coordinate non-local workforce accommodation needs (when necessary).	Minimal	Unlikely	Low (Negative)



Social Impact	Stakeholder Affected	Pre-Mitigation Social Risk Rating (Likelihood + Magnitude)	Mitigation and management measures	Residual impact significance		
				Likelihood	Magnitude	Residual Social Risk Rating
Construction activities create jobs in an emerging renewable industry that enhances economic opportunities in the community.	Residents, Sensitive receivers	Moderate + Certain = High (Benefit)	To reduce potential negative impacts and enhance business and industry benefits, the project will: ▪ Prioritise local business inclusion in procurement strategies, including motivating contractors to utilise local products and services when feasible.	Moderate	Certain	High (Benefit)
Increased demand for local workers further constrains local labour markets, affecting local businesses' ability to attract and retain skilled staff.	Local businesses and industry.	Moderate + Likely = High	▪ Evaluate various approaches to promote local service utilisation, such as establishing a directory of regional businesses for opportunity communications and collaborating with business organisations and local government about regional capabilities and skill requirements to enhance readiness.	Possible	Moderate	Medium (Negative)
Influx of construction workers will generate increased spending at local hotels, restaurants, retail stores, and other businesses, stimulating economic growth across multiple sectors.	Local businesses and industry.	Moderate + Almost certain = High (Benefit)	No further management needed.	Moderate	Almost certain	High (Benefit)



Social Impact	Stakeholder Affected	Pre-Mitigation Social Risk Rating (Likelihood + Magnitude)	Mitigation and management measures	Residual impact significance		
				Likelihood	Magnitude	Residual Social Risk Rating
Loss of Aboriginal cultural heritage values due to construction activities and site preparation works affects Aboriginal peoples' connection to Country and spiritual wellbeing.	Aboriginal people who have connection to local Country.	Moderate + Possible = Medium	Managed through environmental performance requirements.	Moderate	Possible	Medium (Negative)
Perceived changes to local community character resulting from the reduction of agricultural land and associated activities in the local area affect residents' sense of place and agricultural identity.	Local residents, particularly those in Glenellen, with broader regional changes.	Moderate + Possible = Medium	Managed through environmental performance requirements.	Moderate	Possible	Medium (Negative)
Operational noise and light emissions affect residents' well-being and the way they use and enjoy private space.	Nearby sensitive receptors.	Minor + Likely = Low	Managed through environmental performance requirements.	Minor	Likely	Low (Negative)
Improved infrastructure will facilitate access to renewable energy sources in NSW and enhance the reliability of the energy supply throughout the energy transition.	Residents of NSW.	Major + Almost certain = Very High (Benefit)	No further management needed.	Minor	Almost certain	Very High (Benefit)



Social Impact	Stakeholder Affected	Pre-Mitigation Social Risk Rating (Likelihood + Magnitude)	Mitigation and management measures	Residual impact significance		
				Likelihood	Magnitude	Residual Social Risk Rating
Residents concern about the risk of fire from the BESS Facility affects general feelings of safety and wellbeing.	Nearby residents and the broader community.	Moderate + Likely = High	Managed through environmental performance requirements. The proponent will establish educational resources and communication channels for community members seeking information about safety considerations related to battery energy storage system technologies.	Possible	Moderate	Medium (Negative)
The implementation of a voluntary planning agreement with the Greater Hume Council provides funding for community measures that enhance liveability and provide community benefit.	Jindera and Glenellen communities and the Great Hume Region.	Moderate + Almost certain = High (Benefit)	Implementation of the VPA.	Moderate	Almost certain	High (Benefit)



6.11.3 Decommissioning Impacts

Decommissioning of the Project is expected to have minimal community social impacts, given the short duration and temporary nature of the works. There may be minor disruptions such as increased vehicle movements on local roads and short-term noise during working hours, but these are not expected to significantly affect the local community and mitigation measures similar to those during construction will be implemented.

The Project's closure may also result in the loss of any small-scale local employment or service contracts associated with ongoing maintenance, although this is likely to be limited. Early communication with the community, along with clear scheduling and management of decommissioning activities will be implemented to minimise any potential concerns or inconvenience to residents.

6.11.4 Mitigation and Management Measures

The following measures are recommended to mitigate social impacts from the Project:

- S01 – The proponent will develop and execute a Community and Stakeholder Engagement Plan (CSEP) to ensure community members receive accurate, timely information throughout the construction phase. This strategy will encompass:
 - Systems for notifying nearby communities, residents, visitors and road users about scheduled activities, their timing, possible effects, and mitigation strategies (including transport operations and activities generating significant noise).
 - Methods for consultation with impacted stakeholders and residents regarding possible effects and management approaches.
 - Systems for gathering and addressing project-related inquiries and concerns during construction, operational, and decommissioning phases, such as an online project portal with contact information.
 - Ongoing and consistent reporting of performance measures, engagement summaries, project updates and outcome of impact mitigations on public platforms including project website and printed collateral.
- S02 – The proponent will establish educational resources and communication channels for community members seeking information about safety considerations related to battery energy storage system technologies.
- S03 – The proponent will coordinate with nearby temporary accommodation businesses to locate willing providers and assess tourism accommodation availability, working to coordinate non-local workforce accommodation needs (when necessary).
- S04 – To reduce potential negative impacts on local labour forces and enhance business and industry benefits, the project will:
 - Prioritise local business inclusion in procurement strategies, including motivating contractors to utilise local products and services when feasible
 - Evaluate various approaches to promote local service utilisation, such as establishing a directory of regional businesses and collaborating with business organisations and local government about regional capabilities and skill requirements to enhance readiness.
- S05 – Where Project works overlap with the Glenellen or Jindera Solar Farm works, the proponent will seek to consult with each relevant proponent to identify concurrent activities that may result in heightened negative impacts on stakeholders and plan accordingly to minimise impacts.



6.12 Economic Impact

This section presents the findings of the Economic Impact Assessment (EIA) (Gillespie, 2025) prepared in response to the SEARs, refer to Appendix T. The EIA includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project.

6.12.1 Existing Environment

The regional economy considered in the EIA is defined as the combined LGAs of Greater Hume Shire and Albury. The population of this region in 2021 was 67,250, comprising 56,093 (83 per cent) who resided in Albury LGA and 11,157 (17 per cent) who resided in Greater Hume Shire LGA.

The population of the region has been growing at a slightly lower rate than NSW (1.1 per cent per annum for the region from 2006-2021 compared to 1.3 per cent for NSW) driven by the population growth of the Albury LGA. Aggregated one-digit Australian and New Zealand Industry Classification (ANZSIC) place of work data indicates the relative significance of Agriculture, Forestry and Fishing, Manufacturing, Retail Trade, Accommodation and Food Services, Public Administration and Safety, Education and Training, and Health Care and Social Assistance sectors, compared to NSW.

Exporting sectors are key drivers of regional economies and reflect a region's endowments and competitive advantages. Using the input-output tables (IO) industry sector classifications, the largest exporting sectors by value are Manufacturing, Agriculture, Forestry and Fishing, Public Administration and Safety, Construction and Health Care and Social Assistance.

6.12.2 Construction Impact Assessment

The Project would provide economic activity to the regional and NSW economy during the construction, operation and decommissioning phases.

Construction employment from the Project is estimated at an average of 47FTE for 10 months. Based on the IO coefficients of the construction sectors in the regional economy, \$14 million (M) expenditure would be required to generate this level of onsite workforce for 10 months.

The estimated direct and indirect regional economic impact of \$14 million expenditure on the regional economy for approximately 10 months is estimated at up to:

- \$28M in direct and indirect output.
- \$10M in direct and indirect value-added.
- \$5M in direct and indirect household income.
- 87 direct and indirect jobs.

The construction impacts of the Project on the NSW economy for 10 months are estimated at up to:

- \$40M in direct and indirect output.
- \$17M in direct and indirect value added.
- \$11M in direct and indirect household income.
- 132 direct and indirect jobs.



The construction of the Project will impact approximately 7ha of land that has moderate land capability, is not used for agricultural purposes but is used as a rural lifestyle block. Consequently, there will be no material agricultural impacts of the Project construction.

The construction of the Project will create demand for regional labour resources and regional inputs to production. This has the potential in the short run to lead to increased construction wages, attraction of workers from other relevant sub-sectors and sectors of the economy leading to labour shortages in these other areas of the economy (and associated shortages of goods and services), rising costs as firms pass wage costs onto consumers etc.

In addition, in the short run excess demand for inputs to construction of an individual project such as quarry materials, concrete etc. can result in rising costs for these factor inputs and potentially shortages for other uses. However, whether, and the extent to which these types of effects will arise from an individual project is uncertain. For this Project where direct construction demand is for 47 workers on average over a 10-month time frame, no observable price effects are anticipated.

The construction of the Project will only temporarily impact approximately 7 ha of land that has moderate land capability, is not currently used for agricultural purposes but is used as a rural lifestyle block, as well of 11.5 ha of moderate land capability for the transmission line. Consequently, there will be no material agricultural impacts of the Project construction.

6.12.3 Operational Impact Assessment

The Project is estimated to make up to the following total annual contribution to the regional economy during operation:

- \$13M in annual direct and indirect regional output.
- \$8M in annual direct and indirect regional value-added.
- \$0.5M in annual direct and indirect household income.
- 7 direct and indirect jobs.

The Project is estimated to make up to the following total annual contribution to the NSW economy:

- \$17M in annual direct and indirect regional output.
- \$10M in annual direct and indirect regional value-added.
- \$2M in annual direct and indirect household income.
- 17 direct and indirect jobs.

The construction and operation impacts are larger for the NSW economy because there is less leakage of direct and indirect expenditure out of the NSW economy compared to the regional economy i.e. the NSW economy because of its size and diversity is better placed to provide more of the inputs to production than the regional economy.

Businesses that can provide the inputs to the production process required by the Project and/or the products and services required by the workforce would directly benefit from the Project by way of an increased economic activity. However, because of the inter-linkages between sectors, many indirect businesses also benefit.

The Project operation will impact a similar area of agricultural land as construction i.e. seven ha. However, no material agricultural impacts of Project operation will occur.

The operation of the Project will create a small demand for regional labour resources and regional inputs to production. Consequently, no wage or price increases or production shortages are anticipated.



6.12.4 Decommissioning Impacts

Decommissioning of the Project is likely to have limited economic impacts, given the typically small and short-term nature of such works. There may be a minor temporary boost to the local economy through demand for contractors, equipment hire, accommodation, or supplies during the decommissioning period. However, any ongoing economic contributions associated with the operational phase, such as site maintenance jobs or local procurement would cease upon project closure.

The overall economic impact is expected to be low, particularly when the site is rehabilitated and made available for future productive use, such as agriculture or compatible development.

6.12.5 Mitigation and Management Measures

The construction, operation and decommissioning phases of the Project will have net positive impacts on the level of economic activity in the regional and NSW economy.

Accordingly, mitigation measures are not specifically required. However, the EIA recommended that the positive local employment and business opportunities can be maximised via measures consistent with those particularised in the SIA.

6.13 Waste Management

This section presents the findings of the Waste Management Plan (WMP) (SLR Consulting, 2025) prepared in response to the SEARs, refer to Appendix Q. The WMP includes a detailed analysis of the existing environment and proposed operation and construction and outlines the methodology and criteria utilised to form an assessment of the Project.

6.13.1 Existing Environment

Ortlipp Road is currently serviced by Council kerbside bin collection for domestic waste, including general waste and recycling. The Subject Sites currently do not generate much waste and includes general rural waste such as vegetation and grasses. The rural and approved dwelling within the Subject Sites will maintain separate waste storage and collection. The waste expected during the construction and operation of the Project is detailed below.

In order to estimate the waste types and quantities and to identify potential impacts and mitigation measures, a desktop assessment was conducted. The method involved the following:

- Review of the relevant legislation and regulatory framework related to waste management.
- Identification of potential waste generating activities during site preparation, construction, operational and decommissioning phases.
- Estimation of potential waste generating activities during site preparation, construction, operational and decommissioning phases.
- Identification of likely classification of waste types in accordance with relevant legislation and guidelines.
- Description and management methods of the key identified waste streams.
- Identification of lawful disposal or recycling facilities.



The waste types and quantities estimated in this waste assessment are indicative and have been identified for the purpose of providing potential waste management options. The final quantities of waste will be determined in the later stages of the Project.

6.13.2 Construction Impact Assessment

Construction activities have the potential to generate waste through excess construction materials, waste generation from construction offices and excess spoil from excavation and foundation works. The construction activities for the Project would be undertaken according to a Project CEMP developed by the Construction Contractor that addresses waste management and reduction practices.

During site preparation and construction phases, the following broad waste streams are expected to be generated:

- Excavation waste – spoil.
- Green waste - vegetation from site preparation and tree removal.
- Mixed construction waste - metal and timber offcuts.
- Plant maintenance waste - oils and tyres.
- Packaging waste - plastic wrap, straps, pallets, drums and cardboard.
- Work compound waste - lunch waste and drink containers.
- Wastewater from dewatering excavations, plant maintenance and construction activities.

Waste generated during the site preparation and construction phases are not expected to be in large quantities. Construction of the Project will require heavy vehicles, plant, and equipment for the transportation of components and installation of the components on the site. The Project is likely to require earth-moving equipment for civil and road works, cable trenching equipment, forklifts, and cranes subject to detailed design to install the BESS and complete ancillary works.

The majority of the waste generated through the construction activities of the Project is expected to be derived from site preparation, earthworks, connection of services, and office installation. Additionally minor quantities of waste are expected to be generated from building materials such as concrete, timber, aggregate, scrap metals and packaging.

Details of the likely key waste types from excavation, and construction activities, along with their waste classifications and proposed management methods, is provided in Table 57.

Table 57 Potential Waste Type, Classifications, and Management Methods - Construction (SLR, Waste, 2024)

Waste Types and Activities	NSW EPA Waste Pre-Classification	Avoidance and Reuse	Storage and Collection	Recycle / Disposal
Soil from earthworks spoil to prepare the access road, construction laydown areas	General solid (non-putrescible) waste	On-site reuse of topsoil for landscaping of the site.	Separate materials requiring off-site recovery	Will be sent off-site for disposal at a facility lawfully able to accept it or landscaping off-site



Waste Types and Activities	NSW EPA Waste Pre-Classification	Avoidance and Reuse	Storage and Collection	Recycle / Disposal
Green waste - grasses, trees, roots, and associated topsoil	General solid (non-putrescible) waste	On-site reuse of topsoil and mulch for landscaping of the site Offering felled timber to local community	Stored in bins or other contained area	Waste that can't be recycled on-site will be sent off-site for disposal to recycling facility or landfill lawfully able to accept it.
Construction waste - metal off-cuts, mainly from operations and maintenance building	General solid (non-putrescible) waste	Recycle scrap metal	Separate, stockpile, reuse on-site Separate materials requiring off-site recovery	Dispose waste that cannot be reused on-site at a facility lawfully able to accept it. Recyclable materials will be reused on-site or sent to a facility lawfully able to accept it for recycling
Construction waste - timber off-cuts, packaging, glass, plastic, and rubber	General solid (non-putrescible) waste	Pallets to be returned to the supplier, if possible. Appropriate procurement processes to avoid ordering and delivery of excess materials and supplies	Off-site timber recycling, chip for landscaping, sell for firewood Remainder to landscape supplies. Reused for similar projects	Dispose waste that cannot be reused on-site at a facility lawfully able to accept it. Recyclable materials will be reused on-site or sent to a facility lawfully able to accept it for recycling
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean ups. Containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and residues have not been removed by washing or vacuuming.	Hazardous waste	Conduct refuels and maintenance activities away from receptors, signage and labelling, on-site spill kits, adhere to the site Spill Management Plan	Transport to comply with the transport of Dangerous Goods Code applies in preparation for off-site recycling or disposal at a facility lawfully able to accept it	Transport to comply with the Australian Dangerous Goods Code, spill kits consistent with Australian Standards.
Empty oil and other drums or containers, such as fuel, chemicals, paints, spill clean	General solid waste (non-putrescible)			



Waste Types and Activities	NSW EPA Waste Pre-Classification	Avoidance and Reuse	Storage and Collection	Recycle / Disposal
ups. Containers have been cleaned by washing or vacuuming.				
Air filters and rags, oil filters, drained	General solid waste (non-putrescible)		Off-site disposal or recycling	
Paper, cardboard and comingled recycling including containers from office activities, food and beverage	General solid waste (non-putrescible)	Procurement of products delivered in reusable or returnable containers.	Separation and storage of recyclables in designated bins in waste storage area	Collected by a contractor and delivered to a recycling facility lawfully able to accept it. Redeemed through 'Return and Earn' NSW container deposit scheme
Food waste - such as food scraps generated by staff.	General solid (putrescible) waste		Food waste bins to always have closed lids. Dispose to landfill with general garbage.	Food waste collected as part of Council kerbside organics service.
Sewage and greywater from washdown activities and staff amenities	Liquid waste	Wastewater treatment plant	Portable amenities or on-site amenities	Transported off-site or direct to treatment plant

6.13.3 Operational Impact Assessment

During the operational phase of the Project, operational waste streams are expected to be generated by site workers, as well as materials generated during maintenance of the site, including the following:

- Spent Lithium Ion batteries.
- General waste (e.g., mixed food scraps, soiled paper and cardboard, non-reusable timber/wood pallets, non-recyclable plastics etc).
- Co-mingled recyclable waste (e.g., aluminium & steel cans, recyclable plastics, glass bottles, scrap metals etc).
- Source-separated organic waste (mainly food waste).
- Source separated paper and cardboard.
- Waste oils and grease (generated from maintenance activities).
- Chemical waste (minor quantities of residual chemicals used in site maintenance activities including paints etc).



- Sewage/wastewater generated during site operations.

Waste and recycling generated during the operational phase of the project will be delivered to facilities lawfully able to accept them for recycling or disposal. The quantities and types of waste generated will be within the capacity of the waste management facilities closest to the Project and other identified facilities.

Separated recyclable materials such as cardboard and containers, will be collected by contractors and taken to facilities specifically designed to either consolidate them for onward transportation to reprocessing facilities, or to sort them for transportation to such facilities. Non-recyclable waste will be taken to transfer stations, or direct to landfills or to alternative waste processing facilities for disposal or treatment respectively.

Waste facilities licensed to accept general solid waste (putrescible and non-putrescible) for the project site are listed in Table 58. Council's kerbside collection delivers to the AWMC, Albury's waste storage, processing and disposal facility. Waste not collected by Council could be delivered by staff or a contractor to a waste facility.

Table 58 Waste Management Facilities (SLR, Waste, 2025)

Facility Name	Distance (km)	Approximate Travel Time (minutes)
Waste facilities, licensed to accept general solid waste (putrescible and non-putrescible)		
Albury Waste Management Centre – Albury City Council	19	21
Howlong Waste Management Centre – Greater Hume Council	43	32
Corowa Waste Management Centre – Greater Hume Council	57	46
Oaklands Landfill – Greater Hume Council	103	70
Mulwala Transfer Station – Greater Hume Council	104	75
Urana Waste Disposal Centre – Greater Hume Council	124	83
Wastewater Treatment Plants		
Walla Walla Sewage Treatment Works and Effluent Reuse Area	21	17
Culcairn Sewage Treatment Works and Effluent Reuse Area	34	26
Henty Sewage Treatment Works and Effluent Reuse Area	52	40
Holbrook Sewage Treatment Works	30	44
Battery Drop-off and Recycling Facilities		
Albury Waste Management Centre	19	21
Envirostream Battery Recycling Facility - 17-19 Maria Street, Laverton North, Victoria	249	223 (3 hours 43 minutes)
Ecocycle Recovery and Recycling and EcoBatt - 5-11 Reo Crescent Campbellfield, Victoria	315	224 (3 hours 44 minutes)

Waste generation rates during the operational phase is expected to be low, given that the site will have minimal FTE ongoing staff. Quantities for the waste streams would be determined during operation of the project and would be managed according to a waste management plan developed as part of the OEMP.



BESS components may require maintenance or replacement during its operation. LFP batteries would be collected and recycled by a licensed waste contractor to a facility lawfully permitted to accept this type of waste. Alternatively, the battery supplier would be consulted on whether batteries could be returned and repurposed. LFP batteries and other BESS components management methods would be specified in the Waste and Resources Environmental Management Plan (WREMP), which will be prepared as part of the Project OEMP.

6.13.4 Decommissioning

Waste types and quantities generated during the decommissioning phase of the project would be managed similarly to construction phase, and in accordance with the waste hierarchy to avoid, reduce, re-use, recycle and recover materials where possible, through effective planning.

The decommissioning phase is anticipated to generate waste such as end-of-life batteries and associated infrastructure (cabling, inverters, transformers and other components). Most materials will be reused or recycled at a facility lawfully able to accept them. Any waste that cannot be reused or recycled would be collected by a licenced contractor and disposed of at a site lawfully able to accept it.

As far as practical, batteries in the battery energy storage system would be recycled at approved battery recycling facilities, or subject to confirmation, could be returned to the original equipment manufacturer for refurbishment and recycling. Where spent batteries are unable to be recycled, they would be disposed of at a facility lawfully able to accept it.

6.13.5 Mitigation and Management Measures

- WM1 – Waste will be managed according to the provisions of the WMP including:
 - Identification of roles and responsibilities for waste management procedures. Any subcontractors engaged will have roles and responsibilities identified and the Project's waste management system clearly explained.
 - Methods for managing waste or wastewater including appropriate liquid storage equipment, spill containment kits.
 - Litter and waste management to mitigate emission of dust, litter, potentially offensive odours, and vermin resulting from improper storage and collection of solid residues and putrescible waste.
 - Wastewater would be transported by licenced contractors and disposed of at appropriately licensed wastewater treatment plants.
 - Decommissioning will be managed by a suitably qualified contractor or operator. End of life batteries will be delivered to a facility lawfully able to accept them.
- WM2 – The WMP will include monitoring and reporting, including:
 - Monitoring of the waste to ensure waste and recycling management arrangements and provisions for the Project are functional, practical and are maintained to the standard outlined in this development.
 - Recording of quantities of waste and recycling associated with disposal of waste and recycling, including dockets, receipts and other physical records will be recorded.
 - Measures to address any deficiencies identified, and methodology to review and update to maintain suitability.



- WM3 – All staff, including sub-contractors and labourers, employed during the site preparation and construction phases of the Project will undergo waste management induction training for the Project. Induction training will cover, as a minimum:
 - Legal obligations and targets.
 - Emergency response procedures on-site
 - Waste priorities and opportunities for reduction, reuse and recycling
 - Waste storage locations and separation of waste
 - Procedures for suspected contaminated and hazardous waste
 - Waste related signage
 - Site safety
 - The implications of poor waste management practices and
 - Responsibilities and reporting, including identification of personnel responsible for waste management and individual responsibilities.
- WM4 – All materials delivered to the waste storage area or to the other stockpile areas will be inspected. Materials suspected to contain hazardous material will be isolated until they can be inspected and tested.

6.14 Land and Soils

This section presents the findings of an Agricultural Impact Assessment (AIA) (Premise, 2025) prepared in response to the SEARs, refer to Appendix V. The purpose of the AIA is to identify and assess any potential impacts to agriculture and soils that may occur as a result of the Project. The AIA includes a detailed analysis of the existing environment, soil and erosion assessments of impacts, and outlines mitigation measures to be implemented to manage impacts. This AIA was prepared generally in accordance with the *Large-Scale Solar Energy Guideline* (NSW DPE, August 2022).

6.14.1 Methodology

An evaluation and assessment of the existing environment was undertaken utilising both available desktop information along with a site inspection and testing.

Desktop investigations utilised a range of sources including:

- *Australian Soil Classification* system soil type mapping of NSW (DPE, 2024).
- *Land and Soil Capability Assessment Scheme* (OEH 2012).
- *The Central Resource for Sharing and Enabling Environmental Data in NSW* (SEED Mapping, 2020).
- *NSW Soil and Land Information* (eSpade Mapping, 2020).
- *NSW Planning Portal Spatial Viewer* (NSW ePlanning Spatial Viewer, 2024).
- The *Soil Landscapes of Central and Eastern NSW* mapping (DPIE 2020) did not contain information on the study area and was excluded from the desktop assessment.

Site inspection and soil sampling was conducted on 19th September 2024. Samples were analysed at a National Association of Testing Authorities (NATA) accredited laboratory to provide sufficient information to classify soils in accordance with the Australian Soil Classification (ASC) (Isbell, 2002) and soil taxonomic class.



Land and Soil Classification and verification were undertaken in accordance with the *Land and Soil Capability Assessment Scheme* (OEH, 2012). The land on which the site is located is zoned as RU1 and is mapped by eSpade (2020) as Land and Soil Capability (LSC) Class 3. Therefore, a site verification and assessment of the LSC Class (OEH, 2012) was performed. The results of the site verification and LSC verification identified that the site is Class 4- Moderate capability according to the Land and Soil Capability Assessment Scheme (OEH, 2012). Due to the verified LSC Class of the land, a Level 2-reduced agricultural impact assessment was performed according to the requirements of Table 6, Appendix A of the Large-Scale Solar Energy Guideline. This included a project description, regional context, site characteristics and land use description, impacts on agricultural land and mitigation strategies.

Erosion was assessed using the Revised Universal Soil Loss Equation (RUSLE) provided within the *International Erosion Control Association IECA Best Practice Erosion and Sediment Control Guidelines* (2008) ('IECA Manual') to predict the long-term, average, annual soil loss from rill and sheet erosion.

6.14.2 Existing Environment

The AIA reviewed NSW Landuse 2017 mapping (DPIE, 2020) which identifies the site use as residential and farm infrastructure. The property does not currently generate an income from agriculture and is used as a rural lifestyle block. The surrounding area primarily consists of land used for grazing, cropping and residential and farm infrastructure. Other notable land uses throughout the locality include utilities at the adjacent substation and a marsh/wetland on the adjacent property at 1466 Walla Walla Jindera Rd, Glenellen NSW 2642. Review of land uses within the locality indicate that land use is predominately used for the purposes of grazing native vegetation, with grazing modified pastures the next largest land use.

Based on the 2020-21 Australian Agricultural Census (ABARES, 2021), the most important agricultural commodities with the highest gross value for the Greater Hume Shire LGA were meat cattle (\$90 million), wheat (\$67 million), sheep and lambs (\$61 million), and canola (\$45 million). These four commodities represent close to 90% of the total agricultural revenue of the Greater Hume Shire (\$298 million).

An overview of the existing soil and land environment present at the site is provided in Table 59.

Table 59 Existing Soil and Land Environment Overview

Environmental Parameter	Condition
Landform	The development site is generally flat with a high point of approximately 225m AHD and a low point of 220m AHD. The average slope value across the site is 1.04%.
Hydrology	Kilnacraft Creek is an ephemeral creek approximately 100m south of the substation that drains in an eastern direction to join Bowna Creek. Dead horse creek is approximately 1km north of the site and runs in an eastern direction to join Bowna Creek. Bowna Creek is also approximately 1km southeast of the site and runs east towards Lake Hume. Remaining watercourses in the locality are limited to irrigation infrastructure and dams associated with existing agricultural land uses.
Geology	Majority of the site is within the Colluvium 38491 (Qrc) described as: "Colluvium 38491 (Qrc) - Colluvium and/or residual deposits, sheetwash, talus, scree;



Environmental Parameter	Condition
	<i>boulder, gravel, sand; may include minor alluvial or sand plain deposits, local calcrete and reworked laterite"</i> Remaining portion of the site is within the Shepparton Formation: <i>"Unconsolidated to poorly consolidated mottled variegated clay, silty clay with lenses of polymictic, coarse to fine sand and gravel; partly modified by pedogenesis, includes intercalated red-brown paleosols."</i>
Acid Sulfate Soils	Probability of encountering Acid Sulfate Soils is very low due to the sites location away from the coast.
Soils	Australian Soil Classification system soil type mapping of NSW (DPIE 2021) maps the soils across the BESS site as Chromosols and a small section of Sodosols. Site inspection and subsequent laboratory testing identified Brown Chromosols
Salinity	Non-saline soils with no nearby areas of saline soil mapped.
Hazards	- Acid sulfate soils are not mapped within the development site or locality (SEED portal, 2020). - No mine subsidence districts, or underground coal mining is mapped at or within 1 km of the development site (NSW ePlanning Spatial Viewer, 2024). - No landslide risk land is mapped within the development site or locality (NSW ePlanning Spatial Viewer, 2024). - No Naturally Occurring Asbestos (NOA) at or within one (1) kilometre of the development site (SEED Portal, 2020).
Biophysical Strategic Agricultural Land (BSAL)	No BSAL is located within the development site.
Climate	Summary climate statistics for the years 1993 to 2024 are: - The mean annual maximum temperature is 22.5°C and the mean annual minimum temperature is 9.2°C. Records indicate that January is the warmest month and July is the coldest (BoM, 2024). - Mean annual rainfall is 646.5 mm and records indicate monthly mean rainfall received at the site is highest in the month of November (BoM, 2024).
Land Zone	RU1 Primary Production per Greater Hume LEP 2012
Land and Soil Classification	The overall LSC class for the site was determined as LSC Class 4 Moderate capability land.
Erosion Risk	The site has been assessed as a 'very low' erosion risk site by the RUSLE guideline.

6.14.2.1 Land and Soil Capability (LSC) Class

The soil samples taken were analysed to provide sufficient information to classify soils in accordance with the Australian Soil Classification (ASC) (Isbell, 2002) and soil taxonomic class.

Sample sites 1, 2 and 4 had similar field characteristics across the site. Topsoil and subsoil pH was pH 6 (moderately acid) across all sites and throughout the entire soil horizon. Soil texture across these sites was dominated by silty loam topsoil, abruptly changing into light clay subsoils. Soil colour was strong brown (7.5YR 4/6) (Munsell Soil Colour Book, 2012). These soils are classified under the Australian Soil Classification (Isbell, 2002) as Brown Chromosols due to their abrupt textural change, and non-acidic and non-sodic subsoil.



Sample site 3 had slightly different field characteristics. Topsoil and subsoil pH was slightly more neutral to alkaline, increasing from pH 6.5 topsoil to pH 7.5 subsoil. Soil texture at this site was a silty loam topsoil, abruptly changing into light and medium clay subsoils. Soil colour was dark yellowish brown (10YR 4-4) (Munsell Soil Colour Book, 2012). Despite slight differences in field characteristics, laboratory results confirm that this soil is also classified as a Brown Chromosol under the Australian Soil Classification (Isbell, 2002) due to the abrupt textural change, and non-acidic and non-sodic subsoil.

The overall LSC class for the site was determined as LSC Class 4. LSC Class 4 is defined by the Land and Soil Capability Assessment Scheme (OEH, 2012) as *“Moderate capability land: Land has moderate to high limitations for high-impact land uses. Will restrict land management options for regular high-impact land uses such as cropping, high-intensity grazing and horticulture. These limitations can only be managed by specialised management practices with a high level of knowledge, expertise, inputs, investment and technology.”*

The land within the site is considered moderately capable and limitations include wind erosion, soil structure decline and soil acidification hazards.

6.14.2.2 Contamination

The Subject Sites are considered to have a low risk of contamination, particularly when their historical and current land uses have been limited to activities such as grazing, cropping, or other low-intensity agricultural practices. These uses generally do not involve the handling or storage of hazardous substances in quantities that would pose a significant risk to soil, groundwater, or human health.

Unlike industrial, commercial, or urban sites, rural properties are less likely to have hosted land uses commonly associated with contamination, such as fuel storage depots, workshops, chemical manufacturing, waste disposal, or intensive horticultural operations involving persistent pesticides or herbicides. In the absence of such activities, the potential for contamination from heavy metals, hydrocarbons, solvents, or asbestos-containing materials is minimal.

In addition, the Subject Sites consist of large land parcels with low development intensity, reducing the likelihood of legacy infrastructure (such as underground fuel tanks or chemical storage sheds) that could have contributed to localised contamination. Land used for non-intensive primary production is generally not considered to present a contamination risk unless specific evidence suggests otherwise.

A search of the NSW EPA POEO Public Register was made on 24 March 2025 indicating no contaminated land sites located within the Greater Hume LGA.

A search was also made on this date of the NSW EPA POEO Public Register indicating 29 POEO licences in the Greater Hume LGA, with the closest in force licence (No. 1515) registered to 80 Hueske Road Jindera approximately 10 km to the south of the Subject Sites.

As no contaminated land sites or EPLs have been registered for the Subject Sites, and the use of the land as a rural purpose it is reasonable to consider the potential for contamination unlikely and the land suitable for the purpose of the Project, being electricity storage works. An appropriate unexpected finds protocols will be implemented during construction and decommissioning phases.



6.14.3 Construction Impact

The AIA provides an analysis of unmitigated impact risks associated with the construction phase of the project which has been provided at Table 60.

Table 60 Potential Construction Impacts (Premise, 2025)

Activity	Impact	Likelihood	Significance
Agriculture	The proposed development would occupy 7 hectares of land which is currently not used for agricultural purposes. The BESS will be fenced off and will not be used for agricultural purposes once the Project construction commences.	High	Low
Vegetation Clearing	Vegetation removal has the potential to increase the risk of erosion and sedimentation by exposing soils to weathering processes and reducing soil stability.	Moderate	Moderate
Earthworks and excavation	Increased the risk of erosion through soil disturbance if unmitigated.	Moderate	Moderate
	Exposing subsoils which may be saline or sodic and dispersive may increase the risk of erosion and reduce overall soil fertility.	Moderate	Moderate
	Excavation of buried soil contaminants (heavy metals, pesticides, hydrocarbons) may occur. If unmitigated this may cause impacts to human health and environmental safety.	Low	High
Stockpiling and removal of excavated material	Mixing of soil horizons may occur if soil is incorrectly removed or stockpiled during construction. Mixing topsoil and subsoil may impact long term soil quality and erosion hazard.	Moderate	Moderate
Operation of heavy machinery	Soil compaction may occur during the operation of heavy machinery on site if unmitigated. Soil compaction has impacts to erosion risk and long-term impacts to land and soil capability.	Moderate	Moderate
Earthworks: Vehicle and pedestrian movements	Earthworks and movements of machinery, vehicles and pedestrians on site may introduce new pests, weeds and disease species to the area or spread species which are present at the site. Sources of biosecurity risks may include caked on organic material or mud in equipment, vehicles, heavy machinery and boots. Biosecurity risks may cause a long-term impact to the site and surrounding agricultural community if unmitigated.	Moderate	High
Waste and spills	Waste accumulated during construction activities, including litter and putrescible waste, has the potential to pollute soil and	Low	Moderate



Activity	Impact	Likelihood	Significance
	groundwater resources if appropriate measures are not implemented.		
	The release of potentially harmful chemicals, substances or contaminated stormwater may occur accidentally during construction and has the potential to contaminate soil (i.e., leakage or spill of petroleum, oils or other toxicants from construction machinery and plant equipment resulting from inappropriate storage of contaminated materials, refuelling and/or maintenance activities, leakage from sewer infrastructure).	Low	High

6.14.4 Operational Impact

The AIA provides an analysis of unmitigated impact risks associated with the operational phase of the project which has been provided at Table 61.

Table 61 Potential Operational Impacts (Premise, 2025)

Activity	Impact	Likelihood	Significance
Agriculture	Land on the Subject Sites will be fenced off and will not be used for agricultural purposes once the project commences. Given the relatively small area and that the BESS Site is not currently used for agricultural purposes, this change of land use is not considered likely to have a significant impact on the agricultural production of the region or adjacent agricultural land. Once the project is decommissioned, land on the study area will be rehabilitated and returned to its pre-existing land use or another land use as agreed between the landholder and the project owner.	High	Low
Vehicle and pedestrian movements	Movements of machinery, vehicles and pedestrians on site during operation may introduce new pests, weeds and disease species to the area or spread species which are present at the site. Sources of biosecurity risks may include caked on organic material or mud in equipment, vehicles, heavy machinery and boots. Biosecurity risks may cause a long-term impact to the site and surrounding agricultural community if unmitigated.	Moderate	High
BESS operation	Erosion, soil loss and sedimentation may continue to occur during operation if risks are unmitigated during construction.	Low	Moderate
	Soil compaction may occur if traffic around the BESS is not appropriately managed and controlled.	Low	Moderate



Activity	Impact	Likelihood	Significance
Waste and spills	The release of potentially harmful chemicals, substances or contaminated stormwater may occur accidentally during construction and has the potential to contaminate soil (i.e., leakage or spill of petroleum, oils or other toxicants from construction machinery and plant equipment resulting from inappropriate storage of contaminated materials, refuelling and/or maintenance activities, leakage from sewer infrastructure).	Low	High

Decommissioning works associated with the project are expected to reflect the construction impacts. Long term impacts of decommissioning are largely associated with failing to return the site to an existing or improved state in regard to land and soil capability, and landform.

The site is considered suitable for the development in respect to zoning, current land use and proximity to the existing substation. Impacts to adjacent agricultural land, soil, and agricultural production of the region are considered to be minimal due to the relatively small size and non-agricultural use of the study area.

6.14.5 Decommissioning Impacts

The AIA has determined that the Project is not expected to prevent the establishment of other future land uses and has identified the potential impacts at decommissioning may be:

- Failure to return the site to the existing or improved land and soil capability.
- Failure to return the site to a safe, stable and non-polluting landform.

With proposed mitigation measures imposed during the life cycle of the Project the above risks are not expected. As outlined in the LUCRA (Premise, 2025) the development site would be able to support a variety of future land uses after decommissioning such as agriculture, or other developments subject to a development consent.

6.14.6 Mitigation and Management Measures

The recommended mitigation measures are recommended in the AIA to minimise impacts to land, soil and agriculture during construction and ongoing operations:

- S1 – A Soil and Water Management Plan (SWMP) is to be prepared in accordance with Managing Urban Stormwater – Soils and Construction Volume 1 (Landcom, 2004).
 - The SWMP will be prepared as part of a Construction Environmental Management Plan (CEMP) to manage potential risks to soils, surface and ground water. The construction SWMP is to be prepared with reference to relevant development controls within the Greater Hume DCP. Recommended measures for the construction SWMP include but are not limited to:
 - Measures to minimise and manage the potential for erosion and sediment transport within and from the site.
 - Measures to manage accidental spills and waste storage.
 - Measures to manage stormwater and the potential for contaminated runoff from the development site.
 - Measures to ensure that excavation activities and any stockpiling are managed to minimise the potential for downstream contamination.



- Measures to ensure that areas of exposed soil and the time in which they are exposed are minimised as far as practical.
- S2 – The construction of the development shall be managed in compliance with measures specified within the construction SWMP to ensure impacts to water quality are appropriately managed. Measures shall be implemented to ensure that areas of exposed soil and the time in which they are exposed, are minimised as far as practical during construction.
- S3 – The construction SWMP shall include procedures to reduce and manage the risk of emergency events and the potential for wastes and spills to contaminate soils. Recommended measures to manage the potential for contaminated discharge include:
 - The storage of all fuel chemicals and liquids in sealed bunded areas on level ground away from stormwater drainage lines and waterways.
 - Ensuring refuelling and maintenance activities are restricted to designated areas with appropriate bunding and spill capture controls.
 - Implementing controls as part of the construction SWMP that provide procedures to respond to emergencies and spills.
 - Ensuring visual inspections of drainage lines and disturbed areas are undertaken during construction to assess any potential soil or surface water issues.
 - The installation and maintenance of stormwater control measures including drainage networks that segregate stormwater runoff according to its contamination.
- S4 – As part of the CEMP for the Project, soil management measures should include:
 - Assessment of topsoil depth prior to stripping to minimise mixing of topsoil and subsoil.
 - Topsoil and subsoil should be stripped and stockpiled separately for rehabilitation works following excavation.
 - Avoid stripping and stockpiling soil following heavy rain periods.
 - Avoid compaction of topsoil during stripping and stockpiling operations.
 - If required, amelioration of topsoil and/or subsoil during stripping in accordance with a soil scientist's recommendations.
 - Prevent erosion of stockpiles using soil stabilising biopolymers, cover crops or other forms of stabilisation.
 - Test stockpiled soils to determine amelioration requirements prior to reinstatement.
- S5 – As part of the CEMP for the Project, soil compaction management measures should include:
 - Development of controlled traffic practices for plant machinery movements.
 - Avoid excavation and plant machinery movements on wet soils following heavy rain periods.
 - Prevent long term storage of plant machinery on clay or wet soils.
 - Avoid long term exposure of subsoils which are more susceptible to compaction.



- Progressively stabilise and rehabilitate soil as soon as practically possible after excavation.
- Ensure soil is replaced in correct subsoil/topsoil orders
- Ensure vegetative cover is re-established after soil rehabilitation
- S6 - As part of the CEMP and operation plan for the project, biosecurity measures should include:
 - Implement a Come Clean, Go Clean policy (DPI NSW, 2024) for vehicles and machinery entering the site. Mud and plant material must be removed from vehicles and machinery prior to entering and leaving the site.
 - Prevent the spread of plant and soil material on to and off site by checking clothes and boots prior to entering and leaving the site.
 - Implement a weed management plan which involves regular monitoring, spraying and removal of weeds.
- S7 – During operation procedures shall be developed to reduce the potential contamination of soils, surface and ground water, resulting from wastes, spills and/or emergency incidents. Suggested measures to control the potential for contamination during operation include:
 - The appropriate storage of equipment and hazardous substances during operation.
 - Ensuring that plant and stormwater control measures are maintained to prevent contamination of soil.
 - Preparation of appropriate procedures to response to emergency incidents, spills and leaks from the development site, including operational equipment and maintenance activities.
- S8 – A decommissioning plan shall be developed which minimises the contamination of soils, surface and ground water, resulting from wastes, spills and/or emergency incidents. Suggested measures to control the potential for contamination during decommissioning including:
 - A soil sampling plan to be undertaken prior to decommissioning to assess any risk of contamination.
 - Preparation of procedures to minimise risk of contamination

6.15 Cumulative Impact Assessment

This cumulative impact section evaluates the potential combined effects of the proposed Jindera BESS with existing and approved developments in the locality, specifically neighbouring solar farms. The aim is to determine whether the cumulative presence of similar infrastructure results in any significant environmental, social, or land use impacts beyond those identified for the project in isolation. Cumulative impacts are discussed within the technical reports in the appendices, and this section provides a summary of the findings.

The *Cumulative Impact Assessment Guidelines for State Significant Projects* (CIA Guideline) (DPIE, 2022) require consideration of a Project together with the impacts of other relevant future and existing projects in order to determine the potential cumulative impact. The CIA Guideline (DPIE, 2022) indicates the following future projects should be considered in the cumulative impact assessment:

- Changes to existing projects (expansion, modification, closure).



- Approved projects (approved but construction has not commenced).
- Projects under assessment (application for the project has been exhibited and is currently under assessment).
- Related development (development that is required for the Project but subject to separate assessment).

A search of the NSW Major Projects Portal and Planning Panel Portal and TfNSW Major Projects Hub on 1 May 2025 found that the Project may have interactions the following projects in the vicinity of the Project, refer to Figure 14 and Table 11 (in Section 2.4)

As noted in Section 2.4, it is considered that the 'Jindera Solar Farm' and the 'Glenellen Solar Farm' have the most potential to contribute to cumulative impacts with the Jindera BESS. The Glenellen Solar Farm has commenced construction (imagery date: 19/11/2024) and according to publicly available documents is expected to be completed by June 2026. The approved Jindera Solar Farm has not commenced construction according to the latest site aerial. It is not known when (or if) construction will commence.

The below section addresses the potential cumulative impacts as a result of the future construction and ongoing operation of the Project.

6.15.1 Biodiversity Impacts

A consideration of the cumulative impacts of the Proposal on biodiversity values has taken into account the Glenellen Solar Farm and Jindera Solar Farm.

The BDAR considered that the cumulative impact of these projects is not expected to result in a significant reduction in the extent of native vegetation or TECs within the region.

Construction/installation of the proposed pipeline route is not likely to substantially increase cumulative impacts in the area. The route selected for the proposed pipeline is predominately through pastures and only very small amounts of mostly exotic vegetation would be removed and these are along the edges of existing tracks and roads. Therefore, it is considered that the scale of the impact of the proposed water pipe is small and impacts associated with construction and operation are predicted to be very minor and manageable.

6.15.2 Land Use Conflict

The presence of multiple energy projects, including solar farms and the Project, may contribute cumulatively to land use pressure in a predominantly agricultural region. However, the LUCRA (Premise, 2025) and the AIA (Premise, 2025) have found that risk to agricultural land use is low, with no Strategic Agricultural Land identified within the Subject Sites.

The Project occupying approximately 7ha, represents a relatively minor contribution to the cumulative agricultural land use impact within the locality. Unlike solar farms, which typically require significantly larger land areas and involve the widespread placement of panels across productive surfaces, a BESS has a more compact footprint with a higher infrastructure density. This results in a more efficient use of land per megawatt and reduces the extent of land taken out of agricultural production.

The BESS simple infrastructure of modular containerised units and service infrastructure minimise fragmentation of agricultural land and the land beneath and surrounding the BESS can retain some ancillary agricultural use or be rehabilitated more readily than land developed for other, more intensive type uses, which may require grading or more extensive land area.

From a cumulative impact perspective, while the broader region may be experiencing a transition toward renewable energy development, including multiple solar farms, the



contribution of a BESS to the overall loss of agricultural land is minor both in scale and intensity. It does not significantly erode the agricultural land base or contribute meaningfully to land use conflict, particularly when sited on land that is already marginal, fragmented, or subject to existing infrastructure constraints.

Furthermore, BESS installations can support the integration of renewable energy sources such as solar, enabling more efficient use of electricity generated in nearby solar farms. In this sense, the BESS contributes to the broader renewable energy network without proportionately increasing the pressure on agricultural resources.

6.15.3 Visual Amenity

The combined visual footprint of multiple renewable energy projects can alter the rural landscape character, however, the Project and BESS footprint has a relatively small visual impact compared to the adjoining larger solar farms.

The cumulative visual effects associated with the Glenellen Solar Farm, Jindera Solar Farm, upgrades to the Jindera Substation, and the proposed Jindera BESS reflect a progressive transformation of the local rural landscape through the introduction of renewable energy infrastructure. These projects, while individually discreet, are situated within close proximity and collectively contribute to a noticeable shift in the area's landscape character, particularly through the introduction of uniform structures such as PV arrays, battery storage units, and substation alterations.

However, the Jindera BESS, in isolation, contributes only marginally to this cumulative effect due to its compact footprint and low-profile built form. Its central siting between the two solar farms, limited public visibility, and strategic placement away from prominent view corridors further reduce its contribution to broader landscape change. As a result, the BESS does not significantly exacerbate cumulative visual effects beyond those already introduced by the larger solar farm developments. The site is buffered from most nearby residences, with the closest non-associated dwelling located 330 m away.

Residual visual effects associated with the Jindera BESS are minimal following the application of targeted mitigation measures. Therefore, after implementation of mitigation strategies, the Jindera BESS is not anticipated to result in enduring visual impacts that would alter the scenic quality or character of the local landscape to any significant extent.

6.15.4 Traffic and Access

Cumulative impact from the Project and surrounding developments is only expected during construction stage, in terms of traffic impact, there is no expected cumulative impacts during the operational phase as on-site requirements for all the surrounding development are minimal. The approved solar farms in the vicinity were reviewed for the TIA (SLR Consulting, 2025) at Appendix M and it was identified that Glenellen Solar Farm had commenced construction (imagery date: 19/11/2024). Following a review of Glenellen Solar Farm's TIA, it was identified that the construction of this project is expected to be completed by June 2026.

The TIA also reviewed the EIS package, including the TIA for the approved Jindera Solar Farm. The development was approved in 2019, and no recent activity was identified on the NSW Major Projects portal. On this basis, it could not be established the project's anticipated start and completion dates.

Based on the information above, the TIA assumed that the construction activities of the approved Glenellen Solar Farm and Jindera Solar Farm would not coincide with the proposed Jindera BESS project, as these projects are expected to reach completion in June 2026. The TIA decided for a conservative traffic assessment to assess the likely impact of these projects if they were delayed for any reason.



Construction and operation of multiple energy projects may increase traffic volumes on rural roads. To mitigate potential impacts, the Project will access the site via Ortlipp Road and Lindner Road, consistent with other energy projects and will continue with the sealing of Ortlipp Road to prevent excessive dust as a result of traffic. A Route Study and Traffic Impact Assessment have been prepared to manage these movements.

Cumulative traffic impacts are considered to be short term and manageable especially with coordination between project proponents to avoid peak overlap periods during construction.

6.15.5 Noise Impact

The NVIA (SLR Consulting, 2025) has assessed the construction and ongoing operational impacts from the Project and surrounding solar farms. Given the potential for cumulative impacts from the Project and surrounding approved solar farm developments, an assessment of cumulative noise impacts is included in the NVIA.

Ongoing noise contributions of the Jindera Substation high voltage transformers to the assessed receivers were predicted based on sound power levels of similar sized plant.

The solar farm developments must meet their project noise target limits of 35 dBA at night at all noise sensitive receivers. It was conservatively assumed that the solar farms contribute 35 dBA at all assessed receivers at night time.

The cumulative sum of the Project and surrounding industry has been established by adding the predicted Project noise levels with the predicted Jindera Substation levels and the maximum allowable noise levels from the Jindera and Glenellen solar farms.

The predicted cumulative operational noise levels from the Project and surrounding developments are below the recommended amenity noise levels at all receivers. As such no cumulative impacts are expected during operations, refer to Table 62.

Table 62 Cumulative Project and Surrounding Industry Noise Levels (SLR, NVIA, 2025)

Receptor	Intrusiveness Noise Levels, L_{Aeq} (15 min)				Total Cumulative Amenity Noise Level ¹ , $L_{Aeq(period)}$, dBA	NPfI Recommended Amenity Noise Level, $L_{Aeq(period)}$, dBA
	Project Operation	Jindera Substation	Jindera Solar Farm	Glenellen Solar Farm		
R1	17	<15	35	35	35	40
R2	21	<15	35	35	35	40
R3	27	<15	35	35	35	40
R4	26	<15	35	35	35	40
R5	35	<15	35	35	37	40
R6	30	19	35	35	36	40
H1	41	<15	35	35	40	40

Note 1: Amenity noise levels have been estimated as intrusiveness noise levels minus 3 dBA

Cumulative noise during construction may occur if all projects overlap site works, refer to Table 63.



Table 63 Cumulative Construction Noise Assessment Results (SLR, NVIA, 2025)

Receptor	Construction Noise Assessment			Noise Management Level
	Jindera BESS	Glenellen Solar Farm	Jindera Solar Farm	
R1	-	-	-	-
R2	-	-	-	-
R3	-	-	-	-
R4	-	Noise Affected	-	Noise Affected
R5	Noise Affected	-	-	Noise Affected
R6	Noise Affected	Noise Affected	-	Noise Affected
H1	Noise Affected	Not Assessed	-	Noise Affected
Noise Affected is defined as noise levels exceeding RBL + 10 dBA Highly Noise Affected is defined as noise levels exceeding 75 dBA				

Mitigation measures for noise are detailed in the NVIA, Appendix L, and Section O. If construction does overlap with surrounding developments, it is expected to be short term.

6.15.6 Social and Economic

The broader community may experience cumulative effects from multiple nearby developments as either positive, negative or neutral, including:

Positive:

- Positive economic impact.
- Job creation, specifically during construction and ongoing maintenance requirements.
- Increased community investment through contributions, benefit sharing schemes, and the like.
- Regional contribution to clean energy transition.

Negative:

- Pressure on social infrastructure during construction.
- Shortage of accommodation and housing during the construction periods.
- Perceived industrialisation of rural areas.
- Cumulative amenity concerns related to ecology, noise, traffic dust, or visual change.

The SIA (SLR Consulting, 2025) and supporting technical reports confirm that community risks have been reduced to low levels following mitigation, specifically in terms of, hazards and risk, visual impact and ongoing noise. Continued engagement and monitoring are critical to managing long-term community perceptions and maintaining social licence.

While the presence of multiple solar and energy storage projects in the locality creates potential for cumulative impacts, these impacts are considered low and manageable when mitigation strategies are effectively implemented. The Project aligns with local planning controls, avoids high-value agricultural or environmental land, and contributes positively to the region's renewable energy transition.



Performance monitoring and cross-project coordination, particularly regarding traffic, land use, and infrastructure capacity, will be essential to maintain compatibility and minimise conflict in the evolving land use landscape.

The main cumulative economic impact of this and other prospective projects in the region is to generate large demand for a suitably qualified construction workforce in the region and surrounds. This demand can help address the jobs growth imbalance between Australia's biggest cities and regions. The Project will provide opportunities for the existing and future regional workforces, attracting middle skilled and high skilled workers and families to regional areas, reducing outmigration of the regional workforce to look for employment in cities, and increase regional labour force participation.

Notwithstanding, cumulative demand for construction workers can in the short term potentially lead to increased construction wages, attraction of workers from other relevant sub-sectors and sectors of the economy leading to labour shortages in these other areas of the economy (and associated shortages of goods and services), rising costs as firms pass wage costs onto consumers etc. The extent of these impacts for regional economies will depend on the balance of labour supply from inside the region, outside the region and drive-in drive-out (DIDO) / fly-in fly-out (FIFO), as well as adjustment of the overall labour market to respond to increased demand.

In addition, in the short term excess demand for inputs to construction such as quarry materials, concrete etc can result in rising costs for these factor inputs and potentially shortages for other uses.

These potential impacts will be more likely and larger as a result of cumulative projects across the region and the State, than from the individual project.

Management measures

The positive local employment and business opportunities can be maximised via:

- Employment of regional residents where they have the required skills and experience.
- Participating, as appropriate, in business group meetings, events or programs in the regional community.
- Locally sourcing non-labour inputs to production where local producers can be cost and quality competitive.
- Provision of community grants through a Planning Agreement with Greater Hume Shire Council with funds to be disseminated to community projects, e.g. education, arts, sporting, and culture sectors.

6.15.7 Environmental Values

While each project may result in isolated impacts on vegetation, soil, and water, no sensitive environmental features—such as national parks, major watercourses, or strategic conservation areas—are located within the immediate locality.

The cumulative impact on biodiversity is expected to be low, particularly with appropriate implementation of environmental management plans (CEMP, OEMP, DMP).

As outlined in the FIRA (WaterTech, 2025), there is not expected to be any impact to groundwater from the proposed project given the depth to groundwater and no plans for abstraction. Therefore, there are no additional impacts to those that may already be present in the area from existing or already approved projects.



6.15.8 Infrastructure Capacity

The Jindera Substation and associated transmission infrastructure are central to the integration of regional renewable energy projects. The cumulative use of these assets must be managed carefully to:

- Prevent network congestion.
- Ensure coordinated upgrades where necessary.

Ongoing consultation with Transgrid ensures the Project integrates efficiently with existing infrastructure.





07 Project Justification and Conclusion

Battery Energy Storage System - Jindera

FOR: BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00001

Revision: 1.5



7.0 Project Justification and Conclusion

This section provides a justification and evaluation of the Project and conclusion to the EIS. It includes discussion of the design of the Project, taking into consideration the economic, environmental, and social impacts and opportunities of the development. This section outlines consistency of the project with its strategic context and its compliance with relevant statutory requirements.

7.1 Project Design and Response

The site selection and project design process was undertaken with regard to a range of matters including site selection and design choices informed by specialist assessment and consultation.

37 sensitive receivers, other than the host receiver (H1), were identified within a 2km buffer around the Subject Sites, all of which are residential dwellings. The operational noise assessment identified compliance with the project noise trigger levels at all identified sensitive receivers, with the exception of the host receiver (H1), refer to Figure 6.

The Project was sited to avoid the removal of any native vegetation, and the current proposed layout and location of the BESS facility has been amended during the EIS preparation process through an iterative design process to avoid impacts to biodiversity values. In this regard, the original concept layout included placement of the BESS facility and TL partly within an existing patch of native vegetation and was subsequently moved east to avoid the patch of native vegetation, thereby minimising impacts to biodiversity values on the broader Project site. Two TL routes were originally explored, with the final proposal enabling the retention of hollow bearing trees along Ortlipp Road. It is proposed to use under boring for the watermain extensions to avoid damage to the root systems of existing trees within the Ortlipp Road reserve.

Flood impacts have been managed through design elements including raised pads and stormwater management features offsetting potential for impacts to and from the project.

7.2 Consistency with Strategic Context

As the Project would include the construction and operation of a BESS to support the renewable energy power supply network of NSW, the Project would directly contribute to increasing the capacity and resilience of the State and further the State's efforts to reach net-zero emissions by 2050.

The Project would contribute directly to the goals of the NSW Government renewable energy objectives through the investment in renewable energy storage and the growth of new low carbon industries across the region.

7.3 Statutory Compliance

The Project is deemed to be SSD being an electricity generating works development with a ESD higher than \$30 million and is assessed as SSD under the EP&A Act. This EIS has been prepared in accordance with the requirements of the EP&A Regulation and meets the requirements of the SEARs.

The site occurs within the Greater Hume LGA and is located on land zoned RU1 – Primary Production under the LEP. The Project is considered to meet the definition of *electricity generating works* which is prohibited under the LEP. Consent is therefore being sought under the *Transport and Infrastructure SEPP* for electricity generating works in a prescribed zone.



As demonstrated in Appendix C, the proposal is acceptable having regard to the relevant statutory requirements.

7.4 Stakeholder Views of the Project

7.4.1 Community/others

The in-person face to face engagement events, targeted communications, and online survey collectively captured key insights into community sentiment and identified several core themes of concern. Areas of interest identified within the community around construction impacts of the Project were primarily concerning noise and vibration, traffic and access, land value of nearby residences, fire risk, visual amenity, grid stability and maximising community benefits. These insights have directly informed the development of tailored mitigation measures and clear actions for future engagement.

Overall, community views were generally positive or neutral in relation to the supply of renewable energy storage in the region.

Chapter 5 and Section 6.10 of this EIS contain detailed discussions of the outcomes of community engagement and views.

7.4.2 Amendment of the Project in Response to Matters Raised

The following items in Table 64 were included or amended as part of the planning and design process for the Project:

Table 64 Summary of Project Amendments

Issue	Response
Noise	- Construction of an acoustic wall to minimise operational impacts. - Implementation of a Construction Noise Management Plan (CNMP) and notifying nearby residents when construction will commence and cease.
Fire and Hazards	- Moving the water tank to the entrance of the site, as opposed to being dispersed throughout, as per the RFS guidelines. - Noting the fitting and fixtures of the tanks, as per the RFS guidelines. - Connecting the water tank to town water supply to ensure ongoing availability, in lieu of trucking water in when required. - Implement APZs to reduce fire risk.
Traffic	Sealing of Sealing of Ortlipp Road between the BESS Site entrance and Glenellen Solar Farm.
Visual	- Large tree planting in west front of the acoustic wall to soften impact. - Colour treatment of the wall to reduce visual impact. Colour treatment of the wall to reduce visual impact.
Ecological	Realignment of the TL to avoid hollow bearing trees where possible.
Servicing	Extension of the watermain to the site.



7.5 Economic, Social, and Environmental Impacts

The Project's purpose and design have been developed to provide a sustainable form of energy production to provide long-term economic, environmental, and social benefits to the Jindera region and NSW including:

- The production of a renewable baseload power supply to participating to the wider community, thus fulfilling the current obligations of State and Federal renewable energy targets;
- Develop the renewable energy power supply within NSW and increase the energy capacity and resilience of the State and further efforts to reach net-zero emissions by 2050;
- Providing for cleaner reliable electricity generation, while reducing greenhouse gas emissions and the impacts of climate change;
- Increase local employment and investment opportunities during construction;
- Capital investment in excess of \$100m and up to 80 positions during the construction phase and 2 full time positions during operations for the local economy;
- The BESS is located along a major transmission route which is in line with the Federal Government's direction to improve the affordability and security of the national energy market while also delivering on international climate commitments;
- Play an important role in providing stability to the NSW energy network by charging up during the day when renewable energy generation is high and then providing that power back to the grid at night to support high demand; and
- Add significant benefits to the NSW electricity grid allowing for the dispatch of energy in accordance with market demand to assist in load leveling and grid support to balance the natural fluctuations in electricity demand throughout the day and reduce congestion on the local grid.

7.6 Project Compliance

Throughout the construction phase, management measures will be implemented via the preparation and adoption of a CEMP, which will consist of a range of supporting sub-plans as identified across the specialist investigations completed to inform the Project.

Operation and monitoring of the facility would be governed by an OEMP that would identify any residual matters requiring ongoing attention during operation, with particular emphasis on fire management and risk management, and landscaping and vegetation management to ensure ongoing compliance with adopted criteria.

The BESS is expected to be operational for a period of approximately 20 - 25 years, after which the BESS would be decommissioned as per a Decommissioning Management Plan (DMP) and the infrastructure removed, returning the site to its original use.

7.7 Key Uncertainties

As a result of the technical investigations completed to inform the Project and the mitigation measures proposed to address impacts of construction, operation, and decommissioning of the Project, it is considered that uncertainties are unlikely. All impacts are able to be, or have been, adequately mitigated through the siting and design of the BESS and ancillary infrastructure, as well as on-going management practices and monitoring.



7.8 Ecologically Sustainable Development

The National Strategy for Ecologically Sustainable Development (1992) defines ESD as “using, conserving and enhancing the community’s resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased.”

The EP&A Act utilises the definition of ESD from Part 3, Clause 6(2) of the Protection of the Environment Administration Act 1991 (POEO Act), wherein ESD can be achieved through the implementation of a set of principles and programs. The Project has been assessed under these principles in the sections below.

The Project is overall considered consistent with the principles of ESD as it does not exploit natural resources unsustainably, has been based soundly on economic and environmental considerations, and the likely environmental impacts of the Project have been identified and are predictable and able to be managed effectively. Furthermore, the Project does not unreasonably affect biological diversity or ecological, and it provides a renewable energy asset for future generations.

7.8.1 The Precautionary Principle

The precautionary principle states that if there are threats of serious or irreversible environmental damage, the lack of full scientific certainty should not be used as a reason for postponing measures to prevent said damage.

Detailed investigations relating to the environmental, heritage, and economic aspects of the Project have been undertaken with the aim to produce an optimal Project design and siting. The Project assessed in this EIS and the supporting technical assessments provides the current optimised Project location, which takes into consideration all physical, environmental, social, heritage, and economic aspects which are required to be addressed.

The Project has been designed and sited to minimise the removal of any native vegetation on the broader site as much as possible. The current proposed layout and location of the Project has been amended through an iterative design process to avoid impacts to biodiversity values. In this regard, the original concept layout included placement of the proposed battery storage facility partly within an existing patch of native vegetation and a longer TL route which impacted on additional hollow bearing trees. The proposed location of the BESS Site was hence moved to avoid the patch of native vegetation, thereby avoiding any direct impacts on native vegetation (and on biodiversity values in general). Underboring will be utilised for the watermain extension works and landing areas where trees are minimal to avoid any tree removal for watermain works.

The result is that for all potential impacts, no serious or irreversible harm will occur to the environment. Therefore, the Project addresses the precautionary principle, as there will be no serious or irreversible environmental damage.

The technical assessments were prepared by qualified and experienced technical specialists relevant to their field. The potential implications of the Project have been understood through the contents of this EIS and accompanying appendices, and the management strategies, mitigation measures, and proposed monitoring activities required to ensure potential impacts are appropriately minimised has also been documented.

7.8.2 Inter-Generational Equity

Inter-generational equity refers to the principle that the current generation should ensure that the health, diversity, and productivity of the environment is maintained or enhanced for the benefit of future generations.



Overall, the Project would provide positive economic outcomes through the proposed employment of a local construction workforce and the Project itself will contribute to public infrastructure and services for future generations.

Potential impacts to cultural heritage have been assessed in consultation with Aboriginal stakeholders.

The environmental, social, cultural, and economic impacts of the Project are described in this EIS. The Project has proposed mitigation measures to manage impacts and is not predicted to result in significant residual impacts.

7.8.3 Conservation of Biological Diversity and Maintenance of Ecological Values

The third principle of ESD states that the conservation of biological diversity and ecological integrity should be a fundamental consideration in development applications.

The potential environmental impacts of the Project have been detailed throughout this EIS, with mitigation measures detailed.

The Project has been the subject of a thorough ecological assessment as detailed in Section 6.1 and as informed by the BDAR at Appendix F.

7.8.4 Improved Valuation, Pricing, and Incentive Mechanisms

The final principle of ESD concerns improved valuation and the pricing of environmental resources which establishes the need to determine economic values for services provided by the natural environment.

The development of policy to guide pricing and incentive mechanisms in delivering ecologically sustainable development is the responsibility of governments and regulatory stakeholders.

7.9 Site Suitability

The Subject Sites are considered suitable for the Project following consideration of the following:

- Site history - The BESS Site largely consists of cleared land and general grassland composed of exotic pasture species with isolated stands of native vegetation, the BESS Site has been historically cleared for grazing and reducing the potential for environmental and cultural heritage values to be present;
- Land ownership – The landowners have agreed to a lease / easement to the Proponent for the construction and operation of the proposed facility;
- Site topography – The site suitability for the Project has been chosen specifically to ensure minimal impacts to biodiversity values and the surrounding community;
- Proximity to the existing TransGrid substation – To minimise impacts of easements; and
- Permissibility – The Project is permissible with consent as *electricity generating works* under the SEPP (Transport & Infrastructure) 2021.



7.10 Project Alternatives

Do Nothing

The 'do nothing' approach would involve not constructing and operating the Project at the site. This option would not align with the range of national and State policies discussed in Chapter 2, which identify the need to improve energy security and reliability in NSW and transition away from fossil fuel energy towards renewable sources such as solar and wind. The Project provides 250 MW/500 MWh of power storage to dispatch into the local grid when required to assist with growing energy demands.

Alternative Sites

Alternative sites were not considered sufficient for the purposes of the Project due to unsuitable characteristics including site topography and land use, proximity to an existing substation, landowner discussions for leasing, permissibility, and distance from sensitive receivers.

7.11 Public Interest

The Project is considered to be in the public interest as it directly supports the objectives of State and national energy and climate policies, including the NSW Electricity Strategy, the NSW Energy Roadmap, and Australia's commitments under the National Electricity Market and Paris Agreement. The Project will play a critical role in enhancing energy reliability, grid stability, and facilitating the transition to a low-carbon energy system by storing surplus renewable energy and dispatching it during peak demand periods or grid instability.

The development contributes to the economic resilience of the State by enabling more efficient use of existing and future renewable energy generation infrastructure, reducing reliance on fossil fuel-based peaking plants, and lowering overall electricity costs over time. It also helps unlock further investment in renewable energy by resolving intermittency issues, thereby supporting regional economic development and job creation.

From a land use and environmental perspective, the proposal represents an efficient use of suitably zoned or appropriately located land with minimal ongoing operational impacts. The project has been designed to avoid and mitigate impacts on local biodiversity, heritage, noise, and visual amenity, ensuring compatibility with surrounding uses. The implementation of best-practice design, fire safety measures, and comprehensive environmental management plans further protects public safety and environmental values.

Additionally, the BESS supports broader community interests by improving energy security, enabling a cleaner energy mix, and contributing to efforts to combat climate change—outcomes that are increasingly recognised as core public priorities. The proposal has also been informed by targeted stakeholder consultation, with opportunities for community feedback integrated into the planning and assessment process in accordance with NSW Government expectations.

Accordingly, the development is aligned with the principles of ecologically sustainable development and is considered to be consistent with the public interest.

7.12 Conclusion

Through the implementation of best practice management, the potential environmental impacts associated with the Project can be appropriately managed, which will also address the community concerns and associated social impacts identified during the stakeholder engagement process. Given the net benefit and commitment from Jindera BESS to appropriately manage the potential environmental impacts associated with the Project, it is



considered the Project would result in a net benefit to the region and broader NSW community.

The Project is located within a predominantly rural setting, with surrounding land parcels to the north, south, east and west. The current use as rural lifestyle land with predominantly cleared land that is adjacent to the existing Transgrid 330 kV Substation in the southern portion of the Subject Sites and is separated from sensitive receivers such as residential areas and schools. The site would provide for an advantageous and economically beneficial use of land in a landscape that has a history of electrical infrastructure alongside various rural land uses. The Project would provide both short-term and long-term benefits including supporting a sustainable, green electricity future for NSW, and reducing the price of electricity in NSW, providing major investment in NSW.

Most importantly, the Project will significantly reduce greenhouse gas emissions while providing baseload power, adding to local employment through the investment in renewable energy storage and the growth of new low carbon industries across the region.





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FOR: BESS Atlantic Pty Ltd c/o Gransolar Development Australia Pty Ltd

SLR PROJECT No: 620.041088.00001

Revision: 1.5



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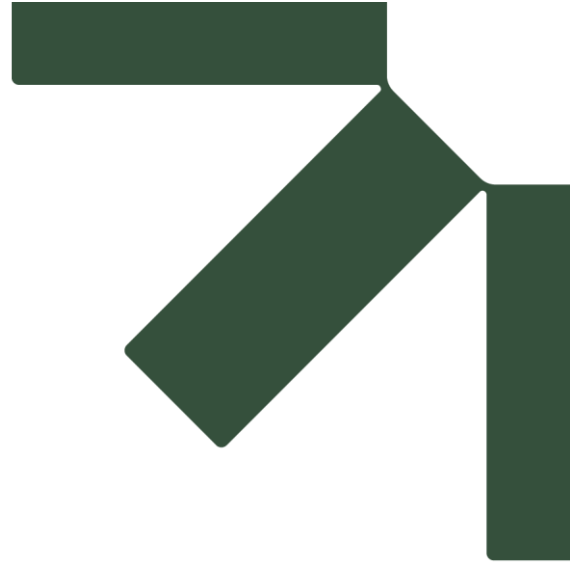
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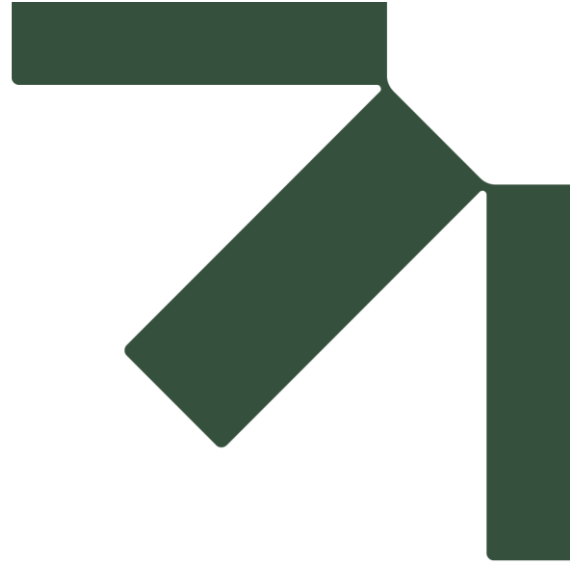
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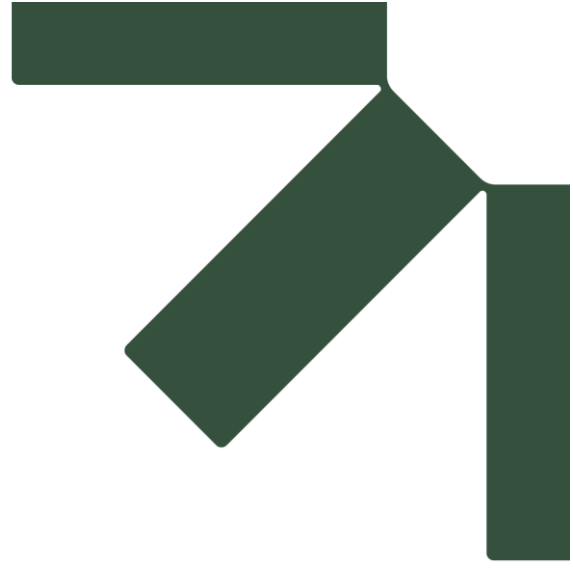




Appendix A SEARs Compliance



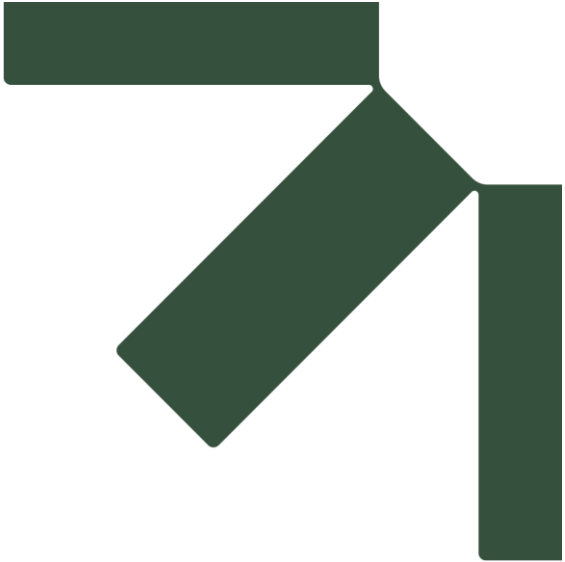
Appendix B Maps and Plans



Appendix C Statutory Compliance

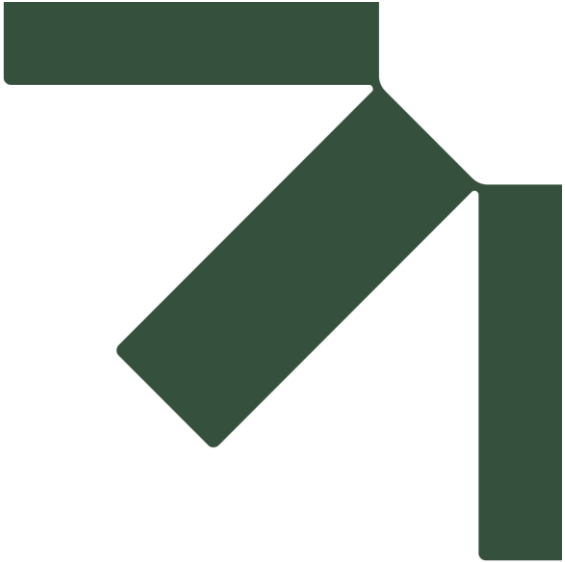
Appendix D Community Engagement





Appendix E Mitigation Measures





Appendix F Biodiversity Assessment Report





Appendix G Aboriginal Cultural Heritage Assessment Report



Appendix H Heritage Impact Assessment





Appendix I Hazards and Risk Assessment





Appendix J Bushfire Risk Assessment Report





Appendix K Landscape Character and Visual Impact Assessment





Appendix L Noise and Vibration Impact Assessment



Appendix M Transport Impact Assement





Appendix N Flood Risk and Impact Assessment Report



Appendix O Social Impact Assesement



Appendix P Consultation Report



Appendix Q Waste Management Plan



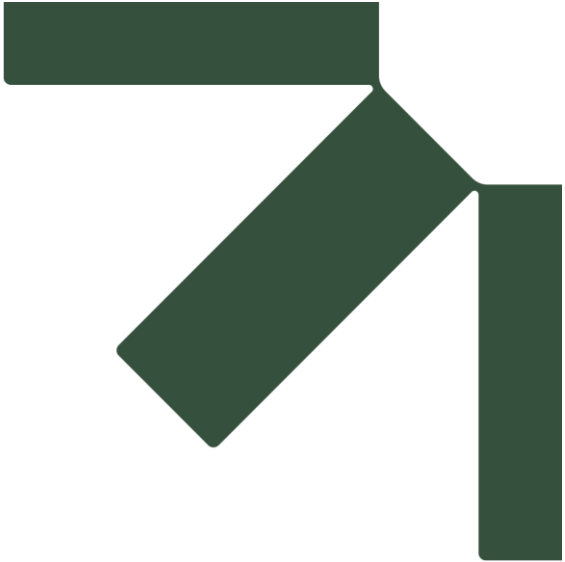
Appendix R Agricultural Impact Assessment





Appendix S Land Use Conflict Risk Assessment





Appendix T Economic Impact Assessment

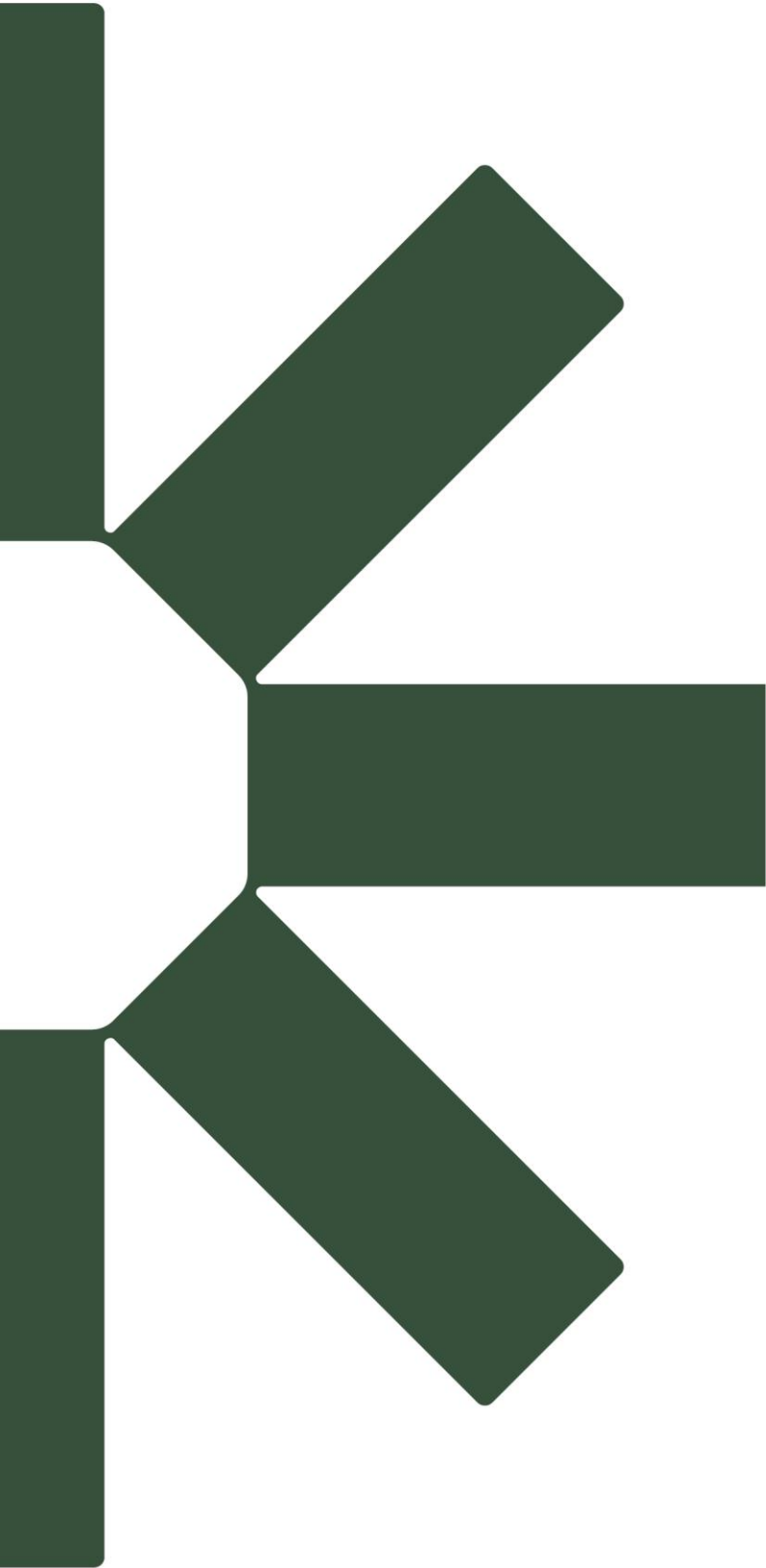


Appendix U Estimate Development Cost Report



Appendix V Light Spill Impact Assessment





Making Sustainability Happen