Scoping Report

Orana Battery Energy Storage System

June 2022

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Acronyms and abbreviations

AC	Alternating Current
ACHA	Aboriginal Cultural Heritage Assessment
AEMO	Australian Energy Market Operator
AHIMS	Aboriginal Heritage Information Management System
APZ	Asset protection zone
BC Act	*Biodiversity Conservation Act 2016*
BCS	Biodiversity Conservation Service
BESS	Battery Energy Storage System
BSAL	Biophysical Strategic Agricultural Land.
CEEC	Critically Endangered Ecological Community
CIA	Cumulative Impact Assessment
CLM Act	*Crown Lands Management Act 2016*
CSEP	Community and Stakeholder Engagement Plan
Cwth	Commonwealth
DAWE	Department of Agriculture, Water and Environment
DC	Direct Current
DPE	(NSW) Department of Planning, and Environment (formerly DPIE)
DPI	Department of Primary Industries
DPIE	(NSW) Department of Planning, Industry and Environment (now DPE)
EMF	Electromagnetic Field
EP&A Act	(NSW) Environmental Planning and Assessment Act 1979
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
FM Act	*Fisheries Management Act 1994*
FRSNW	Fire and Rescue NSW
GHG	Green House Gas
HVAC	Heating, Ventilation and Air Conditioning
IPC	Independent Planning Commission
kV	Kilovolt
LEP	Local Environmental Plan
LFP	Lithium Iron Phosphate
LGA	Local Government Area
LRS	NSW Land Registry Services

LSC	Land and Soil Capability
NEM	National Energy Market
NPW Act	*National Parks and Wildlife Act 1974*
NSW	New South Wales
O&M	Operations and Management
PCS	Power Conversion System
PBP	NSW RFS Planning for Bush Fire Protection 2019
PHA	Preliminary Hazard Analysis
PMST	Protected Matters Search Tool
RET	Renewable Energy Target
REZ	Renewable Energy Zone
RFS	Rural Fire Service
Roads Act	*Roads Act 1993*
SAII	serious and irreversible impact
SEPP	State Environmental Planning Policy
SSAL	State Significant Agricultural Land
TEC	Threatened Ecological Community
TISEP	State Environmental Panning Policy (Transport and Infrastructure) 2021
VIA	Visual Impact Assessment
WBGW	*White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland*
WM Act	*Water Management Act 2000*
ZVI	Zone of Visual Influence

Table of definitions

The following terms are used within this Scoping Report:

Orana Battery Energy Storage System (Orana BESS)	The construction, operation and decommissioning of a 200-400MW BESS, generally comprising battery storage modules, access road, on-site substation, underground and above ground cables, connection to the existing Transgrid 330kV zone substation, associated operational facilities.
Location	6945 Goolma Road, Montefiores NSW 2080
Proponent	Akaysha Energy Pty Ltd
Infrastructure layout (Indicative only)	The indicative layout includes all of the physical infrastructure required for the operational BESS. The layout is indicative. It will be revised according to further assessment and consultation.
Development Footprint (Indicative only)	The Development Footprint is the area of land that would be impacted by the Project (including construction, operation and decommissioning and including all temporary and permanent impacts). The Development Footprint shown is currently indicative and consists of the Infrastructure layout with a 20m buffer.

1. Introduction

1.1 Project outline and objectives

The project is a Battery Energy Storage System (BESS) with a capacity of 200-400MW. It would provide up to 8 hours or 1600MWh of energy storage (the Project). The site would be accessed via Goolma Road north of the site, and an unsealed track running along the eastern boundary of the site. The project will require road upgrades and electricity transmission connection works as ancillary activities.

The objectives of this utility scale storage project are to:

- Support the transition to a renewable energy future through the implementation of a large-scale BESS.
- Thereby improve the electricity supply by:
    - Facilitating energy shifting and provide better for peak demand periods.
    - Reducing energy wastage (curtailment).
    - Improving voltage support and improved power quality.
- Minimise the environmental impacts of the project, informed by specialist investigations and consultation with the community and relevant government agencies.

Key strategies employed to date to enhance the project include:

- Site selection, adjacent to the Wellington substation. This will reduce energy wastage and co-locate the project next to infrastructure of the same nature.
- Reducing impacts on neighbours to the site.
- Reducing impacts on the better condition native vegetation within the project site. The BESS has been located as far north as possible to minimise impacts on structural woodland.

Further detailed investigations will guide the refinement of the project description.

1.2 Project site / location

The project site is located at 6945 Goolma Road, Montefiores NSW 2080, approximately 2km north-east of Wellington and is located within the Dubbo Local Government Area (LGA), NSW. Refer to Figure 1-1. The site, consisting of Lot 2 DP1226751, covers an area of approximately 41 hectares, however the BESS will only occupy an area of approximately 15.32 hectares, as indicatively shown in Figure 1-2. The site comprises privately owned farmland, which would be leased or purchased for the life of the Project.

The site is immediately adjacent to the existing Transgrid 330kV zone substation and the Wellington solar farm (constructed). The approved Wellington North solar farm is also located in the area and is anticipated to commence construction in July 2022. The assessment for the Wellington South Battery Energy Storage System, proposed 300m east of the project site, is currently underway.

The broader area of land that is being investigated for siting of the Project includes three lots within the Development Footprint (refer to Section 3). The lots included within the Development Footprint are presented in Table 1-1.

Table 1-1 Lot/DP list of Development Footprint

Lot/Dp	Ownership	Infrastructure components to be included in the lot
Lot 2 DP1226751	Freehold	BESS, indicative access track, onsite substation, O&M buildings
Lot 2 DP1226751	Transgrid	Transmission line, grid connection
Lot 2 DP534034	Freehold	Nil, included in 20m constructability buffer only
Road corridor (Goolma Road)	TfNSW	Intersection upgrades

1.2.1 Subdivision of the site

Akaysha has an option to Purchase up to 10ha of Lot 2 DP 1226751. This will require a subdivision to affect the purchase of a 'part-Lot'. In the event this subdivision falls below the Dubbo Regional Council (DRC) LEP threshold, Akaysha will seek consent to subdivide from DPE as part of the overall Development Approval. It would be Akaysha's intent to engage a Chartered Surveyor during the preparation of the EIS, to produce a survey plan of the subdivision and remnant Lot and to pre-register new Lot and DP numbers with NSW Land Registry Services (LRS). Following award of the Development Approval, Akaysha would seek the necessary certification from DRC and register the revised Lots with LRS to allow the sale and purchase of the 10ha to occur at Financial Close.

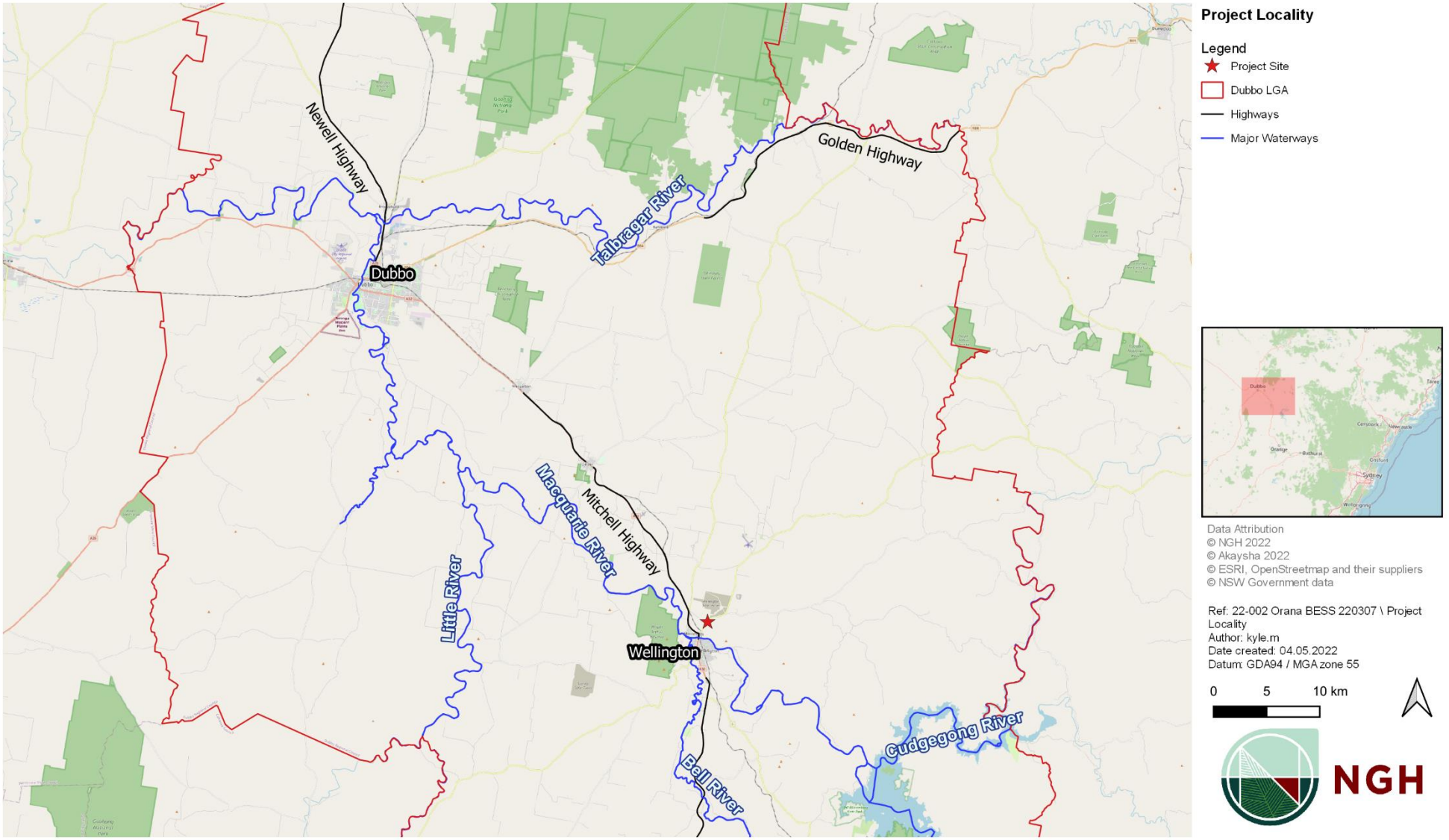

Figure 1-1 Project locality

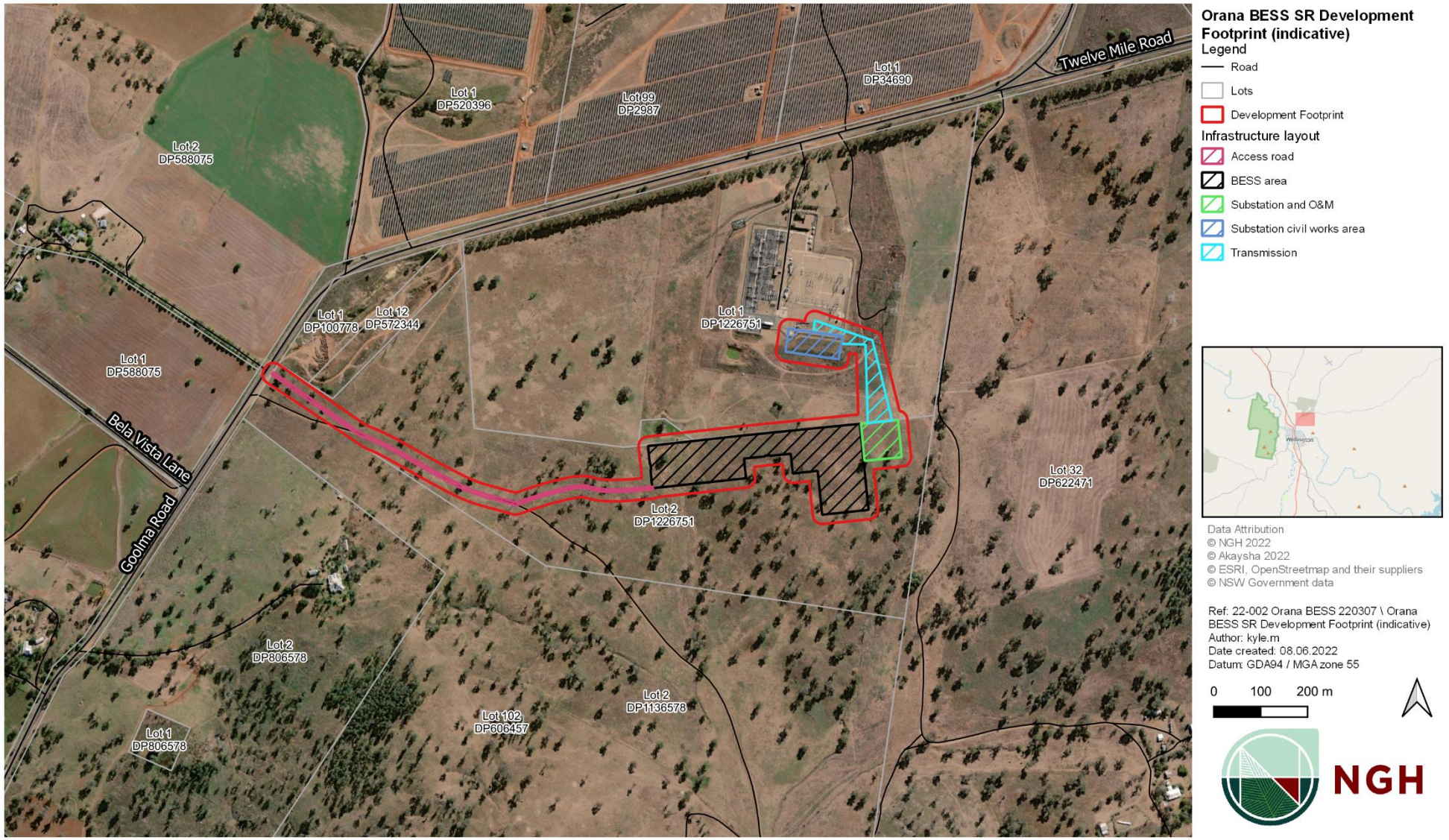

Figure 1-2 Proposed Infrastructure layout and Development footprint (both indicative)

1.3 The proponent

Akaysha Pty Ltd (Akaysha) is the proponent for this project.

ABN: 49 649 223 987

Address: 10-12 Gwynne Street Cremorne, VIC, 3121

Akaysha brings together a diverse and market leading set of skills and experience for end-to-end development of BESS projects, with ready access to the capital necessary to finance these complex projects.

Akaysha's team is made up of long-standing energy sector professionals, proven in the development and deployment of large-scale batteries in Australia, and they also work with tier-one suppliers and partners to ensure sustainable and high-quality outcomes.

Akaysha is mindful of their footprint in the communities in which we operate and are committed to engage with local stakeholders to ensure mutually beneficial and lasting legacies.

1.4 Purpose of this document

This Scoping Report has been prepared to support a request to the Department of Planning and Environment (DPE) for the Secretary's Environmental Assessment Requirement (SEAR's) in relation to the proposed Orana BESS (the Project). The SEAR's would guide the preparation of an Environmental Impact Statement (EIS) for the Project, pursuant to Part 4 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). An EIS is required as the Project has a capital investment value exceeding $30 million and is therefore classed as State Significant Development (SSD).

2. Strategic context

Context important to the development of this project includes:

- Regional setting; zoning and key environmental features
- Strategic need for energy storage in NSW.

Together, these support the justification for the project, as set out below.

2.1 Regional setting and site suitability

The Project is located within a REZ (Central-West Orana). This area has been identified as having significant national and state-wide potential to produce renewable energy. By virtue of its location, it is well placed to support renewable energy projects.

The Development Footprint is zoned SP2 (Infrastructure) under the Dubbo Regional Local Environmental Plan (LEP; 2022), refer to Figure 2-1. While the site has been utilised predominantly for grazing, it was selected as it shares a boundary with the Transgrid substation, and its zoning is highly appropriate for the BESS. The location also avoids the need for third-party easements and long transmission lines.

While site investigations are preliminary at this stage, early results indicate the following key environmental features that will be the subject of further detailed investigations as the project description is refined. This will ensure the Project is responsive to its site context. Refer to Table 2-1 and Figures 2-1 and 2-2.

Table 2-1 Site suitability given environmental context

Environmental feature	Applicability to the Development Footprint
Biodiversity	Native vegetation has been considered in defining the indicative site layout. The remnant vegetation is however, a critically endangered ecological community (CEEC) under the Biodiversity Conservation Act 2016 (BC Act) and Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act): White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion and Blakely's Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion. Under the BC Act, this vegetation is also a Serious and Irreversible Impact (SAII) candidate. BCD were consulted on 20 May 2022 with regard to minimising impacts and considered the structural woodland the higher value area. The proponent has moved the BESS as far north as possible and elongated the BESS east – west as much as possible to minimise impacts on structural woodland and keep the transmission line impact area as low as possible. While a good understanding of the ecology of this site has been collated (refer to Section 6.2.1), this is currently the key area of uncertainty for the project as only BCS can

Environmental feature	Applicability to the Development Footprint
	provide advice on whether or not a SAII is anticipated. Avoid, mitigate and offset options will be discussed further with BCD and more plot data will be collected to inform this discussion.
Aboriginal and historic heritage	An extensive Aboriginal Heritage Information Management System (AHIMS) search identified two items within 150m south of the Development Footprint. There are two items of local historic heritage status in receiving distance to the Development Footprint. These will be investigated further to manage any potential impacts on them.
Residential receivers	Ten residences are located within 1.5km of the Development Footprint. At this stage, five receivers have been assessed as potentially having views of the Project based on topography alone (refer to Section 6.2.5). Some screening is provided however, by existing vegetation and will assist to reduce visual and noise impacts. Notably, preliminary results in Section 6.2.5 show that views from residential areas of Wellington would be screened by topography.
Soil resources	The majority of the Development Footprint where the BESS will be sited is located in low capability land (Land and Soil class 6); it has severe limitations for a wide range of land uses and few management practices are available to overcome these limitations. Land generally is suitable only for grazing with limitations and is not suitable for cultivation. Small areas of the access road's eastern extent and the indicative transmission line corridor are mapped as Biophysical Strategic Agricultural *Land (BSAL) and State Significant Agricultural Land (SSAL)*.
Waterways	There is one unnamed waterway within the Development Footprint. It is an ephemeral 1st order (Strahler) stream and flows south to drain into Macquarie River, approximately 1.7km southwest of the Development Footprint. Minimal impacts to waterways are anticipated. The site is not flood prone.
Mineral resources	There is one mineral exploration licence associated with the Development Footprint. The exploration licence is under title EL6178 held by Modeling Resources Pty Ltd. The title expires on January 19, 2027. Consultation will be undertaken with the leaseholder.
Cumulative impacts	Cumulative impacts are the additional impacts arising from

Environmental feature	Applicability to the Development Footprint
	further planned or foreseeable future developments. Four other major projects are located within the locality, shown in Figure 6-7. Potential cumulative impacts of overlapping construction periods are primarily associated with traffic impacts, pressures on local facilities, goods and services and vegetation clearing and would be investigated in more detail.

2.1.1 Previous site approval for gas-fired power

The proposed Orana BESS site was previously considered (by another proponent unrelated to Akaysha Energy) as a site for a 600MW gas-fired power station, comprising four gas turbine generators each with a nominal nameplate rating of 150MW, an on-site gas conditioning station, 100km of gas pipeline and a remote gas compressor station.

The intended development footprint of the gas-fired power station (excluding the pipeline corridor) was comparable with that proposed for Orana BESS; adjoining the Transgrid Wellington 330kV substation boundary at the northern extent of Lot 2 DP1226751 for ease of network connection, albeit extending further south and therefore requiring substantially greater vegetation clearing than is necessary to accommodate the battery.

Due to the nature of the technology proposed, not least the air-inlet structures and exhaust stacks, the gas-fired power station was assessed as creating a noticeable visual impact, whilst also exceeding design noise limits at some sensitive receptors, producing greenhouse gas emissions to atmosphere, and requiring water for operational use.

The gas-fired power station was approved as a State Significant Development under Part 3A on 4 March 2009. Reference MP06_0315 and https://www.planningportal.nsw.gov.au/major-projects/projects/wellington-power-station. The DA was modified on 7 September 2010 to allow for design changes, including increasing the capacity of the power station to 660MW. The original proponent sought to increase the lapse date of the DA on 31 January 2014, however it subsequently withdrew is application on 21 August 2015 citing the increase in renewable energy as negating the need for additional gas-fired power generation.

Aside from its proximity to Transgrid's Wellington 330kV substation and residing within the Central West Orana REZ, the prior approval of the gas-fired power station on Lot 2 DP1226751 and the resultant rezoning of the project environs to SP2 (Infrastructure) under the Dubbo Regional Council LEP; 2022 has been influential in Akaysha Energy selecting this site for the proposed Orana BESS, noting the environmental impacts of the battery will be materially less than those of the previous approval.

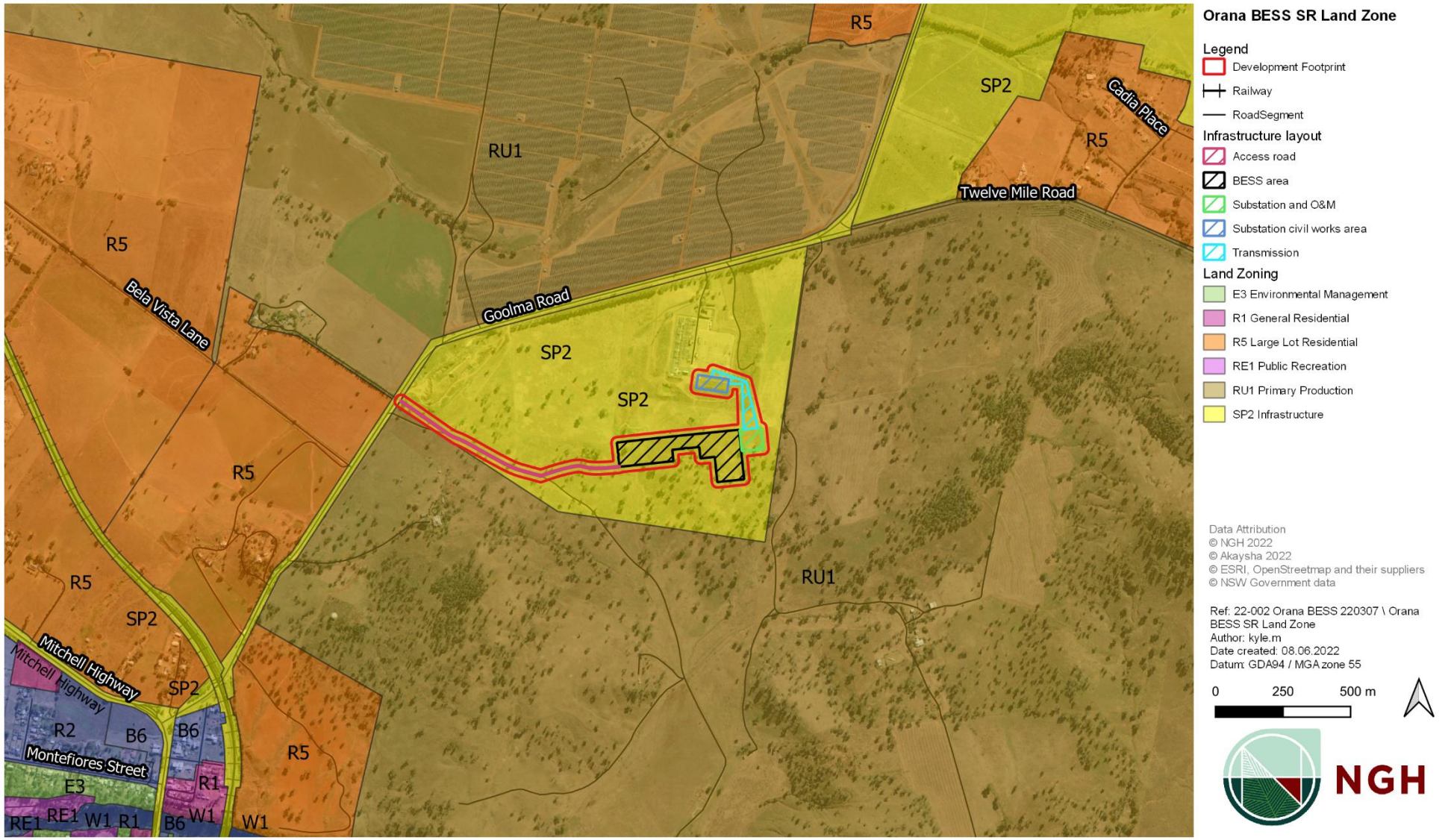

Figure 2-1 Land zoning

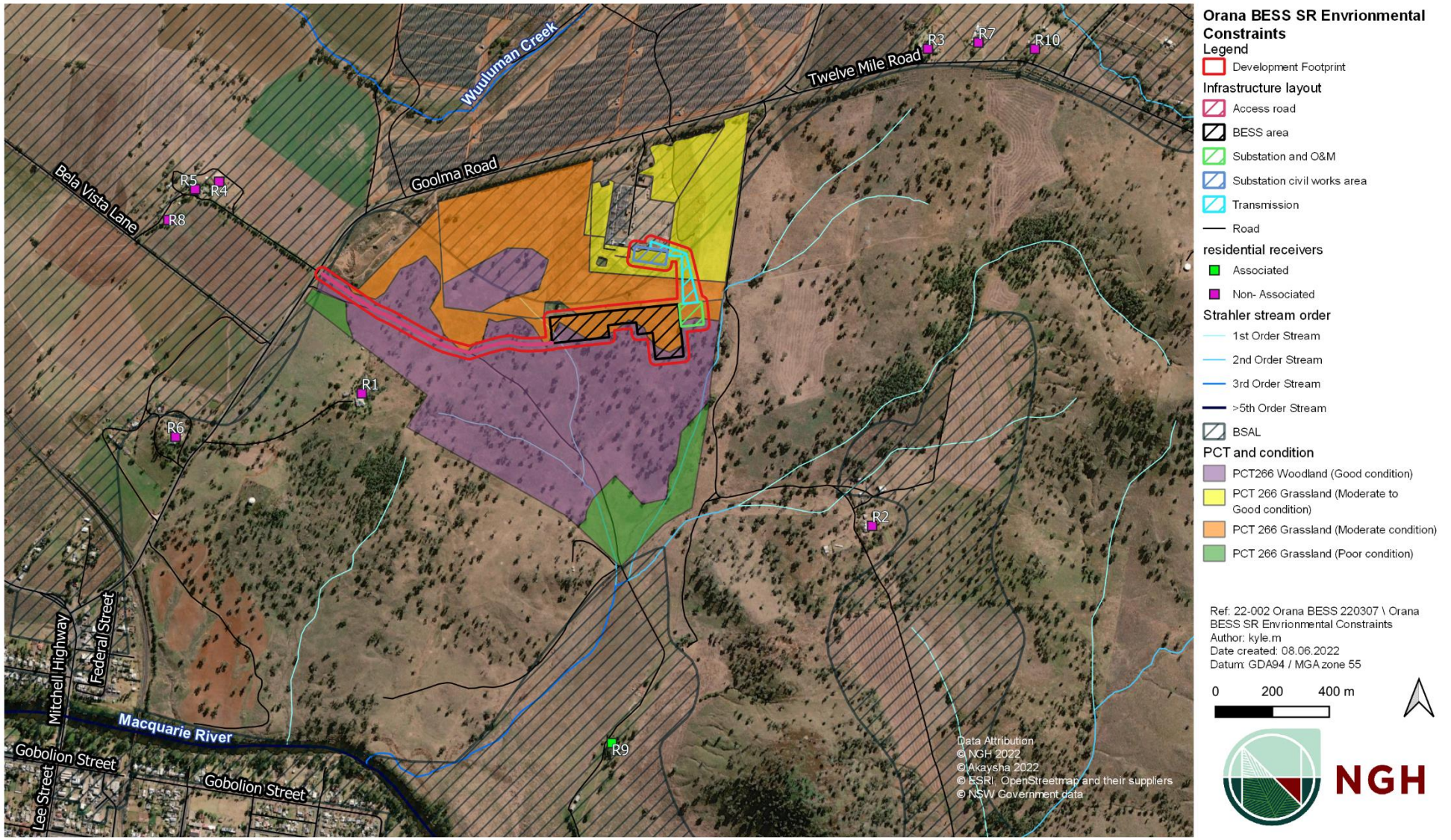

Figure 2-2 Preliminary assessment of environmental constraints of the Project

2.2 Strategic need

The project addresses key NSW and Federal policies including:

- New South Wales Renewable Energy Action Plan
- NSW Electricity Infrastructure Roadmap
- Federal Renewable Energy Target.

2.2.1 New South Wales Renewable Energy Action Plan

In 2013, the NSW Government released the *NSW Renewable Energy Action Plan* (the Plan) to guide renewable energy development. The Government's vision is for a secure, affordable and clean energy future for NSW. The Plan positions the state to increase energy from renewable sources by attracting investment, building community support and growing expertise in renewable energy at the least cost to the energy customer and with the maximum benefit to NSW.

The Plan states that:

> "…*Energy storage can increase the value of renewable energy to individuals, network operators and investors. Storage allows renewable energy investors to increase revenue by selling power at times of peak market prices as opposed to when the electricity is generated. This in turn places downward pressure on electricity prices by encouraging more supply at times of peak demand and reducing the need for additional distribution and transmission infrastructure".*

2.2.2 NSW Electricity Infrastructure Roadmap

In November 2020 DPIE released NSW Electricity Infrastructure Roadmap which describes NSW's plan to transition the electricity sector and seize associated opportunities. The Roadmap focusses on delivery of electricity infrastructure, firming and transmission with the goal of redefining NSW as a modern global energy superpower. An intent is to drive investment in regional NSW, as well as benefit from emerging technologies including batteries.

The Roadmap is intended to help NSW towards its net-zero emissions target by 2050 and will help reduce NSW electricity emissions by 90 million tonnes by 2030 (NSW DPIE, 2020). In addition, the Roadmap is expected to:

- Attract up to $32 billion in private investment for regional energy infrastructure by 2030
- Support an estimated 9,000 jobs, mostly in regional NSW
- Save around $130 a year on the average NSW household electricity bill and $430 a year on the average small business electricity bill between 2023 and 2040.

As part of the Roadmap, the Electricity Infrastructure Investment Safeguard is an investment signal to deliver the new electricity infrastructure required by NSW. The Safeguard provides a framework for technologies and energy services to deliver Renewable Energy Zone (REZ) generation, long-duration storage, and firming.

The proposed BESS would benefit the network by shifting electricity storage closer to local consumption, thereby contributing to regional grid capacity enhancement as per the Roadmap. Operation of the proposed BESS would also be in accordance with the Safeguard to initiate

long-duration storage of electricity for the region, as well as being within the Central-West Orana REZ along with numerous renewable energy projects (refer to Figure 2-3).

2.2.3 Federal Renewable Energy Target

The COP21, also known as the 2015 Paris Climate Conference, achieved a legally binding and universal agreement on climate with the aim of keeping global warming below 2 degrees Celsius, chiefly by reducing greenhouse gas emissions.

The Project would form part of the Australian effort to help meet this target. The development of utility battery storage is an important contribution to:

- Providing for further reductions in Green House Gas (GHG) emission intensity for generation in the National Energy Market (NEM)
- Supporting the Government's Renewable Target (RET) of 20 percent renewable energy by 2020.

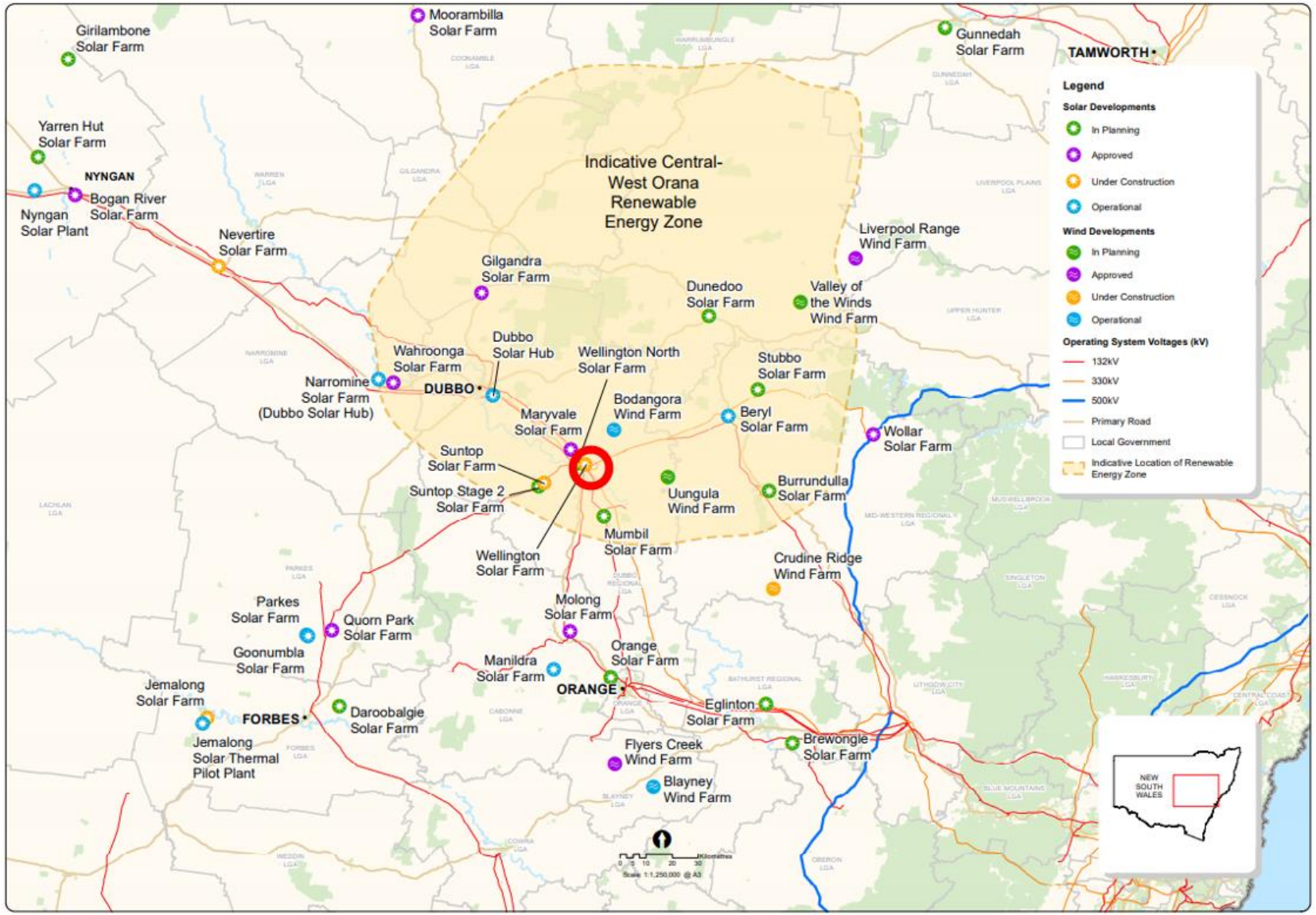

Figure 2-3 Project location (circled red), within the Central-West Orana REZ.

2.3 Project justification

2.3.1 Supporting the clean energy transition

The project's key justification is in its contribution to electricity reliability including:

- Facilitating energy shifting and provide for peak demand periods
- Easing energy wastage (curtailment)
- Easing the peak demand and defers the alternative costly network upgrades associated with providing energy in remote locations. Increasing population and economic development results in an increase on energy demands and pushes for costly network expansion
- Improved voltage support and improved power quality
- Support the Australian transition to a renewable energy future through the implementation of a large-scale BESS.

While most of Australia's electricity is currently provided by coal-fired power stations, as many as three-quarters of these plants are operating beyond their original design life (Department of Industry and Science, 2015). The reduction in energy supply from coal-fired power stations requires the development of reliable and sustainable energy supply.

Electricity consumption in Australia is exceptionally high, resulting in costly electricity bills and frequent disruptions to electricity supply during peak times. The renewable energy sector has responded to this high demand and to the need for viable alternative options for electricity generation contributing to 27.7% of Australia's overall electricity in 2020 (Clean Energy Council, 2021). The Australian Energy Market Operator (AEMO) has projected that NSW will need nearly 2.3 gigawatts (GW) of energy storage to maintain system security and reliability in addition to Snowy 2.0 (NSW DPIE, 2020). As such the NSW government has indicated that investment into large-scale storage capacity projects would be required to support the states transition to renewable energy sources (NSW DPIE, 2020).

The Project would benefit the electricity grid by balancing the network through the addition of energy storage. This stored energy would be utilised during periods of low renewable output into the energy grid. This is especially important during the states transition from centralised to decentralised power generation as coal fired plants are decommissioned. Greater utilisation of large-scale battery storage in conjunction with other dispatchable[1] energy resources may decrease peak wholesale prices. This is due to the ability of battery storage to buffer the energy market during tightened supply times when demand is high (Finkel, Moses, Munro, Effeney, & O'Kane, 2017). The market price effect of dispatchable energy resources such as battery storage is modelled below.

[1] Energy resources that can be accessed when needed. Definition is similar to firm generation used in the NSW Electricity strategy.

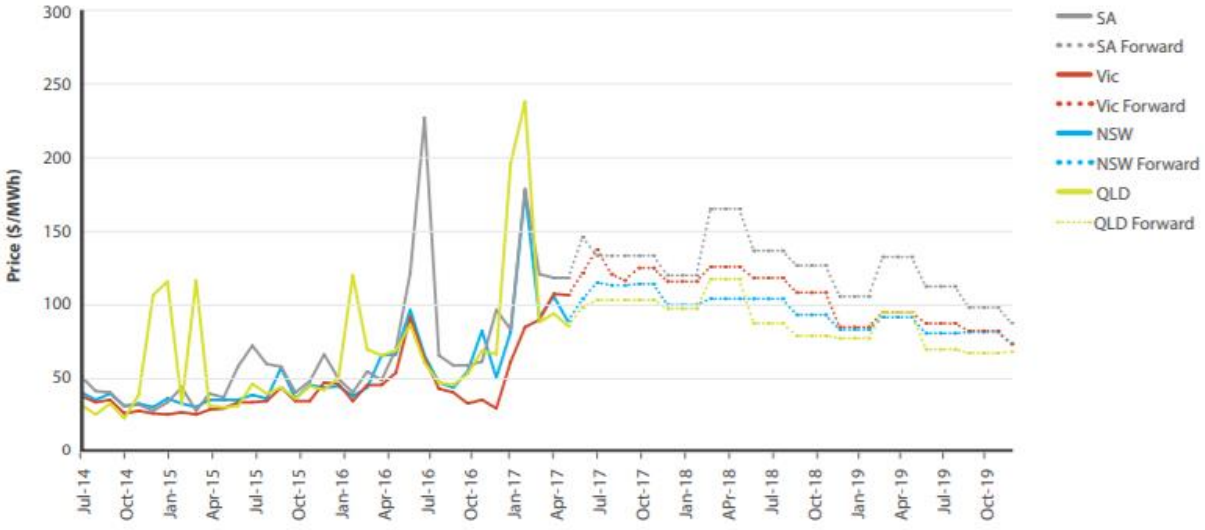

Figure 2-4 Monthly average wholesale prices and base load future prices (Figure 3.3 of The Finkel Review (Finkel, Moses, Munro, Effeney, & O'Kane, 2017))

In 2020, almost 2GW of renewable energy made up of 32 projects were constructed and began generating electricity (Clean Energy Council, 2021). The equivalent number of households powered annually through all renewable energy generation sources totals 13,689,560 households. Projects such as the Orana BESS will be important to maintain the functioning of the NSW energy system. They will ensure that the state's residents, business owners and service providers to have secure reliable and secure energy as energy supply sources change.

2.3.2 Job creation

Job creation would be a socio-economic benefit of the Project, by Providing employment and economic stimulus, primarily through the construction phase. In addition to providing an additional income stream to associated landholder, the Project is expected to create an additional 100-150 jobs during construction. The type of workers required aligns well with the local skill set, including primarily civil works.

Largely due to the influx of workers, the Project would generate economic stimulus in Wellington and throughout the Dubbo Regional LGA during this time. These areas would provide accommodation, food, fuel and trade equipment and services, mostly during the construction phase. As such, no additional benefit sharing scheme or payment of a Voluntary Planning Agreement fee to Council is proposed as part of this Project.

During operation of the solar farm, economic benefits would be less, focussing on monitoring and inspections, maintenance, repair and upgrade of infrastructure, much of which is likely to be provided by the resident labour force.

3. The project

3.1 Project description

The Project involves the development of a 200 - 400MW Lithium-ion BESS. It would provide up to 8hours or 1600MWh of energy storage. The BESS would store excess energy during peak production periods, to later transmitted back into the grid when required.

A BESS is a device that stores energy by accumulating energy through reversible electrochemical (lithium) reactions. The energy is stored/extracted in DC (Direct Current) and converted/inverted into AC (Alternating Current) by an accompanying bi-directional inverter sized to the storage capacity.

The BESS Development Footprint would occupy approximately 15.32ha of land, including the transmission line, access track, bushfire asset protection zones (APZ), a 20m buffer considering constructability and will consist of the following infrastructure components, however it should be noted these are indicative and may be subject to change (refer to Figure 1-2**Error! Reference s ource not found.**):

- 2500 Battery modular stack units housing the Lithium iron phosphate cells ('LFP')
- One switch gear room
- 64 Power Conversion System (PCS) and that include a 7.2MVA transformer unit and inverter to convert the DC battery power to the appropriate AC power. These transformer units would be positioned between each battery row
- Fences and a small hardstand area
- Control room, small Operations and Management (O&M) room and small storeroom for consumable (spare modules will be stored offsite)
- External transmission line for connection to the substation either: one power pole up to 20m tall, if above ground, or the line may be installed underground on Transgrid managed land
- Works within the Transgrid substation to connect the onsite substation to the Transgrid substation via the new transmission line:
    - Minor expansion beyond the current yard to extend the 330kV bus bar and add additional 330kV connection bays
    - 330kV/33kV power transformers connecting the BESS to the Transgrid site (about 8m high)
    - Connection tower on the Transgrid connection point (about 40-50m high)
- Access route from Goolma Road
- Temporary construction compound.

The BESS will consist of modular stack units (nominally 750kWh each) and each container will be 1.5m wide, 2.5m wide and 3.2m high. Each row will consist of:

- A BESS DC stacks with 18 stacks per row
- Two rows of DC stacks are connected to a single PCS
- PCS to be a 7.2MVA transformers with multiple inverters
- A range of battery, temperature, electrical and fire monitoring systems. These monitoring systems are integrated with automated and manual safety protection systems, including:
    - Internal temperature controls, Heating, Ventilation and Air Conditioning (HVAC)
    - Fire detection systems such as smoke detectors and heat sensors
    - A range of electrical monitoring and alarm systems

- Telemetric reporting of sensor data to the onsite control room
- Telemetric reporting to offsite operations and maintenance facility
- Power shut down and disconnection.

A 20m preliminary Asset Protection Zone (APZ) has been included in the delineation of the Development Footprint in consideration of bushfire risk, however final bushfire mitigation strategies will be determined in consultation with the NSW Rural Fire Service (RFS) and Fire and Rescue NSW (FRNSW). Refer to Section 6.2.4 for further information regarding fire and hazard control systems.

The medium voltage switch gear and auxiliary transmission rooms will control the delivery of electricity to and from the substation and power transmission infrastructure.

3.2 Proposed project delivery

3.2.1 Construction

The Project would be constructed over a period of approximately 6-9 months and expected to operate for 20 years. Construction would involve:

- Construction of concrete hardstands
- Construction of internal access tracks
- Delivery of infrastructure components to the site
- Assembly of the BESS containerised units and associated infrastructure (substation, fencing, etc.).

Table 3-1 Indicative timeline

Phase	Approximate commencement	Approximate duration
Project Approval	2Q 2023	N/A
Pre-construction works	3Q 2023	1 month (if needed)
Construction	3Q 2023	12 to 18 months
Operation	3Q 2024	Approximately 20 years
Decommissioning	TBC	TBC

Materials

The main construction materials would include:

- Aggregates, road base and concrete
- LFP batteries
- Fencing materials
- Cables, conduits, junction boxes
- Steel framing and Colourbond sheeting for permanent buildings
- Timber and fixtures for building fit-out.

The material quantities would be estimated in more detail in the EIS when the Development Footprint is refined further.

3.2.2 Operation

Operation of a BESS would simply involve the storage of energy during periods of low demand, through the process explained above. This energy would be retained within the BESS to be later provided back to grid during high peak periods. This activity does not involve physical movement of

structures, and that would generate noise, emission, or cause changes to the visual amenity of the area. Operations would involve minimal activity as all process for storing are contained within the BESS structure.

During operations, up to two staff vehicles may be present on site and up to four permanent staff.

3.2.3 Decommissioning

The Project has a finite life span. When that lifespan is reached, an upgrade of the BESS could be undertaken and consequently either request an extension or lodge a new DA with a more current technology. Alternatively, the Project would be dismantled, and the relevant components could be reused for other purposes with lower power demands and duty cycles.

Batteries can be refurbished (overseas by the manufacturer) or recycled (domestically or overseas) for reprocessing. The shipping containers, cabling, transformers and switch gear are largely able to be reused or recycled. Some integrated plastic components may degrade over time to the point where they are not suitable for reuse, but these elements are minor. Gasses from the air conditioning and fire suppression systems can be captured and reused.

3.3 Project development and alternatives

3.3.1 Design considerations

The design of the Project's Development Footprint has taken into account biodiversity features and bushfire risk:

- Impacts on conservation significant native vegetation and potential to generate a Serious And Irreversible Impact (SAII) are considered the key project constraint.
    - BCD were consulted on 20 May 2022 with regard to minimising impacts and considered the structural woodland the higher value area. The proponent has moved the BESS as far north as possible and elongated the BESS east – west as much as possible to minimise impacts on structural woodland and keep the transmission line impact area as low as possible. BCD were consulted again in a meeting with DPE on 10 June 2022.
    - While further investigation is required, the current development footprint proposed currently estimates a 'worst case impact', allowing a full 20m buffer to ensure all impacts of the project are captured. There is scope to reduce this with further consideration of construction methods.
- A 20m APZ has been considered as a part of the Project in the early stages of design.

3.3.2 Analysis of alternatives

Alternatives considered below include statements regarding alternative site locations and alternative energy storage technologies.

Alternative sites

The site was selected because it provides the optimal combination of:

- Sufficient levels of available capacity on the grid distribution system
- Close proximity to a grid connection

- Suitable planning context; SP2 land zoning and previously DA approval for a gas-fired generator
- Low land use conflict (low capability land subject to grazing)
- Acceptable flood risk
- Artillery road access.

The Project has entered into an exclusive, irrevocable and exercisable option to purchase the land required for BESS operation.

Alternative technologies

Lithium-ion BESS technology is established in the marketplace and is already required to comply with a range of Australian and international standards. The hazards associated with each type of battery chemistry technologies available are similar as they are all Lithium Iron Phosphate (LFP) based technology. The proposed temperature control, voltage control, monitoring systems and fire management systems are best practice.

LFP BESS is the only economically and environmental appropriate technology that can be located safely in a rural environment within a relatively small footprint; which is appropriate to the site's biodiversity constraints. While other battery technology exists, LFP battery technology was selected as the preferred option based on the following criteria:

- Minimal risk of thermal runaway
- Safety, fire management and containment.
- Ability to support the network to increase renewable energy penetration.
- Ability to provide energy during periods of peak demands.
- Minimal environmental impact
- Safety and ease of integration
- Demonstration and maturity of technology
- Value for money.

4. Statutory context

Relevant statutory considerations for the Project are presented in Table 4-1.

Table 4-1 Statutory requirements

Category	Statutory requirements	Relevance to Project
Power to grant consent	State Environmental Planning Policy (Planning Systems) 2021 (Planning Systems SEPP) Environmental *Planning and Assessment Act 1979* (EP&A Act).	Section 20 of Schedule 1 of the Planning Systems SEPP states that the following is considered a SSD: *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 a capital investment value of more than $30 million, or* *(b) has a capital investment value of more than $10 million and is located in an environmentally sensitive area of State significance.'* The Project would have a capital investment cost estimate of more than $30 million ($600 million). Therefore, the Project is classified as "State Significant Development" under division 4.7 of the EP&A Act. The Minister for Planning and Public Spaces is the consent authority for SSD, and SSD applications are assessed by DPE (unless specific conditions occur e.g., where 50 or more people have objected to the application, the local council has objected to the application; and/or the applicant has disclosed a reportable political donation, whereby the Independent Planning Commission (IPC) would be the consent authority.
Permissibility	State Environmental Panning Policy (Transport and Infrastructure) 2021 (TISEPP),	The site is located within land zoned SP2 (Infrastructure) under the Dubbo Regional LEP. Electricity generation is permissible with consent in this land zone. 'Electricity generating works' as

Category	Statutory requirements	Relevance to Project
	Dubbo Regional Local Environmental Plan 2022) (Dubbo Regional LEP).	defined by the Principal Local Environment Plan (2006) include electricity storage. Section 2.36(1)(b) of the TISEPP states development for the purpose of electricity generating works may be carried out by any person with consent on any land in a prescribed rural, industrial or special use zone. Therefore, the Project is permissible with consent.
Other approvals	*Roads Act 1993* (Roads Act), *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), *Environmental Planning and Assessment Act 1979* (EP&A Act), Environmental Planning and Assessment Regulation 2021, *Crown Lands Management Act 2016* (CLM Act), State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP), *Heritage Act 1977, Water Management Act 2000* (WM Act), *National Parks and Wildlife Act 1974* (NPW Act), *Fisheries Management Act 1994* (FM Act)	**Consistent approvals** Section 4.42 of the EP&A Act states "*An authorisation of the following kind cannot be refused if it is necessary for carrying out State significant development that is authorised by a development consent under this Division and is to be substantially consistent with the consent*": • Consent under section 138 of the Roads Act for road upgrades to the public road network. **EPBC Act approval** Given the presence of EPBC listed White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland on site, a referral to the Federal Department of Agriculture, Water and Environment (DAWE) will be lodged in order to obtain Supplementary SEARs. The assessment of Commonwealth matters is proposed to be 'streamlined' in accordance with the NSW EPBC Act Bilateral Agreement. **Other approvals** Approvals/licenses that may be required for the Project include: • An easement, licence or permit under division 5.6 of the CLM Act
Pre-condition to exercising the power to grant	N/A	No pre-conditions to exercising the power to grant approval have been identified for the Project.

Category	Statutory requirements	Relevance to Project
consent		
Mandatory matters for consideration		The following key Commonwealth, State and Local legislative and policy instruments are applicable to the project: <u>Commonwealth</u> • EPBC Act • *Native Title Act 1993* <u>NSW</u> • EP&A Act • Planning Systems SEPP • TISEPP • Hazards and Resilience SEPP • State Environmental Planning Policy (Primary Production) 2021 • *State Environmental Planning Policy (Resources and Energy) 2021* • Roads Act • CLM Act • NPW Act • WM Act • *Heritage Act 1977* • *Biodiversity Conservation Act 2016* (BC Act).

Category	Statutory requirements	Relevance to Project
		Local instruments • Dubbo Regional LEP • Wellington Development Control Plan

5. Engagement

Akaysha is mindful of its footprint in the communities in which it operates and intends to engage with local stakeholders to ensure mutually beneficial and lasting legacies.

Akaysha's approach to community engagement is centred regular, open, transparent and factual consultation tailored to the specific requirements of each stakeholder. Akaysha will act with honesty and integrity in all its dealings in the Wellington community.

To facilitate these undertakings, Akaysha has developed a Community and Stakeholder Engagement Plan (CSEP). The CSEP has been prepared in accordance with NSW Department of Planning guidelines, with reference to similar documentation from the Australian Electricity Infrastructure Commissioner, Clean Energy Council and consideration of the IAP2 Public Participation Spectrum (*Involve*).

5.1 Community and stakeholder engagement plan

5.1.1 Purpose

The CSEP outlines the overarching stakeholder engagement principles and strategy for the joint venture development of the Maxwell Solar Farm concerning the community while the project is in the Development Phase. The Plan is designed to outline each key stakeholder group and what strategies should be undertaken to address their concerns about the proposed Orana BESS project in Wellington.

The CSEP covers engagement with external stakeholders such as key government agencies involved in the assessment process, local indigenous groups, the local and broader community, and Akaysha and its suppliers/services providers internally.

Engaging with stakeholders is a key strategic objective for the project, and this objective is achieved by using an accountable and transparent process for engagement.

The CSEP will be revised once the project reaches Financial Investment Decision to support the execution phase of the project, recognising the different issues and impacts which may arise during construction and operations.

5.1.2 Approach to engagement

This CSEP is designed to provide a foundation for how Akaysha intends to consult, engage, and communicate with the community and stakeholders about the Orana BESS project through all stages of the battery lifecycle from site selection through to commissioning and operations and eventually decommissioning.

The high-level objectives of the plan are to:

- Proactively inform and engage with the community and stakeholders regarding Orana BESS
- Identify stakeholders and possible stakeholder issues
- Create a framework to seek and encourage input from stakeholders throughout the life of the project

- Establish channels for the community to raise questions, issues, expectations, and concerns and to answer them
- Identify and proactively communicate all the potential benefits and impacts of the BESS;
- Develop an active and visible profile within the community to create trust and constructive relationships
- Demonstrate commitment to the communities' sustainability and wellbeing
- Avoid, minimise, or remediate negative impacts from construction through to operation;
- Seek or respond to interest in opportunities for communities created by the construction process
- Reduce project risk and improve outcomes by incorporating best practice principles.

5.1.3 Engagement principles

The CSEP adopts the following four foundational principles:

- Openness
- Inclusiveness
- Responsiveness
- Accountability

5.1.4 Communication materials

In support of ongoing engagement activities, a suite of communication material has been prepared and will be regularly updated, including:

- A project website, namely www.oranabess.com.au, containing up-to-date progress, notices of future events and, closer to construction, a registration of interest for local service providers and suppliers
- A dedicated project email for members of the community to lodge queries with the project development team, which is committed to responding within 2-business days or receipt
- Project materials including a flier and series of relevant site maps and plans
- A stakeholder and community register.

5.2 Engagement carried out to date (scoping engagement)

Akaysha has already undertaken preliminary engagement activities to support this Scoping Report. These are summarised in Table 5-1:

Table 5-1 Stakeholder and community engagement summary

Entity	Approach	Purpose and Outcomes
Dubbo Regional Council	Face to face meeting	A meeting was held with CEO and Director, Development & Environment on 17 March in Wellington. The primary purpose of the meeting was to introduce the project and seek initial thoughts and feedback. Council indicated strong support for the project and indicted its preference for local employment opportunities and the need to thoroughly assess cumulative impacts given the expected scale of project activity in the Central-West Orana REZ.
	Face to face meeting	Courtesy meetings were held with two Councillors, both of the Wellington Ward, also on 17 March, again to introduce the project and seek initial thoughts and feedback.
	Face to face meeting	A short introductory meeting was held with the Mayor on the 17 March. The Mayor reiterated earlier sentiments of Council and also emphasised a desire to see more higher-value jobs created and retained within the local community.
Biodiversity Conservation Division	Phone call and email	BCD were consulted on 20 May 2022 with regard to minimising impacts on Box Gum Woodland. BCD noted the structural woodland in this case would be considered the higher value area than the derived grasslands. The proponent has moved the BESS as far north as possible and elongated the BESS east – west as much as possible to minimise impacts on structural woodland and keep the transmission line impact area as low as possible. A meeting with BCD and DPE was held on 10 June to further discuss impacts on Box Gum Woodland. The key area of uncertainty for the project is how to define Serious and Irreversible Impacts (SAIIs) in relation to this community and how the project demonstrates it can avoid a SAII. Further discussions were planned with BCD and DPE (scheduled for 10 June 2022). More site data will be collected to inform this assessment during the detailed assessment.
Transport for NSW	Online Meeting	The Akaysha project team met with TfNSW on 10 March via MS Teams. Discussion centred on the access point to the site in respect of safety, given the most likely access will be via Goolma Road. It was noted limited auxiliary turn treatments currently exist and would need to be thoroughly assessed in terms of

Entity	Approach	Purpose and Outcomes
		proximity to the bend to the east. TfNSW suggested exploring alternative access points via adjacent properties, notably Transgrid, which Akaysha will review during the EIS phase.
Local Community	Notification Letter	Akaysha has identified 11 residential dwellings within a 2km radius of the site, one of which is an associated landowner. A letter was sent to each of these properties via a mailbox drop in early March, introducing the project and inviting attendance to an upcoming community event.
	Community Event	A community drop-in event was held on 17 March from 2-5pm in the Wellington Community Hall and advertised in both the Wellington Times and Wellington Daily Leader. The event attracted eight visitors and a high level of interest in the project. Contact details have been retained on the stakeholder register for follow-up discussions during the EIS.
	"Namina" *(near neighbour)* (refer to R1 in Figure 6-3)	Akaysha held in depth discussions with the owner at the community event. Initial concerns centred on visual impact, and it was agreed to thoroughly assess this during the EIS and to agree appropriate vegetation screening on the landowner's property to mitigate any potential impact. The Proponent also discussed mitigation measures relating to limiting floodlighting impact through the design.
Magmatic Resources **(EL6178)**	Online Meeting	Akaysha met with Adam McKinnon (MD) and Steven Oxenburgh (GM Exploration) of Magmatic Resources on 7 June 2022, who own mineral exploration licence EL6178. This licence encompasses the Development footprint. Magmatic noted the site was at the southern extent of its licence and the proposed battery location's proximity to the Transgrid substation (which a mine site would typically seek to avoid) was such that the BESS would not impact future mining operations. Akaysha will keep Magmatic informed through the EIS phase and has agreed to explore development synergies such as sharing of geotechnical and soil assessment studies etc.
Transgrid	Multiple	Akaysha has met with Transgrid on multiple occasions during early 2022, to pre-empt a future connection

Entity	Approach	Purpose and Outcomes
	meetings	enquiry and application. These discussions have also considered the need to include any Transgrid augmentation works within the Orana BESS DA and early landowner consent has been sought from Transgrid's property department.
Other Stakeholders - NSW Farmers Assoc. - Rural Fire Services - Wellington Chamber of Commerce - State & Federal Members	Notification Letter	Notification letters/emails will be sent to other key stakeholders, out of courtesy and concurrent with the lodgement of the Scoping Report. This is to introduce the project and to open lines of communication for more detailed engagement during the preparation of the EIS.

5.3 Engagement to be carried out (EIS and further planning stages)

Stakeholder and community engagement during the preparation of the EIS will continue to build on the consultations to date.

Akaysha intends to engage with all 'concurrence agencies' who contribute to the SEARs at an early stage of the EIS process, to clarify their requirements and to ensure their concerns and issues are fully assessed.

Future consultation will adopt various approaches tailored to the requirements of each stakeholder, including but not limited to:

- Face-to-face meetings at key milestones/decision points
- Regular email and phone correspondence
- Additional community drop-in events advertised locally with due notice
- Updates to websites and other project materials
- In conjunction with statutory requirements:
    - The project will advertise for Registered Aboriginal Parties (RAPs) to be involved in field survey and provide input into the Aboriginal heritage assessment, in accordance with the Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW, 2010).

6. Matters requiring further environmental assessment in the EIS

6.1 Methodology

A preliminary constraints assessment has been completed to assist in the identification of key environmental matters that would require further assessment within the EIS (internal document, not included in this submission). The preliminary constraints assessment informed the early planning phase and the indicative development footprint and infrastructure layout presented in this Scoping Report. It included:

1. Investigation of the planning pathway and relevant legislation that may impact the Project.
2. Desktop review, including database searches relating to:
    - Threatened flora and fauna species and ecological communities
    - EPBC Act Protected Matters Reporting Tool
    - Aboriginal heritage
    - Land use / nearby receivers
    - Key fish habitat
    - Historic heritage
    - Soil and landscape capability mapping
    - Soil landscapes
3. Field inspection by an NGH ecologist on 15 December 2020.

In addition, adhering to the State significant development guidelines – *Preparing a scoping report*, the scale of impact, nature of impact and sensitivity of the receiving environment for environmental issues was assessed in the scoping summary table in Appendix A. The scoping summary table includes the level of assessment required for each matter for the EIS phase, if a cumulative impact assessment (CIA) is required, the type of engagement required, relevant government plans, policies and guidelines and a reference to where the matter is addressed in the scoping report.

From this analysis, matters requiring further environmental assessment in the EIS were determined as follows:

Matters requiring detailed assessment	
• Terrestrial flora and fauna.	• Health and wellbeing
• Visual	• Aboriginal heritage
• Noise and vibration	• Historic heritage
• Traffic	• Hazardous materials

Matters requiring standard assessment	
• Bushfire	• Hydrology, water quantity
• EMF	• Land stability

Matters not requiring further assessment
• Land use compatibility

6.2 Environmental issues

6.2.1 Biodiversity

Existing environment

The areas of conservation significant native vegetation and potential to generate a Serious and Irreversible Impact (SAII) is considered the key project constraint. Biodiversity values of the site were investigated via specialist technical report; Appendix C.1.

The investigation included desktop searches in addition to site surveys within Lot 2 DP1226751, conducted on 15 December 2020. For Lot 2 DP1226751 (the Transgrid lot) vegetation classification referred to the results of the Wellington Solar Farm BDAR: Revised Project Layout Biodiversity Development Assessment Report (NGH, 2020). The key results are summarised below.

Vegetation and fauna habitat

The site inspection identified Plant Community Types (PCTs), characterised by distinctive vegetation structure, dominant species, fauna habitat values and topography. These PCTs are described below and mapped as per Figure 6-1.

The dominant tree species on site was White Box *Eucalyptus albens*, with the occasional *Calitris* White Cypress *glaucphpylla*. All native vegetation occurring on site would likely conform to White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW) Threatened Ecological Community (TEC). This TEC is listed as a Critically Endangered Ecological Community under both the Biodiversity Conservation Act (NSW) and the EPBC Act (Cwth). The condition of this vegetation was generally high condition where canopy was present, and moderate condition where grassland only occurred.

One PCT was confirmed within the Development Footprint, in two forms:

- PCT 266 (BVT CW216) White Box Grassy Woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion – Woodland

- PCT 266 (BVT CW216) White Box Grassy Woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion – Grassland

The condition of the PCT 266 areas have been classified as good, moderate to good, moderate and poor condition based on early investigation. BCD were consulted on 20 May 2022 with regard to minimising impacts and considered the structural woodland the higher value area.

An area of rocky boulders was identified within and surrounding the Development Footprint which would constitute potentially suitable habitat for the Pink-tailed Worm-lizard *Aprasia parapulchella*. Targeted surveys for this species would be required.

Some poor-quality grasslands occur to the south of site where exotic species were in high abundance with low tree cover. Refer to Figure 6-1 for PCT mapping.

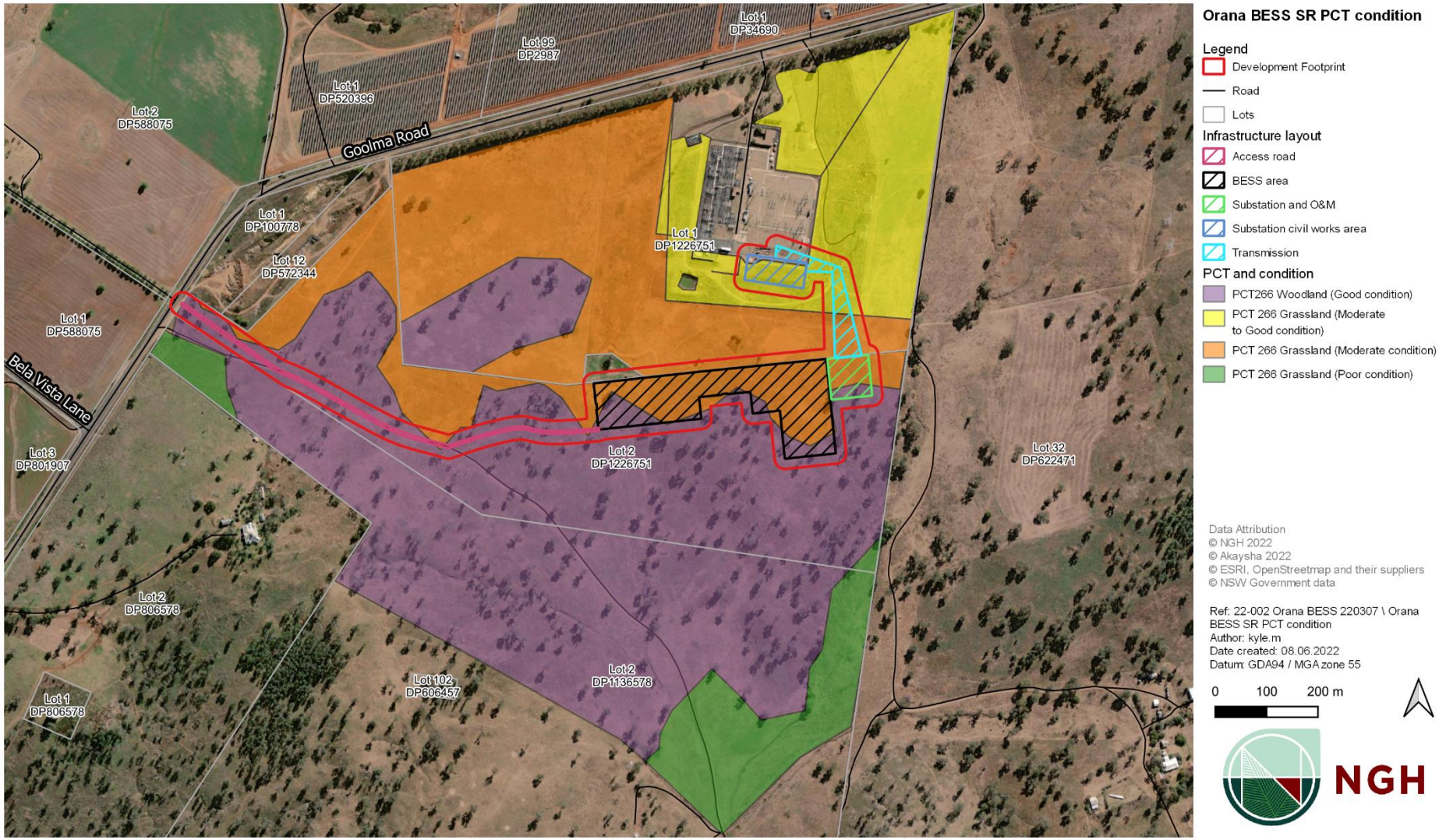

Figure 6-1 Biodiversity constraints

Land category assessment

Aerial photography does not indicate any areas within the Development Footprint which have been subject to cropping or intensive agricultural land use such that they would be suitable to classify as Category 1 land. A Land category assessment is not proposed.

Constraints and need for further assessment

As far as practicable, the Project will seek to avoid impacts to areas containing native canopy trees and confirmed threatened species habitat. Reflecting current investigations and consultation, the proponent has moved the BESS as far north as possible and elongated the BESS east – west as much as possible to minimise impacts on structural woodland and keep the transmission line impact area as low as possible.

A Biodiversity Development Assessment Report (BDAR) is required for the project, pursuant to the BC Act and Biodiversity Assessment Methodology (BAM), to consider all areas that may be impacted directly or indirectly by the project.

The WBGW TEC is listed under the BC Act as being a candidate for SAII. SAII candidates have an additional element of impact assessment applied to them through the Biodiversity Development Assessment Report (BDAR) process, and the assessment is used to assist the decision maker in determining whether the impacts are Serious and Irreversible. SAII entities provide a trigger for decision makers to reject projects on SAII grounds. While the Minister can show SSD discretion in this regard, it still represents an approvability risk. No set thresholds exist for impacts to be approvable or not.

Further consultation regarding biodiversity impacts will include:

- An early meeting with DPE and BCD together to discuss options and approvability.

Further investigation of biodiversity impacts will include:

- Collection of vegetation integrity plots and consultation with BCS regarding SAII thresholds and whether impacts are offsetable.
- Evaluation of candidate species requiring survey in accordance with the BAM
- Targeted field surveys
- Reporting, in the format of a BDAR, including:
    - The calculation of an offset obligation for the project
    - An offset strategy to demonstrate that meeting the obligation is feasible.

6.2.2 Aboriginal heritage

Existing environment

There are a range of landscape features that have higher potential to contain Aboriginal objects. Landforms with increased Aboriginal heritage potential include:

- Areas within 200 m of water
- Areas located within a sand dune system
- Areas located on a ridge top, ridge line or headland
- Areas located within 200 m below or above a cliff face

- Areas within 20m of a cave, rock shelter or cave mouth.

Some of these features (waterways and ridge lines with rocky outcrops, as well as trees in proximity to known modified trees) are relevant to the site.

A search of relevant heritage registers for Aboriginal sites and places provides an indication of the presence of previously recorded sites. A register search only reflects past survey effort, however. A search of the Aboriginal Heritage Information Management System (AHIMS) on 26 February 2021 identified 20 Aboriginal sites within 1km of the Development Footprint, with two sites registered within 150m of the Development Footprint and three sites have restricted locations (refer to B).

Constraints and need for further assessment

Given the presence of Aboriginal objects and potential for additional sites, detailed further field inspection of the proposed development area will be undertaken to accurately characterise the Aboriginal heritage potential of the Development Footprint.

Further investigation of heritage impacts will include:

- An Aboriginal Cultural Heritage Assessment (ACHA) and Aboriginal community consultation in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010) and the *Guide to Investigating Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (Office of Environment and Heritage, 2011).

An ACHA and associated stakeholder consultation process will be completed as part of the EIS. This would include consultation with the relevant LALCs and additional identified Aboriginal stakeholders.

6.2.3 Access and traffic

Existing environment

The main haulage route to the Orana BESS would be via the Mitchell Highway. The proposed BESS would be located on the southern side of Goolma Road approximately 1.2km northeast of Wellington. Goolma Road is a sealed two-lane road (one lane in each direction) that is maintained by Transport for NSW. It is approximately 50km long and generally runs in a north-south direction from Wellington east to Gulgong, approximately 60km northeast. The speed limit along Goolma Road is signposted at 100km/hr but has signposted 50km/h zones in proximity of Wellington and Gulgong. Goolma Road is an approved route for High Mass Limit (HML) B-double vehicles of up to 26m lengths.

The proposed BESS would result in increased traffic on the road network during the construction phase. Activities that would increase the number of vehicles on the road include:

- Construction of the hardstands for the BESS container units
- Delivery of the key infrastructure components, including BESS containers, HVAC units, switch gear rooms, control room, cabling, fencing, sand and fill
- Delivery of site personnel.

Over mass and over size vehicles would be required for transportation of BESS infrastructure during construction, in addition to heavy and light vehicles.
During operation, low numbers of light vehicle movements are anticipated to deliver operational staff and maintenance crews to site. The occasional heavy vehicle may be utilised to deliver replacement infrastructure components to the site.

Constraints and need for further assessment

Intersection upgrades, surface upgrades/sealing and other improvements to existing roads may be required to safely access the site. Investigation of impacts to road assets and road safety would require detailed assessment.

A traffic impact assessment will be undertaken by a specialist in consultation with the road's authorities will be undertaken as part of the EIS to determine if intersection or road upgrades are necessary to meet the best practice guidelines for road and intersection design which are:

- Austroads Guide to Traffic Management Part 12 and TfNSW supplement
- Austroads Guide to Road Design and TfNSW supplements
- TfNSW Guide to Traffic Generating Developments
- Unsealed Roads Manual: Guidelines to Good Practice (2009).

The indicative Infrastructure layout includes a western access track from Goolma Road, however depending on the outcomes of the traffic impact assessment this may be revised. Access to the site via the northern Transgrid lot remains an option however, early discussions with Transgrid suggest the potential safety impacts of construction or operational traffic to the BESS via the existing operational substation site may be too high and preclude this option.

6.2.4 Hazards

An environmental hazard is a thing or situation which can threaten the environment or human health. Hazards may be natural or artificial or result from the interaction between human activity and the natural environment. Hazards relevant to the Project include risks associated with hazardous materials, electromagnetic fields, and fire.

Hazardous materials

The proposed BESS would utilise 2000 containerised LFP battery cells. A BESS which can deliver, or supply more than 30 MW of electrical power is classed as being potentially hazardous under the Resilience and Hazards SEPP.

A Preliminary Hazard Analysis (PHA) would be prepared by a specialist as part of the EIS in accordance with *Hazardous Industry Planning Advisory Paper No. 6 'Hazard Analysis'* (DoP 2011) and *Multi-level Risk Assessment* (DoP 2011). The PHA would detail the potential hazards and controls to mitigate hazards to ensure the fire prevention and protection systems are adequate to protect the BESS. The mitigation and control measures afforded by the proponent and the proposed construction contractor will reduce the likelihood of these events to manageable risk levels and contain the effects on-site.

Electromagnetic fields

Electromagnetic Fields (EMFs) are produced within the vicinity of existing powerlines. The Transgrid substation for Wellington facilitates 330/132 kV powerlines to distribute throughout the Dubbo Regional LGA. The nearest line to the BESS is approximately 85m north of the BESS and has a voltage of 132 kV, three 132kV lines also cross the west of the Development Footprint.

The BESS is proposed to connect to this powerline and would produce additional EMFs within their vicinity. EMF levels associated with BESS are well below the guideline for public exposure and

would not be expected to have any adverse impact on human health. However, there can be perceived impacts for nearby residents.

EMF levels of the proposed BESS infrastructure would be assessed as part of the EIS. Standard design provisions are expected to ensure impacts comply with relevant guidelines together with communication of potential issues as required.

Bush fire

The Development Footprint is not mapped as Bush Fire Prone Land (BFPL; NSW Rural Fire Service). Refer to Figure 6-2. The nearest mapped BFPL is approximately 500m south to southeast. However, as above, there are fire risks associated with BESS facilities and the Development Footprint includes and is connected to remnant woodland and scattered trees over grasslands. Generally, a 20m buffer of infrastructure from woodlands is considered likely to be adequate for a non-habitable APZ. This has been factored into the delineation of the Development Footprint but would be further refined in the EIS.

The EIS assessment will consider the requirements of the NSW RFS Planning for Bush Fire Protection 2019 (PBP) guide (NSW RFS, 2019) and the results of the PHA, in terms of fire management. The emergency protocols set out in the EIS would reflect advice from relevant agencies.

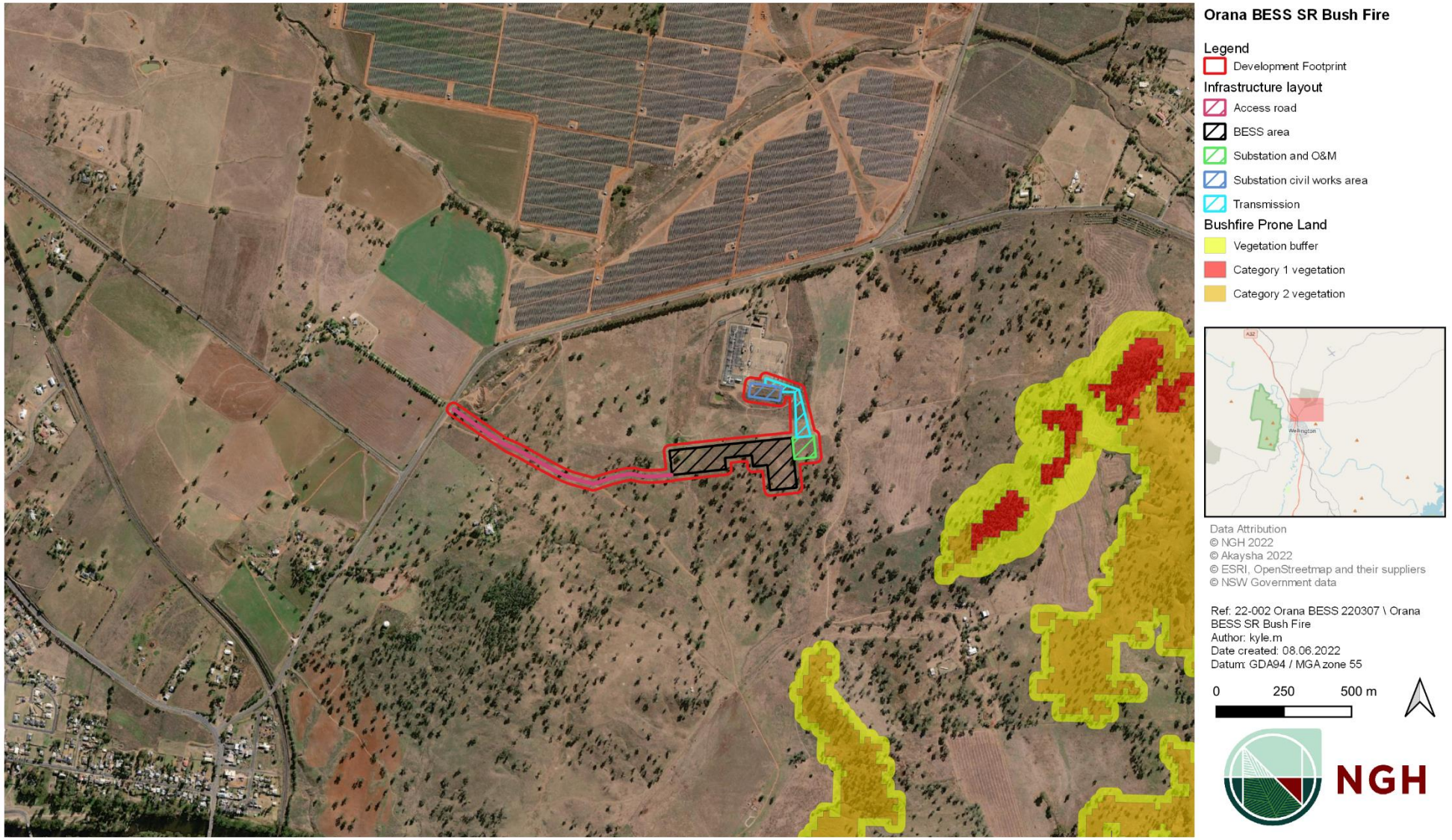

Figure 6-2 Bush fire prone land

6.2.5 Landscape and visual amenity

Visual amenity impacts are assessed in terms of the change in visual character they produce (contrast) and the likely sensitivity of the landscape and receivers to the change. Important factors that elevate the impacts include the potential to:

- Create a dominant or surrounding view
- Create an elevated view or one that is otherwise difficult to screen

Impact on important views, such as the entrance to a town, recreational areas, residential views.

- Contribute to cumulative impacts.

Existing environment

The surrounding landscape is characterised by agricultural land, nature reserves and natural landscapes, and rural villages and suburban areas. Two transmission lines intersect the Development Footprint and Transgrid's 330kV zone substation makes up a significant portion of the local landscape surrounding the Development Footprint.

Aerial imagery and desktop analysis indicate that there are ten residential properties within 1.5km of the BESS component of the Development Footprint. The nearest residential receiver is located 620m south west of the BESS site.

The distance of sensitive receivers (as identified from aerial imagery) to the Development Footprint have been included in Table 6-1. Most of these receivers are located on rural properties outside of the Wellington township. Residential receivers are considered sensitive receivers and would be moderately sensitive to changes in the landscape character, given historical disturbances and seasonal changes in the landscape. Preliminary assessment estimates up to five receivers (R1, R2, R4, R5 and R9, the latter involved) may have views to the Development Footprint (refer to section heading 'Preliminary viewshed analysis for explanation of Figure 6-3).

Feedback, as a result of consultation as outlined in Section 5, has been received to date by R1 raising specific concerns with potential visual impacts. The Proponent has had discussions with this landowner regarding vegetation screening. This vegetation screening would likely be site on R1's land however this would be subject to further studies in the EIS phase of project planning.

No views of the Development Footprint would be visible from any National Park, Nature Reserve or State Forest.

The Project may be visible to commuters along Goolma Road. Generally, these views would be considered of limited duration for passing motorists and would not be considered a high impact in the site's context.

Table 6-1 Residential receivers within 1.5km of the BESS site[2]

Receiver number/ID	Distance from BESS Site (m)	Elevation above sea level (m)	Height of receiver in relation to the site (+ or - m)[3]
R1	620	372	+24
R2	900	340	-8
R3	1167	370	+22
R4	1203	352	+4
R5	1270	356	+8
R6	1287	346	-2
R7	1305	370	+22
R8	1326	352	+4
R9	1352	308	-40
R10	1352	370	+22

Preliminary viewshed analysis

The preliminary viewshed analysis shown in Figure 6-3 considers areas likely and unlikely to receive views of the BESS infrastructure purely on the basis of topography. Screening by vegetation and buildings is not taken into account. This tool helped to define the areas that will be screend by topography and those areas with theoretical visibility. In reality, at distance and with the effects of intervening vegetation and other structures, the visability would be much less that portrayed in this figure.

The preliminary viewshed assumed a worst case scenario that a consistent height of 4m infrastructure would be present across the entire BESS facility.

Figure 6-3 shows that the south western views from the north eastern residents of Wellington would not receive views of the BESS.

Issues for consideration

The facility will be small in area, relatively low in height and appear as an addition to an existing similar facility; the existing adjacent substation. In this way, the contrast with the landscape character is expected to be low.

The facility will be located in relatively low relief terrain at some distance from residential areas and is not located in an area likely to be highly valued for its landscape character. The viewshed

[2] Note the viewshed in Figure 6-3 models the visual impact of the BESS site only, where the primary visual landscape change would be perceived, it does not include the access track as this piece of infrastructure would be at ground level and not inconsistent with the surrounding landscape where property tracks are common.
[3] The highest elevation on the BESS site was selected to represent the height of the site. This elevation is 348m

analysis has confirmed areas that would have no views of the site due to the screening effected of the natural topography. Substantial areas of remnant woodland and scattered trees are located between the Development Footprint and residential areas of Wellington, suggesting that residual views are not likely to be high.

However, there is potential for cumulative visual impacts as the facility contributes to a broader change in land use from pastoral to electricity generating infrastructure.

An assessment of the level of visual impact will be analysed in more detail as part of the EIS process and would include consideration of the effectiveness of mitigation options. It would also include an assessment of impact from the northern transmission connection to the Transgrid 320kV substation when designs are finalised as the current design is indicative with potential for an underground option.

Consultation will be undertaken broadly to understand the local values of the area, including visual characteristics valued by the community. Additional engagement with specific affected residences identified as likely to have a view of BESS infrastructure would be undertaken to identify the nature and significance of impacts and the need for mitigation measures.

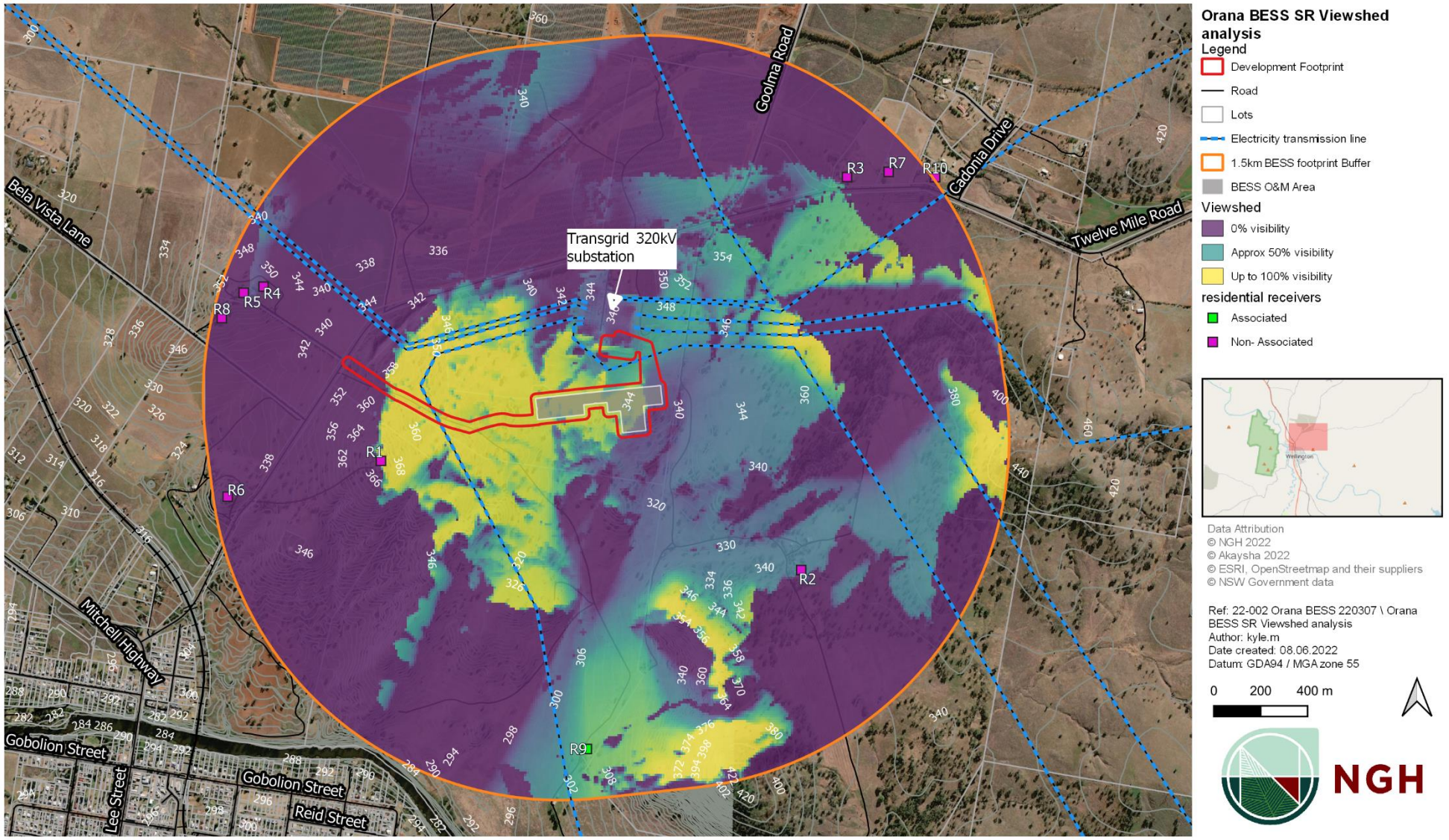

Figure 6-3 Viewshed modelling

6.2.6 Noise and vibration

Existing environment

As set out above, the Development Footprint is located in a rural setting with a generally low relief setting at distance from residential receivers. The main sources of background noise would include traffic noise from Goolma Road and Twelve Mile Road to the north of the site, the existing Transgrid 320kV substation as well as routine agricultural machinery operation. Topography and vegetation occur that would assist to mitigate noise impacts.

Issues for consideration

Construction vehicles and machinery during the construction phase would be most relevant in contributing to noise and vibration impacts. During operation noise would be generated at the BESS site primarily through cooling system noise. This noise would be modelled in detail as a part of the EIS.

A construction and operational noise and vibration assessment would be undertaken as part of the EIS to assess potential noise impacts for affected residents. The report would include an assessment of road traffic noise as a qualitative assessment of offsite traffic movements inclusive of a review of existing and future traffic movements for the Project. The assessment would be undertaken in accordance with the Interim Construction Noise Guideline (Department of Environment & Climate Change, 2009), NSW Noise Policy for Industry (NSW Environment Protection Authority, 2017), Assessing Vibration: A Technical Guideline (Department of Environment and Conservation NSW, 2006) and NSW 'Road Noise Policy' (Department of Environment, Climat Change and Water, 2011).

6.2.7 Non-Aboriginal heritage

Existing environment

A search of the NSW State Heritage Inventory (refer to Appendix BB) on 12 April 2022 for the locality identified the nearest items of heritage significance to be the following local items under the Dubbo Regional LEP:

- Nanima Homestead (listing no. I51)
- Keston Homestead (listing no. I50)
- Narrawa Homestead (listing no. I49); (refer to Figure 6-4).

The nearest item is the Nanima Homestead in which its nearest curtilage is directly south of the proposed site access track and correlates with R1 identified in Section 6.2.5. No non listed items have been identified in the Development Footprint to date.

Issues for consideration

Road access upgrades and vibration from construction traffic are the most likely issues of relevance to historic heritage. While it is likely that direct impacts on historic heritage features can be avoided, further investigation is required as part of the EIS to confirm the values, potential

impacts and mitigation strategies require to protect heritage values and any other non-listed heritage items in the locality.

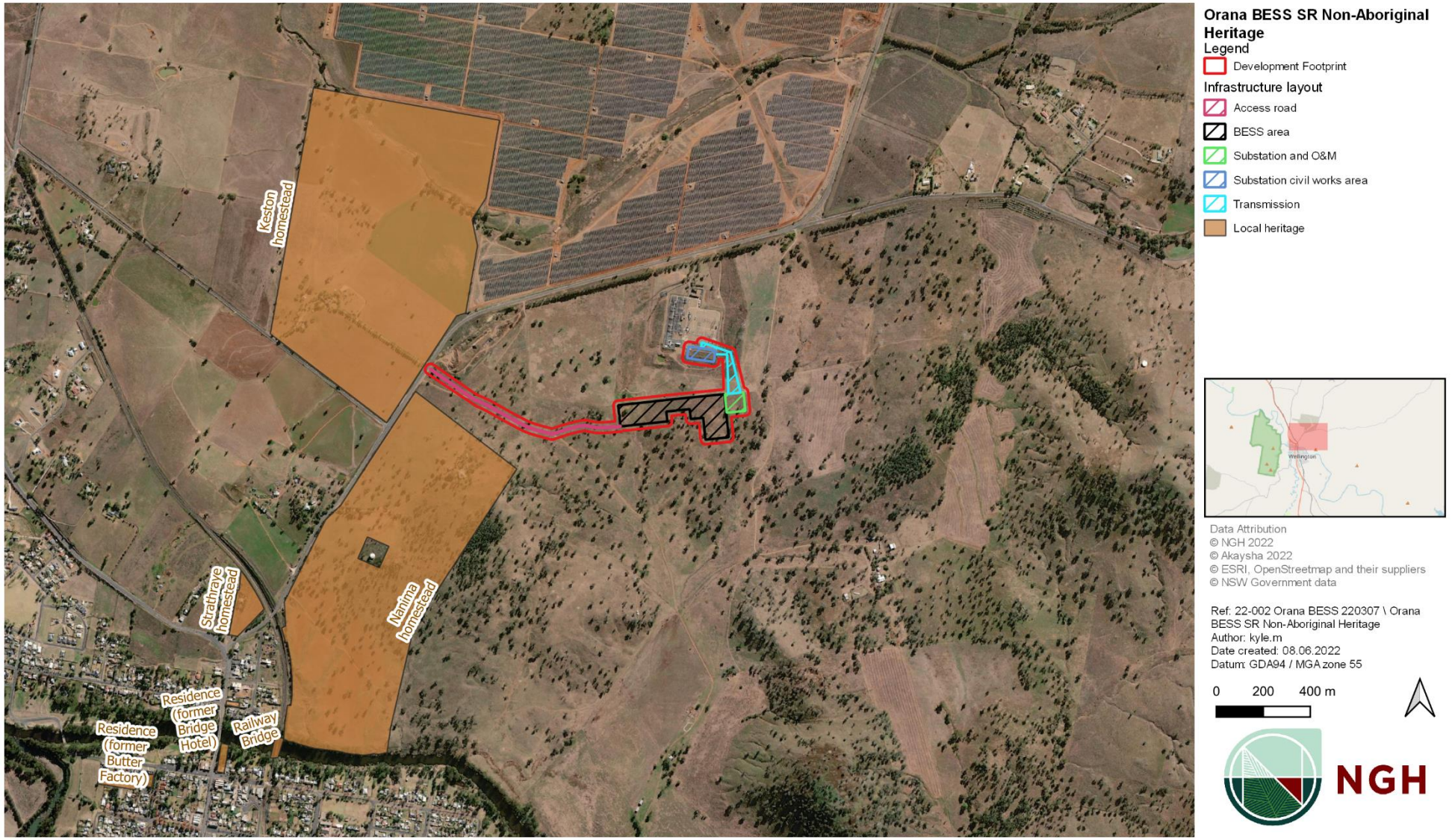

Figure 6-4 Non-Aboriginal heritage

6.2.8 Soils, water resources and flooding

Existing environment

Soils

The Development Footprint is located within the upper slopes of the South Western Slopes Bioregion. This area is comprised of a large range of rock types which are influenced by topographic variation and rainfall gradients which decrease toward the west. The bioregion lies entirely on the Lachlan Ford Belt consisting of a series of folded bodies. This sequence is comprised of Cambrian to Early Carboniferous sedimentary and volcanic rocks. Granite landscapes occur commonly as basins surrounded by steep hills and high blocky plateaus.

The soils at the Development Footprint are consistent with the geology described above. The site is within the Nanima S15504na system (refer to soil report in Appendix BB) characterised by rolling low hills of gentle to moderate incline (5-20%) and local relief of 80-150m with moderate fertility, friable surface soils and moderate to high water-holding capacity. Limitations to the soil landscape include steep slopes with rock outcrops, very high erosion hazard under cultivation. The soil type is expected to be alluvial and may have poor drainage in low-lying areas and poor trafficability when wet.

No acid sulphate soils are in the vicinity of the region.

The Development Footprint is mapped within the Land and Soil Capability (LSC) Assessment Scheme state-wide mapping as 3 ‘High capability land’ and 6 ‘Low capability land’. Refer to Figure 6-5.

The Development Footprint is mapped as having a section of Biophysical Strategic Agricultural Land (BSAL), which is land identified to have high quality soil and water resources capable of sustaining high levels of productivity. BSAL land intersects the Development Footprint only at the eastern extent of the proposed access road and through the Transgrid lot where the indicative transmission line is proposed (refer to Figure 6-5). There is a small section of State Significant Agricultural Land (SSAL) in the west of the site alongside Goolma Road and associated with BSAL and Class 3 land as noted below (refer to B).

Class 3 land has limitations that must be managed to prevent soil and land degradation. However, the limitations can be overcome by a range of widely available and readily implemented land management practices (OEH, 2012). Class 6 land has very severe limitations for a wide range of land uses and few management practices are available to overcome these limitations. Land generally is suitable only for grazing with limitations and is not suitable for cultivation (OEH, 2012).

A search of the Section 58 of the *Contaminated Land Management Act 1997* (CLM Act) indicated that the suburbs of Wellington and Wuuluman has not been registered on the Record of Notices. There are six notified sites under section 60 of the CLM Act with regards to the Duty to Report Contamination. The closest section 60 contaminated site is Woolworths petrol located 2.3km southwest of the Development Footprint (refer to Appendix BB).

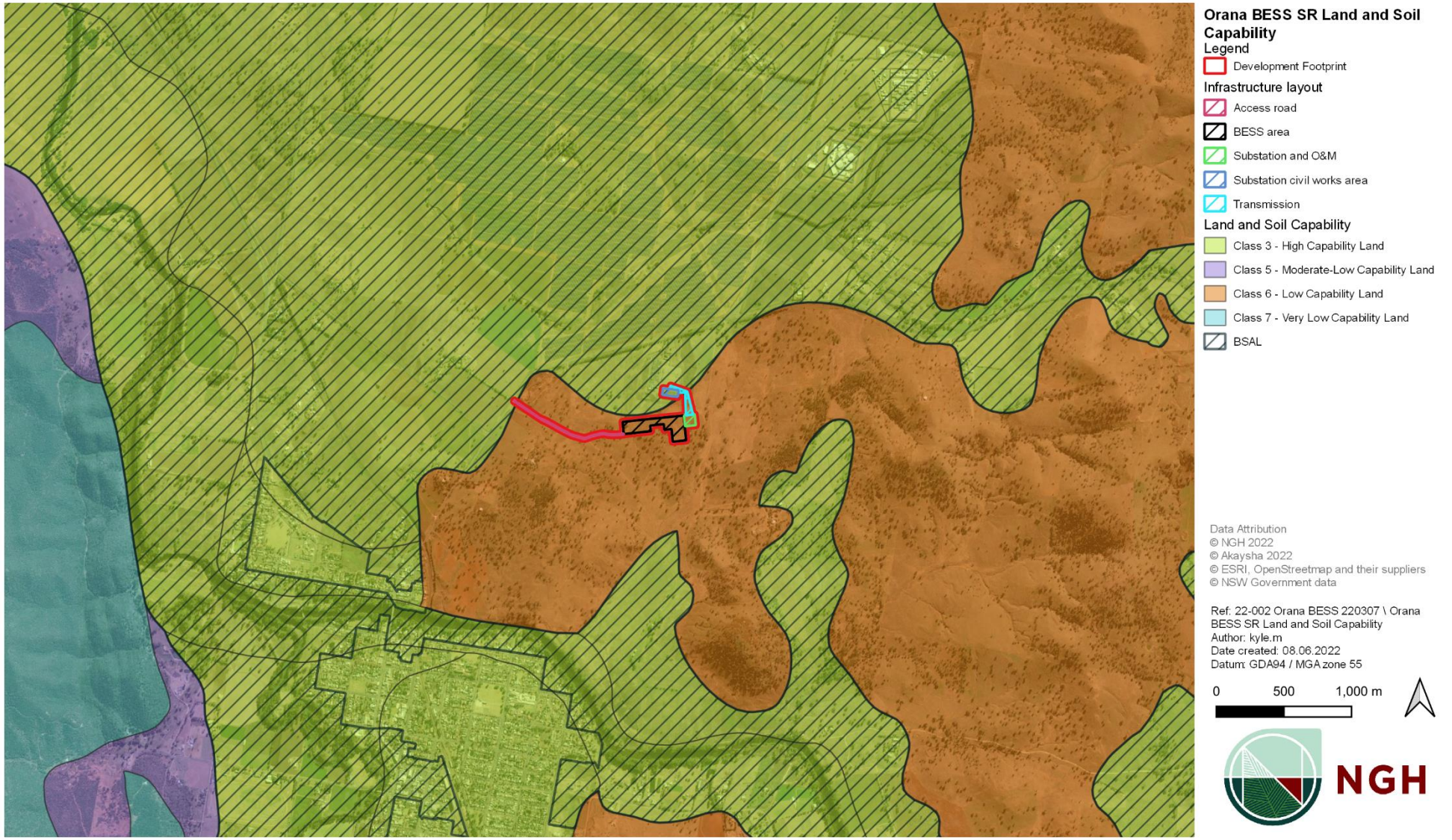

Figure 6-5 Land and soil capability class

Water resources and flooding

There are unnamed waterways that traverse the Development Footprint lot as shown in Figure 6-6. The waterways are ephemeral 1st (Strahler) streams and flows south to drain into Macquarie River, which is a major 9th order stream approximately 1.7km southwest of the site.

The Dubbo Regional LEP does not identify the Development Footprint within its flood planning area (refer to Figure 6-6). Other than Macquarie River, the Development Footprint is not within the vicinity of any waterways defined as 'key fish habitat' which typically encompass Strahler stream orders greater than three.

The Development Footprint is within land mapped as having groundwater vulnerability as per the Dubbo Regional LEP (refer to Appendix BB). There is one bore located within the Development Footprint, currently used for cattle grazing purposes (refer to Figure 6-6).

Issues for consideration

Soils

Consideration of best practice soil and erosion impact mitigation would be included within the EIS. This will include commitments to ensure the site is rehabilitated for a suitable alternative land use at the end of the project's life.

Agricultural properties can contain buried contaminants and farming chemicals may have been applied on the land in the past. This will be investigated during the EIS stage.

Water resources and flooding

Best practice measures will be used to management impacts on waterways and local hydrology. Waterway buffers will be included to protect waterways where required and adherence to Guidelines for Controlled Activities on Waterfront Land (DPI, 2012) would guide the management and rehabilitation of impacts which cannot be avoided.

Figure 6-6 Hydrology

6.2.9 Social and economic impacts

This preliminary social impact analysis includes social impact scoping and a high-level overview of social conditions. It is intended to provide initial insight into the Project's social context and its likely social impacts. Further in-depth assessment will be undertaken as part of the Social Impact Assessment within the EIS phase.

This has been a desk-top analysis, and it has been informed by project information provided by the proponent, engagement findings to date, internet searches of available information relating to the project and the broader socio-economic context, comparative studies, and data obtained from publicly available government websites (e.g., the Australian Bureau of Statistics). All population and demographic data presented here is from the 2016 Census (ABS, 2016), unless otherwise stated.

This analysis has been undertaken in line with DPE's *Social Impact Assessment Guidelines* (DPIE, 2021) and accompanying *Technical Supplement* (DPIE, 2021). As such, potential impacts and opportunities have been evaluated across the following eight domains: way of life, community, accessibility, culture, health and wellbeing, surroundings, livelihoods and decision-making systems.

In this assessment, direct, indirect and cumulative impacts have been considered. Through this process, judgements have been made regarding the type and level of further assessment that will be undertaken within the Social Impact Assessment (as part of the EIS) for each potential impact and opportunity. Key factors that have informed this judgement include the extent of cumulative impact and the degree of material social impact.

Existing environment

The Development Footprint is located approximately 1.9km to the north of Wellington, 43km southeast of Dubbo, and 84km northwest of Orange within the Dubbo Regional Council local government area (LGA), on the traditional lands of the Wiradjuri Nation (NSW Aboriginal Housing Office , 2022). The Dubbo Regional LGA covers an area of 7,536km^2 in the Orana region on the central western plains of NSW.

Renewable energy generation is an emerging sector within the broader region, and the Development Footprint is located within the Central-West Orana Renewable Energy Zone, which was formally declared in November 2021.

The total population of Dubbo Regional LGA in 2020 was estimated to be 54,044 people, with a median age of 37 years (ABS, 2021). Located approximately 392km north-west of Sydney at the intersection of the Newell, Mitchell, and Golden highways, Dubbo is the regional centre of the LGA, and the largest population centre in the Orana region. Other towns and localities within the LGA include Wellington, Maryvale, Stuart Town, and Brocklehurst.

The social locality for the Project is the Dubbo Regional LGA, with a particular focus on the city of Wellington. Wellington is located 362km northwest of Sydney on the Mitchell Highway and the Main Western Railway, at the junction of the Macquarie and Bell Rivers. Wellington acts as a transport hub and commercial centre for the surrounding districts and is the centre of rich agricultural land.

In 2016, the urban centre and locality of Wellington, including the northern suburb of Montefiores, had an estimated population of 4,519 people with a median age of 44 years (ABS, 2016a). Aboriginal and Torres Strait Islander people made up 26.1% of the population.

The main industries in the Dubbo Regional LGA at the time of the 2016 Census were health, retail, and education, and other key industries included government services, tourism, manufacturing, construction, agriculture, business services and transport (Dubbo Regional Council, 2019). The largest industry of employment in both the LGA and Wellington was health care and social assistance (16.5% and 19.2% respectively). In 2016, median weekly household incomes in the Dubbo Regional LGA were lower than the state average, and considerably lower in Wellington, which also had a significantly higher unemployment rate.

The median rent in Wellington over the quarter to 31 December 2021 was $320, an increase of 25.5% from the same period in 2020 (Tenants' Union of NSW, 2022), while in the Dubbo Regional LGA, the median rent was $380, an annual increase of 8.6% (FACS, 2022). The rental vacancy rate for Wellington over the past five years has been highly variable, and in February 2022 was 3.0% (27 properties) up from a low of 0.7% in May 2021 (six properties) (SQM Research, 2022a). However, in the Dubbo region, the vacancy rate has been below 2.5% since 2018 (indicating a tight rental market), and in February 2022 the rate was 0.7% (41 properties) (SQM Research, 2022b). Summary demographic indicators are presented in Table 6-2 below.

Table 6-2 Key demographic and industry data within the Study Area and NSW (ABS, 2016; unless otherwise indicated)

Indicator	Wellington (UCL)	Dubbo Region (LGA)	NSW (state)
Population (no.)	4,519	54,044*	8,167,532*
Median age (years)	44	37*	38*
Aboriginal and Torres Strait Islander people (%)	26.1	15.5	2.9
Top three industries of employment (%)	Correctional and detention services (5.7) Aged care residential services (5.4) Local government administration (5.1)	Hospitals (4.5) Primary education (2.8) Other social assistance services (2.5)	Hospitals (3.5) Cafes and restaurants (2.4) Supermarket and grocery stores (2.2)
Top three occupations (%)	Community and personal service workers (20.9) Labourers (14.9) Technicians and trades workers (13.8)	Professionals (17.5) Technicians and trades workers (14.3) Clerical and administrative workers (13.0)	Professionals (23.6) Clerical and administrative workers (13.8) Managers (13.5)
Median weekly household income ($)	807	1,272	1,486

Indicator	Wellington (UCL)	Dubbo Region (LGA)	NSW (state)
Unemployment rate (%)	12.4	5.9	6.3
SEIFA**	2	5	n/a

* 2020 data (ABS, 2021)
**SEIFA Index of Relative Socio-economic Advantage and Disadvantage (ABS, 2018), decile (1=greater relative disadvantage to 10=greater relative advantage

Social impacts and need for further assessment

A preliminary social impact scoping exercise has been undertaken to gain initial insight into the likely social impacts and benefits of this Project. Social impact scoping involved an initial identification and preliminary assessment of the likely social impacts of the project, using the Social Impact Scoping Worksheet (see Appendix DD). These potential impacts were informed by Project information, engagement findings to date, other technical assessments included in this report, a desktop review of the social locality, and other renewable energy projects both in the surrounding region and more broadly across NSW.

It is likely that key potential positive and negative impacts will primarily occur during the construction stage of the Project. Positive impacts include potential benefits for the local workforce, services, supply chains and accommodation providers through directly generating employment and an increase in economic activity. Feedback from consultation with Council undertaken to date emphasised a preference for local employment opportunities, with higher-value jobs created and retained within the local community. Negative impacts include potential pressures on local social and community infrastructure, changes to the composition of the local community and on temporary accommodation resulting from an influx of non-resident construction workers. Intensive construction activity at the Development Footprint is also likely to generate traffic, access, noise, health and wellbeing, and way of life impacts for nearby residents and local communities. There are also potential impacts on community cohesion, culture and on visual amenity across all Project stages, and possible cumulative impacts, as discussed below in Section 6.2.10. During consultation Dubbo Regional Council highlighted the need to thoroughly assess cumulative impacts given the expected scale of project activity in the Central-West Orana REZ (see Table 5-1 of Section 5.2).

A summary of findings from this preliminary social impact analysis is included in Appendix D, which presents the key social impacts and benefits that will be assessed in more detail within the Social Impact Assessment (SIA) in the EIS phase. The SIA will allow for a more comprehensive understanding of the potential social impacts and benefits of the project and will be undertaken as per the *Social Impact Assessment Guideline for State Significant Projects* (DPIE, 2021).

The SIA will also examine any other social issues perceived by the community to be of concern that are raised during further project engagement. Further project engagement to be undertaken during the EIS phase is outlined in Section 5.

Cumulative impacts of other proposed developments in the area will also be considered. Where significant impacts are found, mitigation and enhancement measures will be developed, and expected residual impacts post-application of these measures will be described.

6.2.10 Cumulative impacts

Cumulative impacts are the additional impacts arising from further planned or foreseeable future developments, combined with the impacts of the proposal on the existing environment. NSW Government's *Cumulative Impact Assessment Guidelines for State Significant Projects* (DPIE 2021) sets out the approach for addressing cumulative impacts.

Major Projects undergoing assessment or determined since 1 January 2020 are listed on the Major Projects Register within the Wellington area and their current status and distance from the site are set out below.

Table 6-3 Major Projects within the locality

Project	Status	Distance to Development Footprint
Wellington South Battery Energy Storage System	Not yet approved	300m east
Uungula Wind Farm	Not yet approved	18km east
Wellington North Solar Farm	Construction due to commence July 2022	4.5km north
Wellington Solar Farm	Construction completed	600m north

Potential cumulative impacts of overlapping construction periods are primarily associated with traffic impacts, pressures on local facilities, goods and services and vegetation clearing.

The Mitchell Highway would be used as the major haulage routes for major Projects in the Orana region including Dubbo. Cumulative traffic impacts on the haulage route would be assessed for impacts from major Projects.

Searches for nearby Projects was limited to the Major Projects Register as these Projects are generally of larger scale than Projects captured under council development applications. The search indicated that three major Projects are located within 5km of the Project. Based on these nearby projects, there may be cumulative impacts between the Project and these major Projects.

Potential cumulative impacts would be assessed within the EIS in line with the *Cumulative Impact Assessment Guidelines for State Significant Projects* (NSW Department of Planning, Industry and Environment, 2021).

The timing of works associated with the proposed developments nearby would be monitored throughout the EIS stage to ensure appropriate mitigation measures are implemented, particularly in relation to construction traffic and pressure on local services and facilities within Wellington.

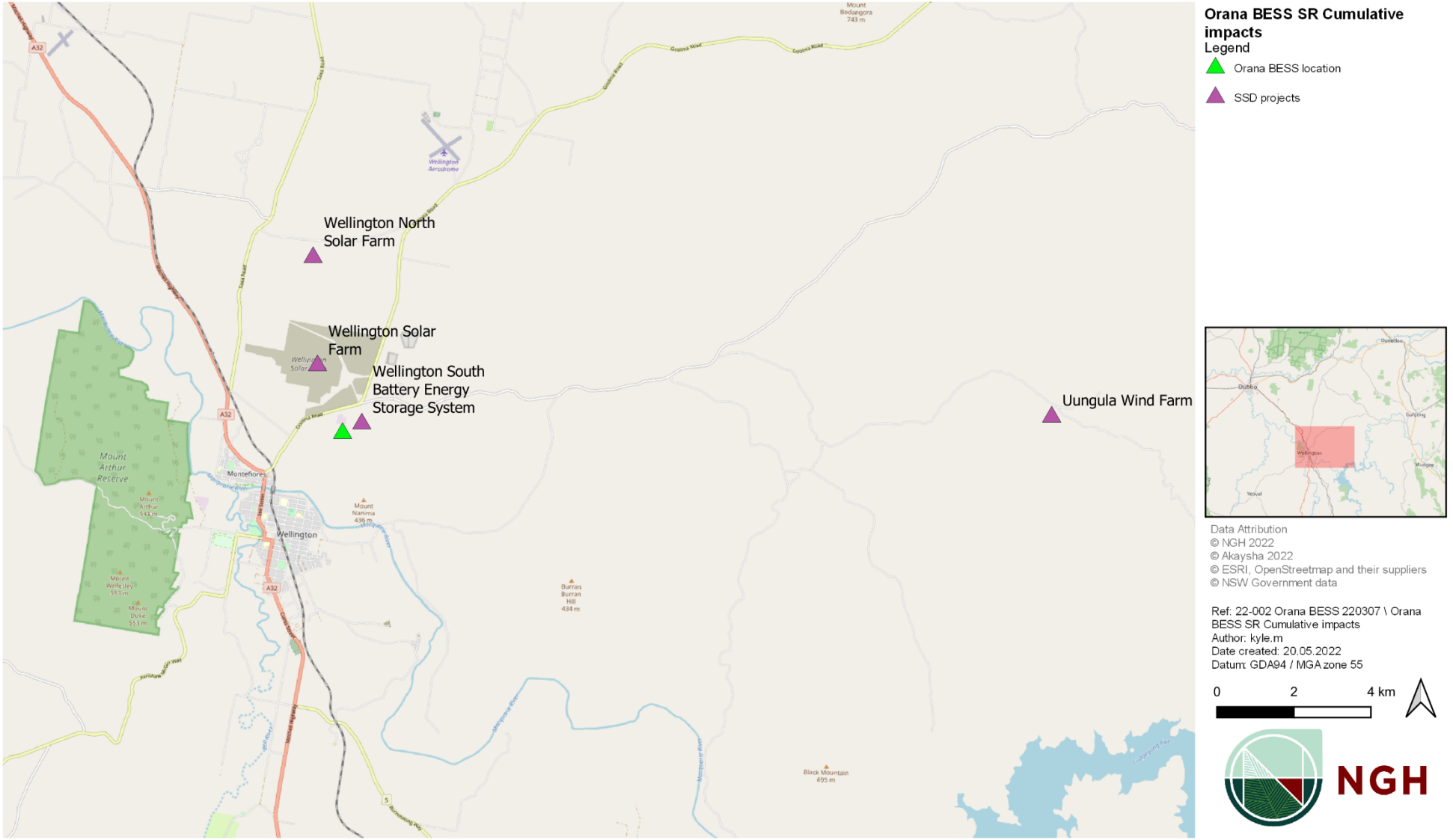

Figure 6-7 Cumulative impact map

6.3 Matters not requiring further assessment

6.3.1 Land use compatibility

Existing environment

The land use surrounding the Development Footprint includes (refer to Figure 6-8):

- Transgrid's 330kV zone substation and transmission easements
- Wellington Solar farm (note this area is classified as modified pasture and farm buildings as it was constructed after the 2014 NSW land use layer was developed)
- Primary production (including grazing and cropping)
- Large lot residential
- A quarry site

The Development Footprint is currently zoned as Infrastructure (SP2). Historically the site has been utilised for grazing on modified pastures.

The Development Footprint is mapped within the Land and Soil Capability (LSC) Assessment Scheme state-wide mapping as '6 Low Capability Land' which has "very severe limitations" (LSC is discussed further in Section 6.2.8.

There are no areas of Crown Land within the Development Footprint. The closest Crown Land reserve is a public recreation space alongside Macquarie River, defined as a Crown Reserve at Lot 7015 DP 1020744 (reserve number: 7218) approximately 1.9km south of the Development Footprint (refer to Appendix BB).

Preliminary search of the Minview database indicates that the Project land lies within the exploration and mining title (EL6178, Mining Act) of Modeling Resources Pty Ltd. The title expires on January 19, 2027.

Justification for not requiring further consideration

The proposal is highly appropriate to the REZ boundary, the current land zoning and existing infrastructure. The land is currently utilised for agricultural production however, the capability of the land is considered Class 6 Low Capability Land with very severe limitations.

Consultation with mineral lease holders would be undertaken as part of the EIS as well as assessment of noise and visual impacts on adjacent receivers. However, no further consideration of land use compatibility, including consideration of the loss of agricultural land or Land Use Conflict Risk Assessment is considered warranted.

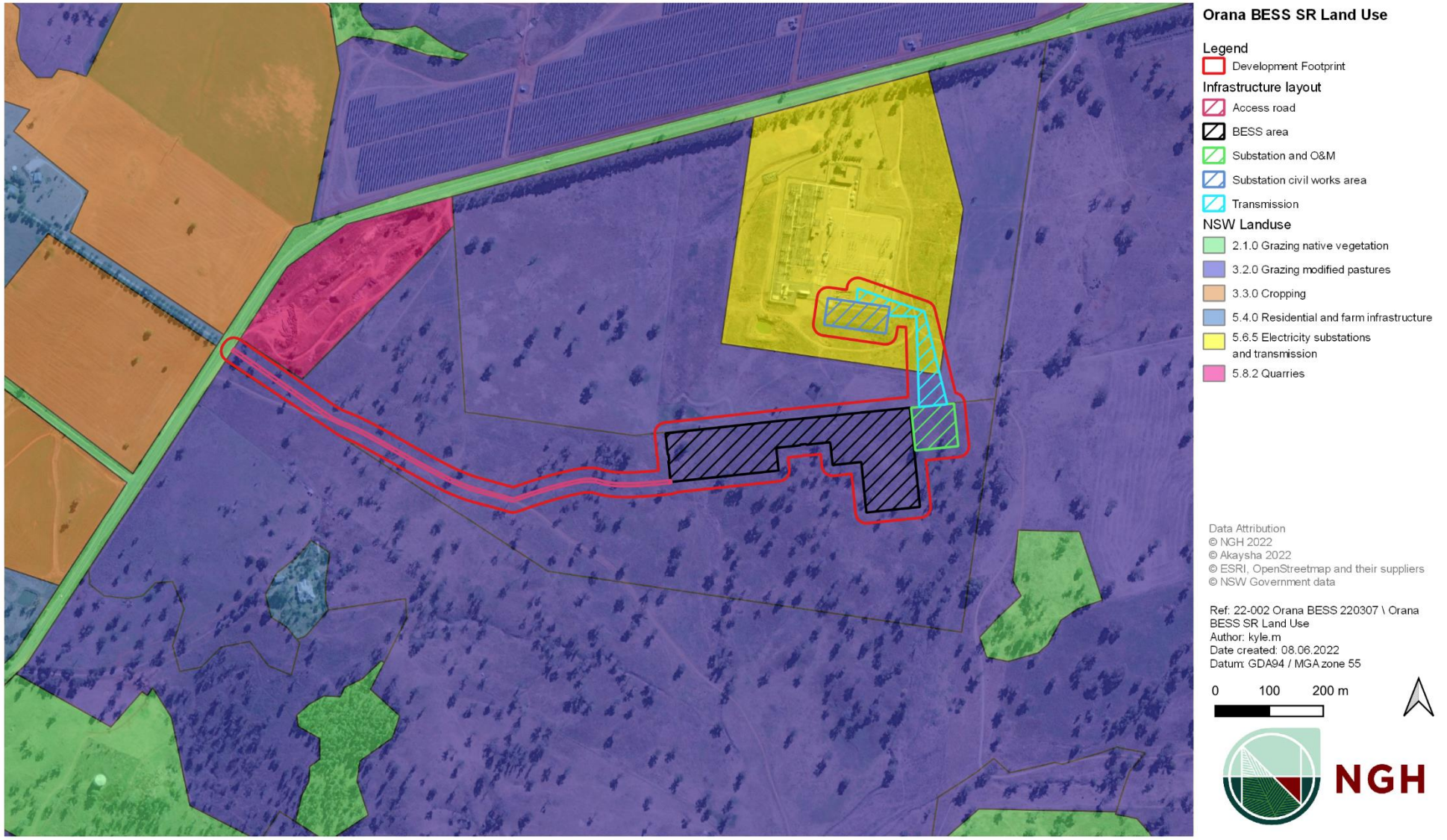

Figure 6-8 Land use

7. Conclusion

This Scoping Report has outlined and established the planning and general environmental context of the Project. The Project would be assessed under Part 4 of the EP&A Act and classed as SSD under the Planning Systems SEPP.

The Project is located within a REZ (Central-West Orana). This area has been identified as having significant national and state-wide potential to produce renewable energy. By virtue of its location, it is well placed to support renewable energy projects.

The Development Footprint is zoned SP2 (Infrastructure) under the Dubbo Regional Local Environmental Plan (LEP; 2022) and located adjacent to the existing Transgrid substation. The location is considered highly appropriate for the BESS in this context. The location also avoids the need for third-party easements and long transmission lines.

In addition to providing an additional income stream to associated landholder, the Project is expected to create an additional 100-150 jobs during construction. The type of workers required aligns well with the local skill set, including primarily civil works.

The Scoping Report has categorised the environmental impacts requiring further assessment in the EIS as:

Matters requiring detailed assessment	
• Terrestrial flora and fauna	• Health and wellbeing
• Visual	• Aboriginal heritage
• Noise and vibration	• Historic heritage
• Traffic	• Hazardous materials
Matters requiring standard assessment	
• Bushfire	• Hydrology, water quantity
• EMF	• Land stability
Matters not requiring further assessment	
• Land use compatibility	

Given the site's zoning, colocation with similar electricity generating infrastructure and the severe restrictions of the existing agricultural land use, Land use compatibility is not considered to warrant further assessment in the EIS.

The SEARs are now requested to guide the preparation of the detailed assessment within the EIS.

Given the presence of EPBC listed White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland on site, a referral to the Federal Department of Agriculture, Water and Environment (DAWE) will be lodged to obtain Supplementary SEARs and facilitate assessment under the Bilateral Agreement with the Commonwealth.

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Appendix A Scoping summary table

Group	Matter	Level of assessment	CIA[4]	Engagement	Scoping report reference	Relevant government plans, policies and guidelines
Biodiversity	Terrestrial flora and fauna	Detailed	Yes	General	Section 6.2.1	• NSW Biosecurity Strategy 2013-2021 • Biodiversity Assessment Method (BAM) (NSW Government, 2020).
Amenity	Visual	Detailed	Yes	Specific	Section 6.2.5	• Refer to scoping report.
Amenity	Noise and vibration	Detailed	Yes	General	Section 6.2.6	• Construction Noise Strategy (Transport for NSW, 2012) • Interim Construction Noise Guideline (Department of Environment, Climate Change and Water, 2009) • NSW Industrial Noise Policy (Environment Protection Authority, 2000) • NSW Road Noise Policy (Environment Protection Authority, 2011) • Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006) • German Standard DIN 4150-3: Structural Vibration – Effects of Vibration on Structures

[4] Cumulative Impact Assessment: CIA

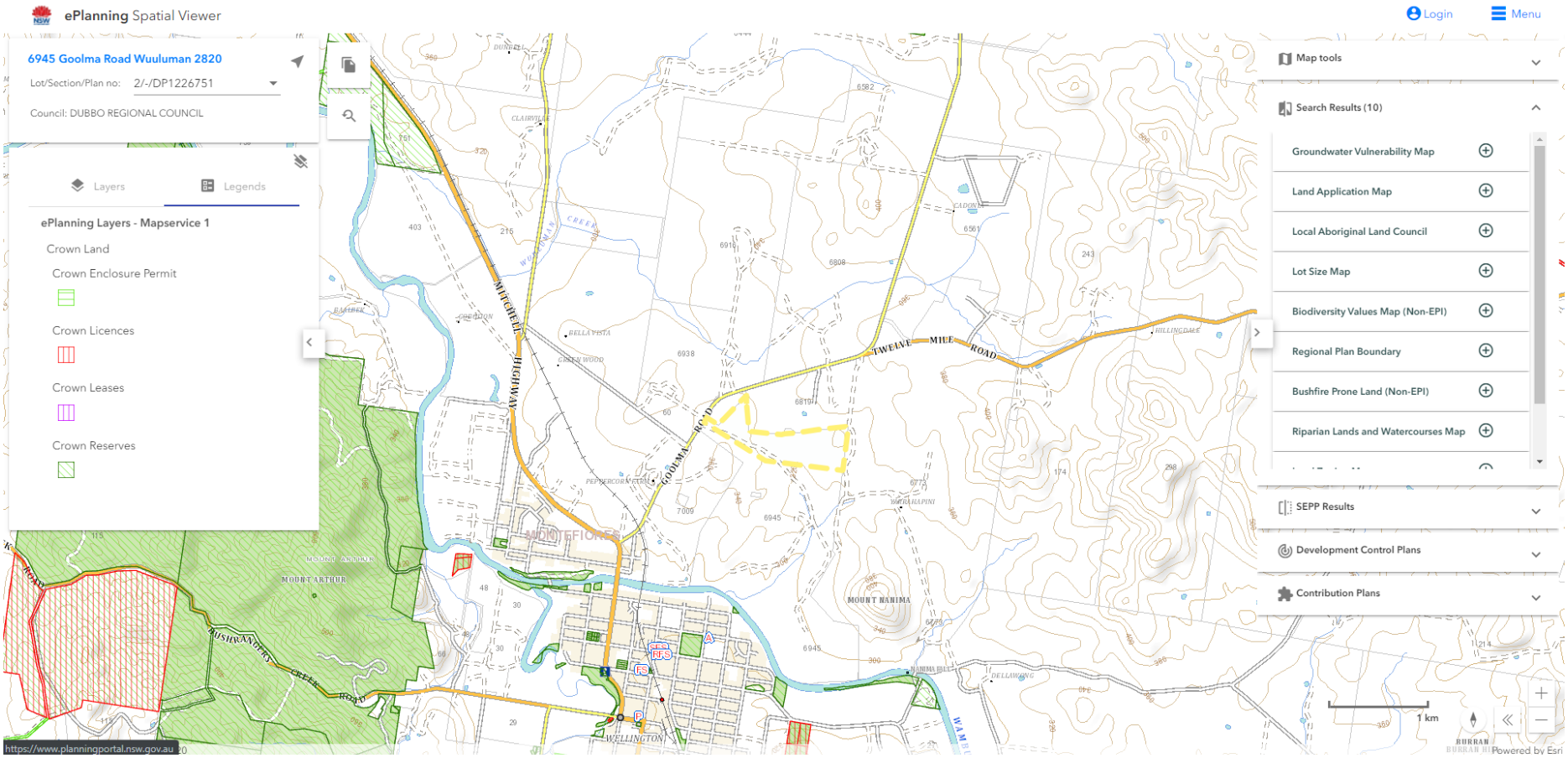
Group	Matter	Level of assessment	CIA[4]	Engagement	Scoping report reference	Relevant government plans, policies and guidelines
						• Environmental Noise Management Assessing Vibration: A Technical Guideline (Department of Environment and Conservation, 2006).
Land	Land use compatibility	None	No	General	Section 6.3.1	• Agricultural Land Use Mapping Resources in NSW • The Land and Soil Capability Scheme (Office of Environment and Heritage, 2012). • LEP land zoning
Access	Traffic	Detailed	Yes	Specific	Section 6.2.3	• Austroads Guidelines for Road Design (Austroads) • Austroads Guidelines for Traffic Management (Austroads) • Guide to Traffic Management – Part 3 Traffic Studies and Analysis (Austroads, 2013).
Social	Health and wellbeing	Detailed	Yes	Specific	Section 6.2.9	• Social Impact Assessment Guidelines for State Significant Projects (Department of Planning Industry and Environment, 2021) • Undertaking Engagement Guideline for State Significant Projects (Department of Planning Industry and Environment, 2021).

Group	Matter	Level of assessment	CIA[4]	Engagement	Scoping report reference	Relevant government plans, policies and guidelines
Heritage	Aboriginal	Detailed	No	Specific	Section 6.2.2	• Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW 2011 • Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 • Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW 2010.
Heritage	Historic	Detailed	No	Specific	Section 6.2.7	• Commonwealth EPBC 1.1 Significant Impact Guidelines – Matters of National Environmental Significance (Commonwealth of Australia, 2013) • Commonwealth EPBC 1.2 Significant Impact Guidelines – Actions on, or impacting upon, Commonwealth Land and Actions by Commonwealth Agencies (Commonwealth of Australia, 2013)
Hazards and risks	Bushfire	Standard	No	General	Section 6.2.4	• Planning for Bushfire Protection (NSW Rural Fire Service, 2019).
Hazards and risks	EMF	Standard	No	General	Section 6.2.4	• NSW Large-scale solar energy guideline for State Significant Development (Department of Planning and Environment, 2018).
Hazards and risks	Hazardous materials	Detailed	Yes	General	Section 6.2.4	• Hazardous Industry Planning Advisory Paper No. 6 ‘Hazard Analysis’ (DoP 2011)

Group	Matter	Level of assessment	CIA[4]	Engagement	Scoping report reference	Relevant government plans, policies and guidelines
						• Multi-level Risk Assessment (DoP 2011).
Water	Hydrology, water quantity	Standard	No	General	Section 6.2.8	• Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG 2018) • NSW Water and River Flow Objectives (NSW Government, 2006) • Floodplain Risk Management Guidelines (Department of Environment and Climate Change, 2016) • Floodplain Development Manual: The management of flood liable land (NSW Government, 2005) • Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) • Managing Urban Stormwater: Soils and Construction Volume 2 (Department of Environment and Climate Change, 2008) • NSW State groundwater dependent ecosystem policy (Department of Land, Water and Climate, 2002). • NSW Government's Floodplain Development Manual (2005).

Group	Matter	Level of assessment	CIA[4]	Engagement	Scoping report reference	Relevant government plans, policies and guidelines
Land	Stability	Standard	No	General	Section 6.2.8	• Acid Sulphate Soils Assessment Guidelines (Department of Planning, 2008) • The Land and Soil Capability Scheme (Office of Environment and Heritage, 2012) • Soil and Land Survey Handbooks • Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) • Managing Urban Stormwater: Soils and Construction Volume 2 (Department of Environment and Climate Change, 2008) • Agricultural Land Use Mapping Resources in NSW.

Appendix B Database searches


ePlanning Spatial Viewer
Login
Menu
6945 Goolma Road Wuluman 2820
Lot/Section/Plan no: 2/-/DP1226751
Council: DUBBO REGIONAL COUNCIL
Layers
Legends
ePlanning Layers - Mapservice 1
Crown Land
Crown Enclosure Permit
Crown Licences
Crown Leases
Crown Reserves
Map tools
Search Results (10)
Groundwater Vulnerability Map
Land Application Map
Local Aboriginal Land Council
Lot Size Map
Biodiversity Values Map (Non-EPI)
Regional Plan Boundary
Bushfire Prone Land (Non-EPI)
Riparian Lands and Watercourses Map
SEPP Results
Development Control Plans
Contribution Plans
MITCHELL HIGHWAY
GOOLMA ROAD
TWELVE MILE ROAD
MOUNT ARTHUR
MOUNT NAMIMA
WELLINGTON
1 km
https://www.planningportal.nsw.gov.au
Powered by Esri

Public registers

+ POEO Public Register
− Contaminated land record of notices
  - About the record of notices
  - List of notified sites
  - Tips for searching
  - Disclaimer
- Dangerous goods licences
- Pesticide licences
- Radiation licences

Home Public registers Contaminated land record of notices

Search results

Your search for: LGA: DUBBO REGIONAL COUNCIL

Matched 11 notices relating to 2 sites.

Search Again Refine Search

Suburb	Address	Site Name	Notices related to this site
DUBBO	Cnr Brisbane Street and Cobra STREET	Caltex Service Station, Dubbo	2 current and 6 former
DUBBO	165 Brisbane STREET	Former Ambulance Station	3 former

Page 1 of 1

10 March 2021

AHIMS Web Services (AWS)
Search Result

Purchase Order/Reference : 20-739

Client Service ID : 571678

nghenvironmental - Surry Hills

18/21 Mary St
Surry Hills New South Wales 2010

Attention: Martin Kim

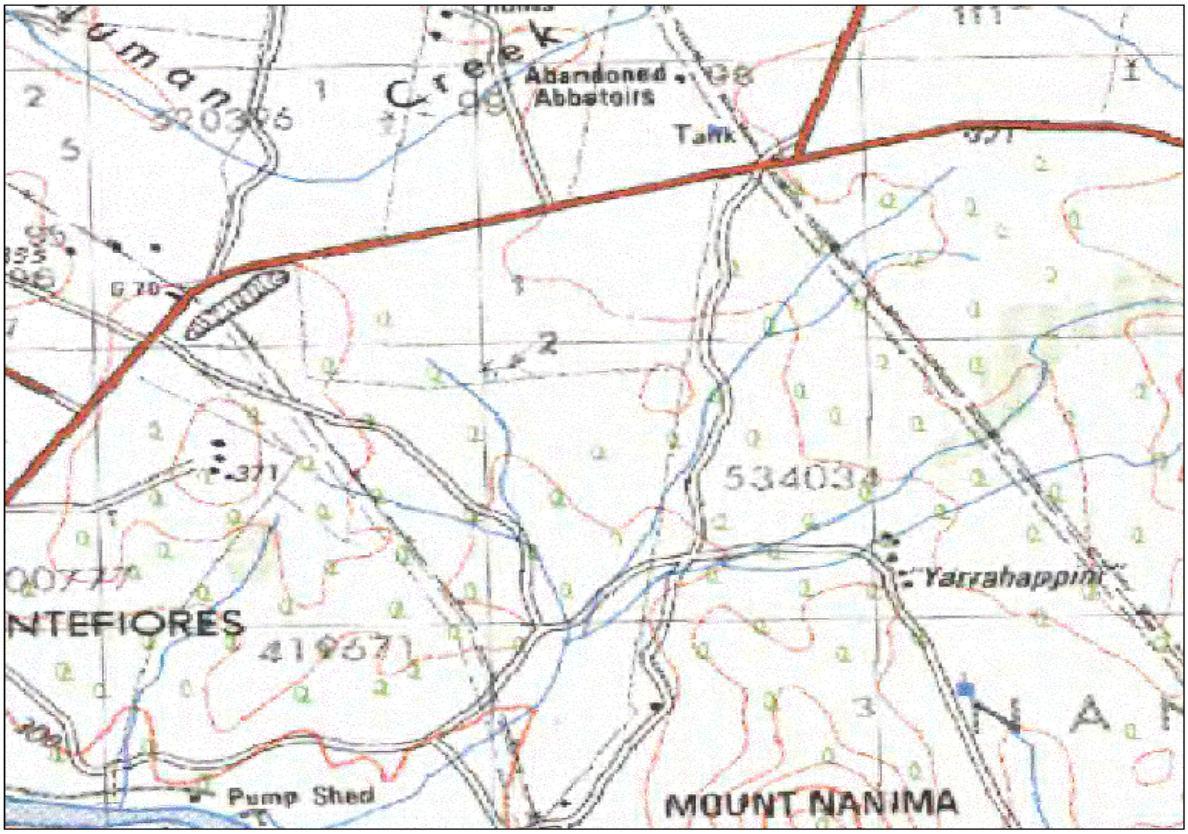
Email: martin.k@nghenvironmental.com.au

Date: 26 February 2021

Dear Sir or Madam:

AHIMS Web Service search for the following area at Lat, Long From : -32.5343, 148.9594 - Lat, Long To : -32.5291, 148.9677 with a Buffer of 1000 meters, conducted by Martin Kim on 26 February 2021.

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



A search of the Office of the Environment and Heritage AHIMS Web Services (Aboriginal Heritage Information Management System) has shown that:

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

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

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

Important information about your AHIMS search

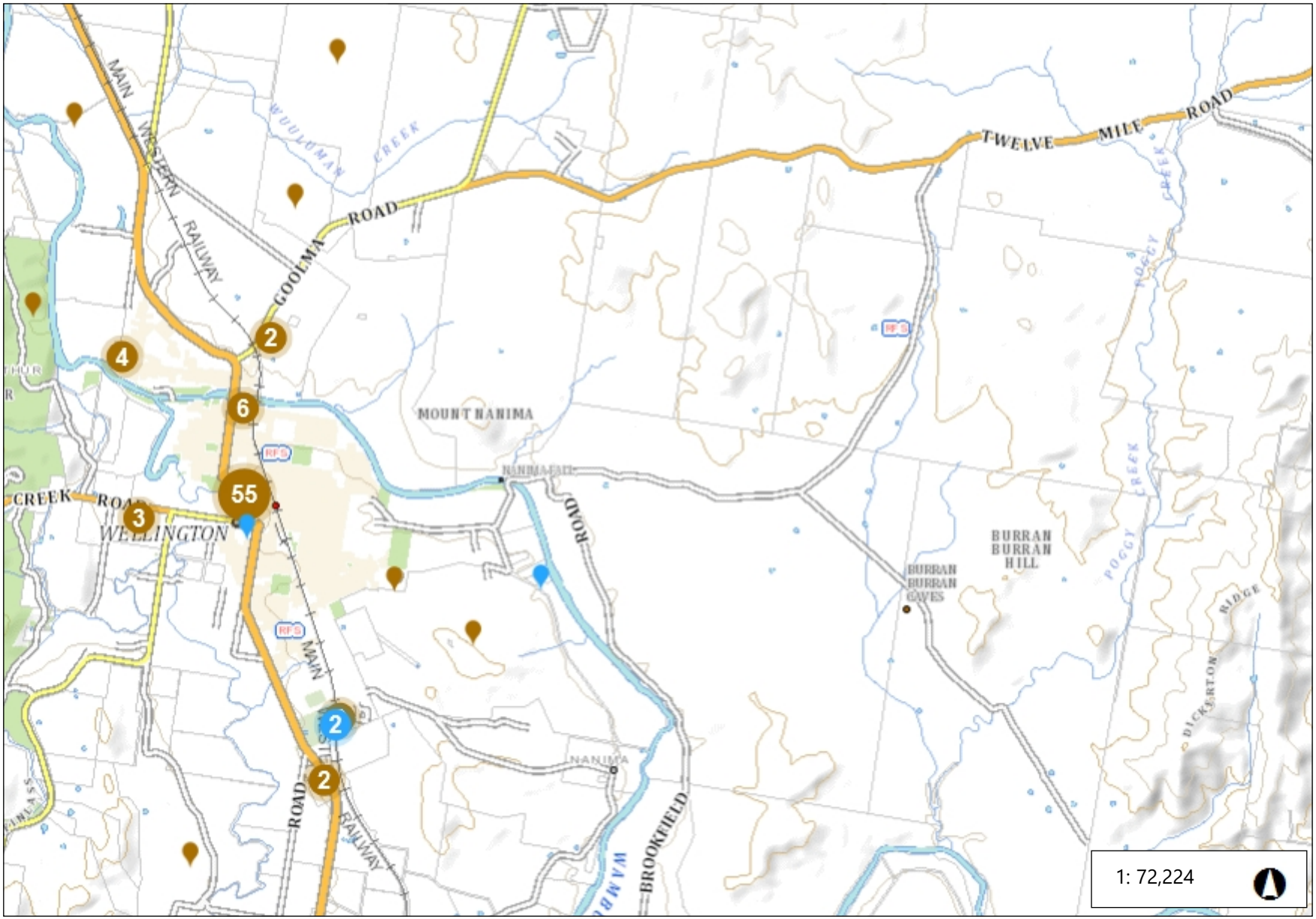
- The information derived from the AHIMS search is only to be used for the purpose for which it was requested. It is not be made available to the public.
- AHIMS records information about Aboriginal sites that have been provided to Office of Environment and Heritage and Aboriginal places that have been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

3 Marist Place, Parramatta NSW 2150
Locked Bag 5020 Parramatta NSW 2220
Tel: (02) 9585 6380 Fax: (02) 9873 8599

ABN 30 841 387 271
Email: ahims@environment.nsw.gov.au
Web: www.environment.nsw.gov.au

NSW GOVERNMENT | Heritage NSW

Orana BESS SHR



Legend

- Local Environmental Plan
  - Cluster (label denotes number)
- State Heritage Register
  - Cluster (label denotes number)
- Aboriginal Place
  - Cluster (label denotes number)
- Interim Heritage Order
  - Cluster (label denotes number)

1: 72,224

3,669.0 0 1,834.49 3,669.0 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere

Notes

Notes

na NANIMA

SUMMARY

270 km² rolling low hills. Andesite, hornfels, shale, tuff and limestone. Relief 80 - 150 m; slopes 5 - 20%. Euchrozems (Gn3.13; Dr4.13; Gn3.12; Dr4.12) and Non-calcic Brown Soils (Dr2.23) with shallow loams (Um4.13) on crests. Small pockets of Terra Rossa Soils (Um6.13; Uf6.21) on limestone.

LIMITATIONS

Moderate fertility; friable surface soils; steep slopes often with rock outcrop; moderate to high available waterholding capacity; very high erosion hazard under cultivation; moderate to high shrink-swell potential; aggregated clays may leak in earthworks.

LOCATION

Scattered occurrence in a belt of country from 30 km north of Wellington to 30 km south of Wellington.

CLIMATIC ZONE

Zone 3C (Edwards 1979).

TOPOGRAPHY

Rolling low hills with elevations ranging from 300 - 550 m. Slopes are gently to moderately inclined (5 - 20%) with slopes from 300 - 1000 m long. Local relief varies from 80 - 150 m. Drainage lines are 500 - 1200 m apart.

NATIVE VEGETATION

Open-woodland community dominated by white box, yellow box and white cypress pine. White box occupies the upper slopes with white cypress pine preferring the crests and ridge lines. Yellow box occupies the mid and lower slopes and drainage lines. Kurrajongs are also common.

GEOLOGY/GEOMORPHOLOGY

Physiographic Unit	Molong Rise
Geological Units	Oakdale Formation (θo), Silurian undifferentiated (Su), Cuga Burga Volcanics (S-Dcb). Undifferentiated Paleozoics (Pzb), Gulgong granite dioritic phase (Cgg)
Parent Rocks	Keratophyre lava, tuff and quartz, spilite, andesite, siltstone, limestone, shale, chert, tuff, hornfels, diorite
Parent Materials	Colluvial material derived from the above parent rock

LAND USE

Dry land cropping; grazing on native and improved pastures.

EXISTING LAND DEGRADATION

Minor to moderate sheet erosion; minor gully erosion.

INCLUDED SOIL LANDSCAPES

Bodangora **(bz)**; Wellington Caves **(wc)**; Red Hill **(rh)**.

SOILS

Euchrozems

Topsoil

A_1 horizon. Friable, dark reddish-brown clay loam; strong polyhedral structure; pH 6.0; to 15 cm depth.

Subsoil

B_{21} horizon. Dark reddish-brown light clay; strong structure; pH 6.0; to 50 cm depth. Grading to—

B_{22} horizon. Dark reddish-brown to 80 cm, grading to heavy clay; strong structure; pH 7.0; dark reddish-brown heavy clay; strong structure; pH 7.0 to 120 cm depth; calcium carbonate, largely diffuse, is common at this depth. Weathered andesite may occur at 80 - 120 cm.

Non-calcic Brown Soils

Topsoil

A_1 horizon. Hardsetting dark reddish-brown loam or clay loam; stony; weak structure; pH 6.5; to 10 cm depth.

A_2 horizon. Light reddish-brown loam or clay loam; weak structure; pH 6.5; to 30 cm depth.

Subsoil

B_{21} horizon. Reddish-brown medium clay; moderate structure; pH 7.0; to 80 cm depth.

B_{22} horizon. Reddish-brown medium clay; moderate structure; pH 7.0; to 120 cm depth.

Terra Rossa Soils

Topsoil

A horizon. Hardsetting, reddish-brown loam; weak structure; pH 8.5; to 10 cm depth. Gradual boundary to—

Subsoil

B horizon. Reddish-brown light clay with moderate structure; pH 8.5; to 20 cm depth; limestone rock below soil.

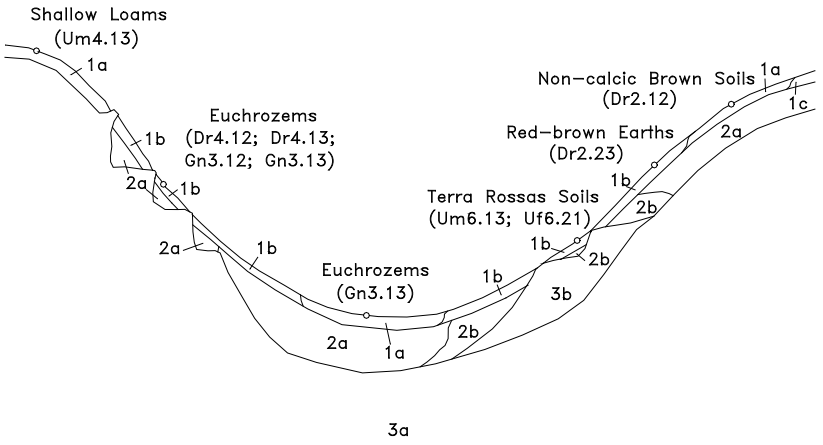
SOIL QUALITIES AND LIMITATIONS

Soil Fertility - chemical

Moderate soil fertility; N and P required with continued land use and S if canola is grown. Surface soils neutral to slightly acidic, generally not susceptible to acidification.

Soil Fertility - physical

Moderate to high soil physical fertility, surface soils are friable and relatively stable to soil structure decline, although they may still set hard if surface cover is low. Subsoils have no limitations for root growth. The soil profile is permeable and waterholding capacity is high to moderate. Rock outcrop is common.



1a. Structured dark reddish brown clay loam.
1b. Structured dark reddish brown loam to clay loam.
1c. Dark reddish brown fine sandy loam.
2a. Well–structured red clay.
2b. Structured reddish brown clay loam.
3a. Rocks of Molong Geanticline.
3b. Limestone lens.

■ ***Distribution diagram of Nanima soil landscape illustrating the occurrence and relationship of dominant soil materials.***

Murphy, B.W. & Lawrie, J.W. 1998, Soil Landscapes of the Dubbo 1:250 000 Sheet - Department of Land & Water Conservation

SUMMARY TABLE FOR THE MAIN SOILS OF NANIMA SOIL LANDSCAPE			
	Euchrozems	**Non-calcic Brown Soils**	**Terra Rossa Soils**
Dominance	Dominant	Dominant	Minor
Landform element	Mid to lower slopes	Slopes	Crest, upper slopes
Surface condition	Friable	Hardsetting	Hardsetting
Drainage	Moderate	High	Moderate
Soil permeability	Rapid to well-drained	Slow	Moderate
Watertable depth	>140 cm	>100 cm	>100 cm
Available waterholding capacity	High	Moderate	Moderate
Depth to bedrock	30 - >140 cm	>100 cm	50 to 70 cm
Flood hazard	Nil	Nil	Nil
pH (topsoil)	Slightly acidic to neutral	Slightly acidic	Slightly alkaline
Fertility (chemical)	Moderate	Low to Moderate	Low
Expected nutrient deficiencies	N, P	N, P	N, P
Soil salinity	Low	Low	Low
Erodibility (topsoil)	Low	Low	Low
Erodibility (subsoil)	Low	Low	Low
Erosion hazard	Low	Moderate	Moderate
Structural degradation hazard	Moderate	High	Moderate
Land capability classification	IV, II, III	IV, III	IV
USCS (subsoil)	CH, CL	CH, CL	CL
Shrink-swell potential	Moderate to high	Moderate	Low to moderate
Mass movement hazard	Low	Low	Low

Erosion Hazard

Soils are only slightly to moderately erodible, but slopes are 5 to 20% and 300 to 1000 m long. There is a high erosion hazard under cropping, especially if soils are in a cultivated condition and surface cover is low. This is seen in the remnants of severe erosion that has occurred in the past. Soil conservation earthworks and/or conservation farming practices are necessary to control erosion.

Salinisation

Soil salinity problems are absent and unlikely to occur in the future.

Foundation Hazard

Moderate to high shrink-swell activity of the subsoils of the Euchrozems are a significant limitation to foundations.

Landscape Limitations

The erosion hazard is the major landscape limitation, but rock outcrop may also affect land use.

Urban Capability

The moderate to high shrink-swell potential of the subsoils of the Euchrozems are the main limitation to urban development. Rock outcrop and steep slopes may also affect urban land use.

Rural Capability

Most of the area is only suitable for grazing because of slopes and rock outcrop (Class IV, VI). Small areas of footslopes may be used for cropping (Class II, III).

Soil Conservation Earthworks

The major limitation for earthworks is the highly aggregated clays of the Euchrozems which are permeable. Dams built in these soils are likely to leak.

RECOMMENDATIONS FOR SUSTAINABLE LAND USE

Land is mainly suitable for grazing because of slopes. Soils suitable for sown pastures. Water use should be maximised by planting trees and sowing perennial pasture on suitable paddocks.


Goolma Rd
Bela Vista Ln
Bela Vista Ln
Goolma Rd
Cadia Pl
Cadonia Dr
Twelve Mile Rd
Twelve Mile Rd
A32
Mitchell Hwy
Montefiores
Montefiores St
Riverside
Caravan Park
Macquarie River
Gobolion St
Bridge Motel
Gobolion St
Mount Nanima
Legend
Something I Like
Something I Dislike
Ideas and Suggestions
Make a Comment
State Significant Agricultural Land (SSAL)
Regional Border
LGA Border
© Mapbox © OpenStreetMap © Maxar

Place marker here drag or use arrow keys & zoom to position marker

By viewing and providing comment on the Draft State Significant Agricultural Land Map Project you are taken to have accepted these Terms and Conditions set out below.

Privacy and Personal Information Protection Notice

Purpose: To collect community feedback on State Significant Agricultural Land Map

Recipients: NSW Department of Primary Industries

Supply: Voluntary

Access/Correction: Public Access to Information & Privacy Unit, Locked Bag 5022, Parramatta NSW 2124, Phone: 02 9860 1440, Email: privacy@dpie.nsw.gov.au

Storage: The Department's record management system in line with its Privacy Management Plan. Responses are stored temporarily on a third-party service called Social Pinpoint.

Disclaimer

The interactive map contained in this website is for the purpose of collecting community feedback on the Draft State Significant Agricultural Land Map only. The Department has made every reasonable effort to ensure that this map is correct at the time of publication, or as it may appear from time to time. However, the Department does not warrant or represent that the map is free from errors or omission or that it is exhaustive. The Department, its agents or employees, will not accept liability for any loss, damage or cost of expense you may incur as a result of the use or reliance on the map at its time of publication or as it may appear from time to time. Further details can be found within the Department's Disclaimer Statement.

Search results

Your search for:Suburb: WUULUMAN

Search Again
Refine Search

did not find any records in our database.

If a site does not appear on the record it may still be affected by contamination. For example:

- Contamination may be present but the site has not been regulated by the EPA under the Contaminated Land Management Act 1997 or the Environmentally Hazardous Chemicals Act 1985.
- The EPA may be regulating contamination at the site through a licence or notice under the Protection of the Environment Operations Act 1997 (POEO Act).
- Contamination at the site may be being managed under the planning process.

Search TIP

To search for a specific site, search by LGA (local government area) and carefully review all sites listed.

... more search tips

More information about particular sites may be available from:

- The POEO public register
- The appropriate planning authority: for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act.

See What's in the record and What's not in the record.

If you want to know whether a specific site has been the subject of notices issued by the EPA under the CLM Act, we suggest that you search by Local Government Area only and carefully review the sites that are listed.
This public record provides information about sites regulated by the EPA under the Contaminated Land Management Act 1997, including sites currently and previously regulated under the Environmentally Hazardous Chemicals Act 1985. Your inquiry using the above search criteria has not matched any record of current or former regulation. You should consider searching again using different criteria. The fact that a site does not appear on the record does not necessarily mean that it is not affected by contamination. The site may have been notified to the EPA but not yet assessed, or contamination may be present but the site is not yet being regulated by the EPA. Further information about particular sites may be available from the appropriate planning authority, for example, on a planning certificate issued by the local council under section 149 of the Environmental Planning and Assessment Act. In addition the EPA may be regulating contamination at the site through a licence under the Protection of the Environment Operations Act 1997. You may wish to search the POEO public register.POEO public register

12 April 2022

For local government

Contact us

131 555 (tel:131555)

Online (https://yoursay.epa.nsw.gov.au/epa-website-feedback)

info@epa.nsw.gov.au (mailto:info@epa.nsw.gov.au)

EPA Office Locations (https://www.epa.nsw.gov.au/about-us/contact-us/locations)

Find us on

in (https://au.linkedin.com/company/nsw-environment-protection-authority-epa)

(https://twitter.com/NSWEPA)

(https://www.youtube.com/channel/UCS

Wellington Local Environmental Plan 2012

Riparian Lands and Watercourses Map
Groundwater Vulnerability Map
Sheet CL1_004

Water

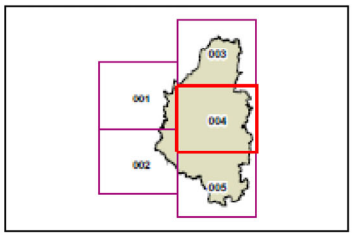
Riparian land

Groundwater Vulnerability

Groundwater vulnerability

Cadastre

Cadastre 10/06/2011 © Land & Property Information (LPI)



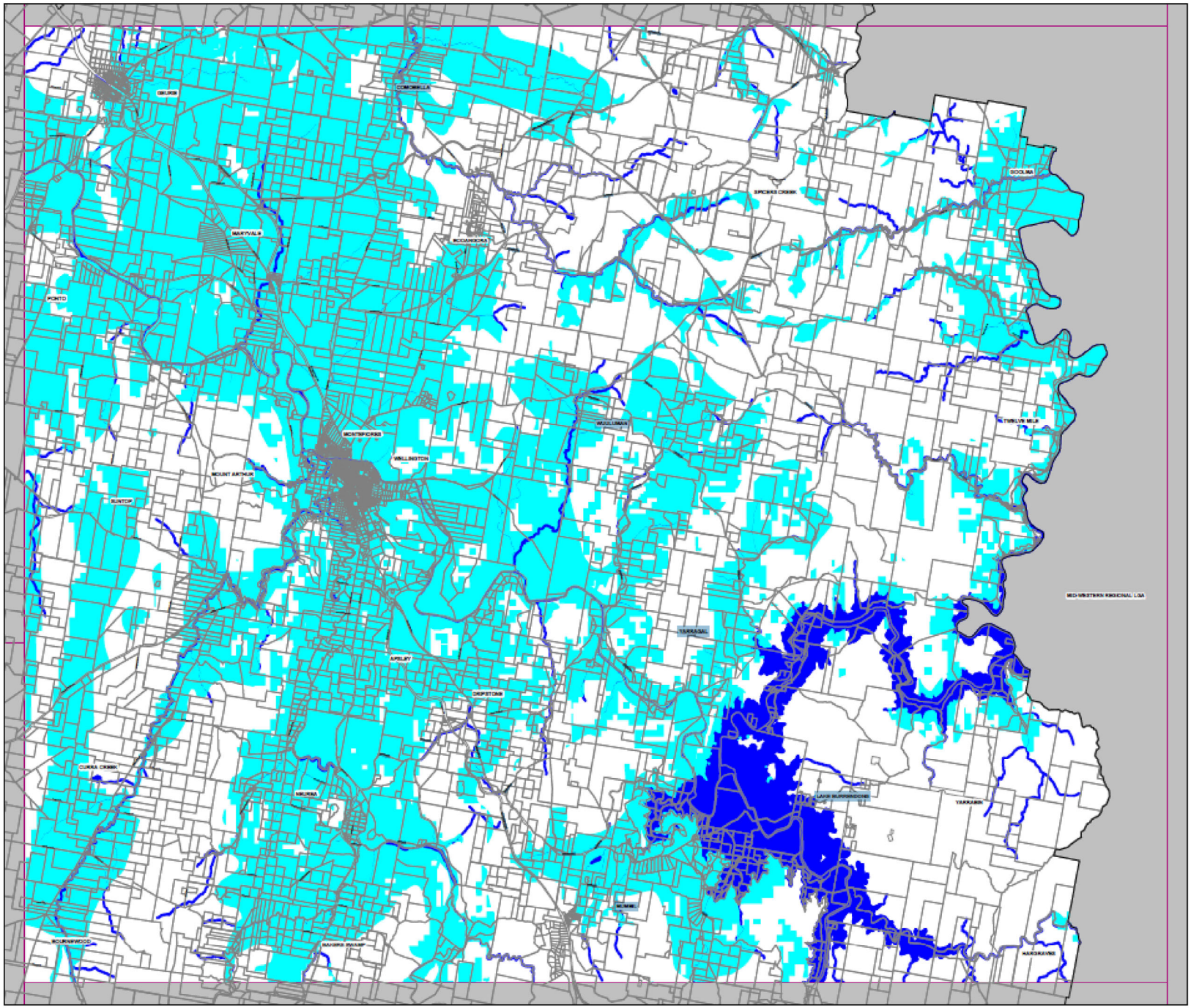
NORTH

0 1,000 2,000 3,000 4,000 5,000 6,000 7,000
Metres

Scale 1:150,000 @ A3

Projection GDA 1994
MGA Zone 55

Map identification number:
0150_COM_CL1_004_150_20120927



Australian Government

Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

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

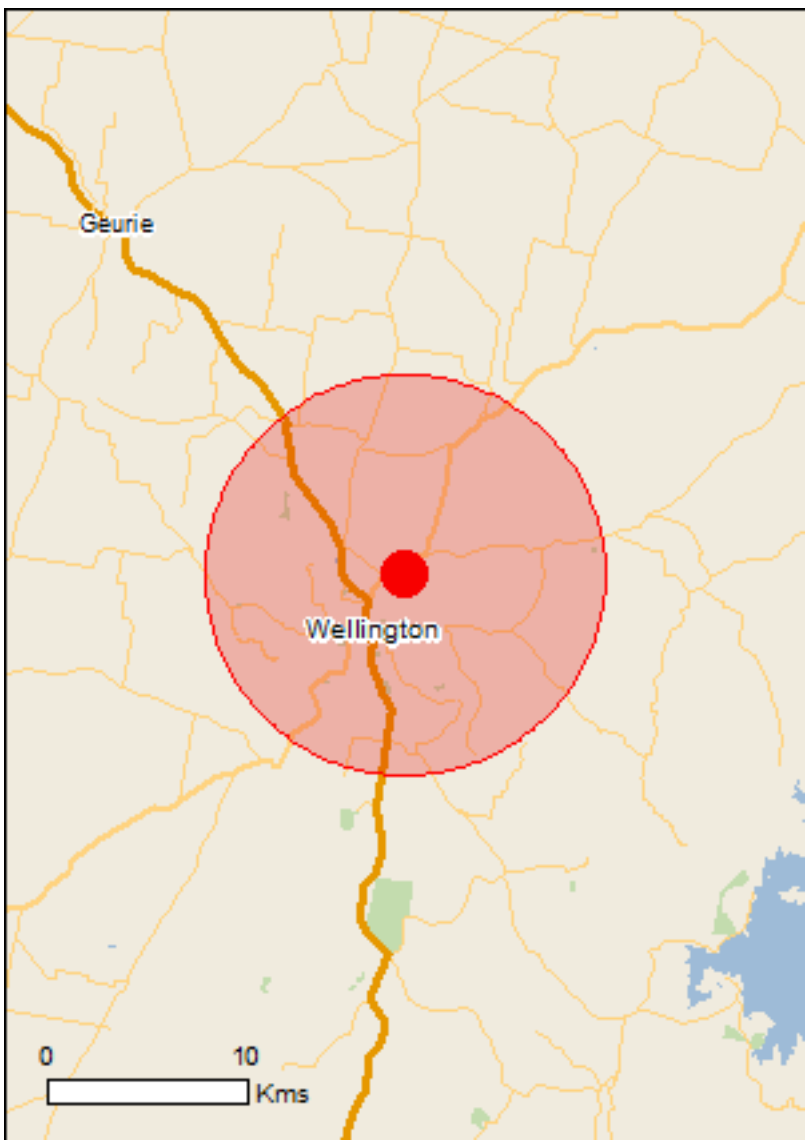
Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

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

Report created: 11/04/22 12:59:08

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

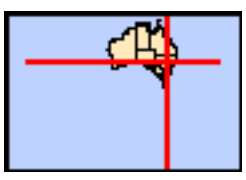
Caveat
Acknowledgements



This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2015

Coordinates

Buffer: 10.0Km



Summary

Matters of National Environmental Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	4
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	32
Listed Migratory Species:	11

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Land:	2
Commonwealth Heritage Places:	1
Listed Marine Species:	18
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None

Extra Information

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

State and Territory Reserves:	None
Regional Forest Agreements:	None
Invasive Species:	29
Nationally Important Wetlands:	None
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Wetlands of International Importance (Ramsar) [Resource Information]

Name	Proximity
Banrock station wetland complex	800 - 900km upstream
Riverland	700 - 800km upstream
The coorong, and lakes alexandrina and albert wetland	900 - 1000km upstream
The macquarie marshes	200 - 300km upstream

Listed Threatened Ecological Communities [Resource Information]

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

Name	Status	Type of Presence
Grey Box (Eucalyptus microcarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia	Endangered	Community likely to occur within area
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community likely to occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia		
Regent Honeyeater [82338]	Critically Endangered	Foraging, feeding or related behaviour likely to occur within area
Botaurus poiciloptilus		
Australasian Bittern [1001]	Endangered	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Callocephalon fimbriatum		
Gang-gang Cockatoo [768]	Endangered	Species or species habitat may occur within area
Falco hypoleucos		
Grey Falcon [929]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta		
Painted Honeyeater [470]	Vulnerable	Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor		
Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area

Name	Status	Type of Presence
[Leipoa ocellata](#) Malleefowl [934]	Vulnerable	Species or species habitat likely to occur within area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
[Polytelis swainsonii](#) Superb Parrot [738]	Vulnerable	Species or species habitat known to occur within area
[Rostratula australis](#) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Fish		
[Galaxias rostratus](#) Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow [84745]	Critically Endangered	Species or species habitat may occur within area
[Maccullochella macquariensis](#) Trout Cod [26171]	Endangered	Species or species habitat likely to occur within area
[Maccullochella peelii](#) Murray Cod [66633]	Vulnerable	Species or species habitat known to occur within area
[Macquaria australasica](#) Macquarie Perch [66632]	Endangered	Species or species habitat may occur within area
Mammals		
[Chalinolobus dwyeri](#) Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
[Dasyurus maculatus maculatus (SE mainland population)](#) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat known to occur within area
[Nyctophilus corbeni](#) Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat likely to occur within area
[Petrogale penicillata](#) Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area
[Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)](#) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat known to occur within area
[Pteropus poliocephalus](#) Grey-headed Flying-fox [186]	Vulnerable	Roosting known to occur within area
Plants		
[Androcalva procumbens](#) [87153]	Vulnerable	Species or species habitat likely to occur within area
[Austrostipa wakoolica](#) [66623]	Endangered	Species or species habitat may occur within area
[Euphrasia arguta](#) [4325]	Critically Endangered	Species or species habitat may occur within area
[Lepidium aschersonii](#) Spiny Pepper-cress [10976]	Vulnerable	Species or species habitat may occur within

Name	Status	Type of Presence
		area
Prasophyllum petilum Tarengo Leek Orchid [55144]	Endangered	Species or species habitat may occur within area
Prasophyllum sp. Wybong (C.Phelps ORG 5269) a leek-orchid [81964]	Critically Endangered	Species or species habitat may occur within area
Swainsona recta Small Purple-pea, Mountain Swainson-pea, Small Purple Pea [7580]	Endangered	Species or species habitat known to occur within area
Tylophora linearis [55231]	Endangered	Species or species habitat may occur within area
Zieria obcordata Granite Zieria [3240]	Endangered	Species or species habitat may occur within area
Reptiles		
Aprasia parapulchella Pink-tailed Worm-lizard, Pink-tailed Legless Lizard [1665]	Vulnerable	Species or species habitat likely to occur within area

Listed Migratory Species [Resource Information]

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

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area
Migratory Wetlands Species		
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land - Australian Postal Commission
Commonwealth Land - Australian Telecommunications Commission

Commonwealth Heritage Places [Resource Information]

Name	State	Status
Historic		
Wellington Post Office	NSW	Listed place

Listed Marine Species [Resource Information]

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

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Chrysococcyx osculans		
Black-eared Cuckoo [705]		Species or species habitat likely to occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species

Name	Threatened	Type of Presence
		habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat likely to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Neophema chrysostoma Blue-winged Parrot [726]		Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat may occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area

Extra Information

Invasive Species	[Resource Information]

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

Name	Status	Type of Presence
Birds		
Acridotheres tristis Common Myna, Indian Myna [387]		Species or species habitat likely to occur within area
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Capra hircus Goat [2]		Species or species habitat likely to occur within area
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Oryctolagus cuniculus Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Asparagus asparagoides Bridal Creeper, Bridal Veil Creeper, Smilax,		Species or species

Name	Status	Type of Presence
Florist's Smilax, Smilax Asparagus [22473]		habitat likely to occur within area
Lycium ferocissimum African Boxthorn, Boxthorn [19235]		Species or species habitat likely to occur within area
Nassella neesiana Chilean Needle grass [67699]		Species or species habitat likely to occur within area
Nassella trichotoma Serrated Tussock, Yass River Tussock, Yass Tussock, Nassella Tussock (NZ) [18884]		Species or species habitat likely to occur within area
Opuntia spp. Prickly Pears [82753]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur within area
Tamarix aphylla Athel Pine, Athel Tree, Tamarisk, Athel Tamarisk, Athel Tamarix, Desert Tamarisk, Flowering Cypress, Salt Cedar [16018]		Species or species habitat likely to occur within area
Ulex europaeus Gorse, Furze [7693]		Species or species habitat likely to occur within area

Caveat

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

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

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

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

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

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

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

- migratory and
- marine

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

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

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

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

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

Coordinates

-32.53155 148.95952

Acknowledgements

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

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

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

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

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Appendix C Supporting technical report: biodiversity

C.1 Technical report: biodiversity

The following report was produced to verify the biodiversity values of the site and provide early constraints advice to inform project development.

C.1.1 Methodology

Biodiversity values of the Development Footprint were investigated utilising the following information sources and data obtained during the site surveys conducted on 15 December 2020.

- Threatened species listings under the BC Act and EPBC Act
- Existing records of threatened species as recorded in the BioNet Database
- Department of Environment Protected Matters Search Tool (nationally threatened species and communities listed under the EPBC Act)
- Bureau of Meteorology Groundwater Dependent Ecosystems Atlas
- Areas of outstanding biodiversity value declared under the BC Act.
- Commonwealth EPBC Act PMST, using a 10km search radius.

Database searches

The PMST undertaken on 11 April 2022 indicated three (3) nationally listed threatened ecological communities (TECs) which may or are likely to occur in the search area:

- *White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland Critically Endangered Community* (Critically Endangered)
- *Poplar Box Grassy Woodland on Alluvial Plains Endangered Community* (Endangered)
- *Grey Box (Eucalyptus macrocarpa) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia Endangered Community* (Endangered)

The Bionet database search undertaken on 11 April 2022 indicated the following TECs listed under the BC Act for the search area:

- *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 (*Critically Endangered)
- *Coolac-Tumut Serpentinite Shrubby Woodland in the NSW South Western Slopes and South Eastern Highlands Bioregions* (Endangered)
- *Fuzzy Box Woodland on alluvial Soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South Bioregions* (Endangered)
- *Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions* (Endangered)
- *Coolac-Tumut Serpentinite Shrubby Woodland in the NSW South Western Slopes and South Eastern Highlands Bioregions* (Endangered)
- *Werriwa Tablelands Cool Temperate Grassy Woodland in the South Eastern Highlands and South East Corner Bioregions* (Endangered)

The PMST indicated nine threatened flora species and 19 threatened fauna species (excluding fish) that are either known to occur or have potential to occur in the search area. The BioNet search indicated four threatened flora and 25 threatened fauna records for the search area. The threatened species indicated by the searches are shown in Table 7-1.

Table 8-1 Threatened flora and fauna species indicated in the databases searches

Species	Indicated in search?	
	PMST	BioNet
Plants		
Androcalva procumbens	✓	
Austrostipa wakoolica	✓	
Caladenia arenaria		✓
Euphrasia arguta	✓	
Lepidium aschersonii	✓	
Prasophyllum petilum	✓	
Prasophyllum sp. Wybong	✓	
Swainsona recta	✓	✓
Swainsona sericea		✓
Tylophora linearis	✓	
Zieria obcordata	✓	✓
Birds		
Regent Honeyeater (*Anthochaera phrygia*)	✓	
Australasian Bittern (*Botaurus poiciloptilus*)	✓	
Curlew Sandpiper (*Calidris ferruginea*)	✓	
Gang-gang Cockatoo *(Callocephalon fimbriatum)*	✓	
Australian Painted Snipe (*Rostratula australis*)	✓	
Painted Honeyeater (*Grantiella picta*)	✓	
Grey Falcon (*Falco hypoleucos*)	✓	
White-throated Needletail (*Hirundapus caudacutus*)	✓	
Swift Parrot (*Lathamus discolor*)	✓	
Malleefowl (*Leipoa ocellata*)	✓	
Eastern Curlew, Far Eastern Curlew (*Numenius madagascariensis*)	✓	
Superb Parrot (*Polytelis swainsonii*)	✓	✓
Spotted Harrier (*Circus assimilis)*		✓
Little Eagle (*Hieraaetus morphnoides*)		✓
Black Falcon (*Falco subniger*)		✓
Glossy Black-Cockatoo (*Calyptorhynchus lathami*)		✓
Little Lorikeet (*Glossopsitta pusilla*)		✓
Masked Owl (*Tyto novaehollandiae*)		✓

Species	Indicated in search?	
	PMST	BioNet
Speckled Warbler (*Chthonicola sagittata*)		✓
Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*)		✓
Dusky Woodswallow (*Artamus cyanopterus cyanopterus*)		✓
Diamond Firetail (*Stagonopleura guttata*)		✓
Brown Treecreeper (eastern subspecies) (*Climacteris picumnus victoriae)*		✓
Varied Sittella *(Daphoenositta chrysoptera)*		✓
White-bellied Sea-Eagle *(Haliaeetus leucogaster)*		✓
Hooded Robin (south-eastern form) *(Melanodryas cucullata cucullata)*		✓
Black-chinned Honeyeater (eastern subspecies) *(Melithreptus gularis gularis)*		✓
Turquoise Parrot *(Neophema pulchella)*		✓
Barking Owl *(Ninox connivens)*		✓
Scarlet Robin *(Petroica boodang)*		✓
Flame Robin *(Petroica phoenicea)*		✓
Reptiles		
Pink-tailed Worm-lizard *(Aprasia parapulchella)*	✓	
Mammals		
Grey-headed Flying-fox (*Pteropus poliocephalus*)	✓	✓
Large-eared Pied Bat (*Chalinolobus dwyeri*)	✓	
Spot-tailed Quoll (*Dasyurus maculatus* SE mainland population)	✓	
Brush-tailed Rock-wallaby (*Petrogale penicillata*)	✓	
Corben's Long-eared Bat, South-eastern Long-eared Bat (*Nyctophilus corbeni*)	✓	
Squirrel Glider (*Petaurus norfolcensis*)		✓
Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) (*Phascolarctos cinereus*) (combined populations of Qld, NSW and the ACT)	✓	✓

Site inspection

A site inspection was undertaken on 15 December 2020 by an NGH Ecologist. The methodology utilised included a site walkover, rapid assessment points identifying the dominant plant species, photos and observations of habitat features such as hollows when encountered. This method allowed for identification of vegetation communities. Vegetation integrity plots were not undertaken during the initial site inspection.

C.1.2 Biodiversity values of the site

Vegetation and fauna habitat

The site inspection identified Plant Community Types (PCTs), characterised by distinctive vegetation structure, dominant species, fauna habitat values and topography. These PCTs are described below and mapped as per Figure 6-1.

High constraint areas include areas with native trees, shrubs and groundcovers in varying cover abundance across the site. Count and cover abundance of native species onsite was greater than 50%. Where trees were present, abiotic habitat resources existed such as large woody debris, leaf litter. Some hollow bearing trees and threatened species habitat exists onsite.

The dominant tree species on site was White Box *Eucalyptus albens*, with the occasional *Calitris* White Cypress *glaucphpylla*. All native vegetation occurring on site would likely conform to White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (WBGW) Threatened Ecological Community (TEC). This TEC is listed as a Critically Endangered Ecological Community under both the Biodiversity Conservation Act (NSW) and the EPBC Act (Cwth). The condition of this vegetation was generally high condition where canopy was present, and moderate condition where grassland only occurred.

Moderate constraint areas include derived native grasslands, which would be classified as Category 2 land under the land category assessment (Category 2 land would require biodiversity offset credits). They are generally devoid of trees and with very sparse patches of shrubs but contain a native groundcover component. The derived native grassland would likely conform to the White Box Grassy Woodland TEC.

An area of rocky boulders was identified within and surrounding the site which would constitute potentially suitable habitat for the Pink-tailed Worm-lizard *Aprasia parapulchella*. Targeted surveys for this species would be required.

Some poor-quality grasslands occur to the south of site where exotic species were in high abundance with low tree cover. Refer to Figure 6-1 for PCT mapping.

Plant community types and threatened ecological communities

Plant community types (PCTs) were determined based on the presence of diagnostic species via rapid assessment and recording of dominant species within each stratum. Landscape characteristics and evidence of past disturbances assisted with PCT determination.

One PCT was identified as likely to be present within the Development Footprint, in two forms:

- PCT 266 (BVT CW216) White Box Grassy Woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion – *Woodland structure*
- PCT 266 (BVT CW216) White Box Grassy Woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion – *Grassland structure*

Table 7-1 below summarises vegetation and habitat constraints across the Development Footprint. Refer to Figure 7-1 for PCT mapping for the Development Footprint.

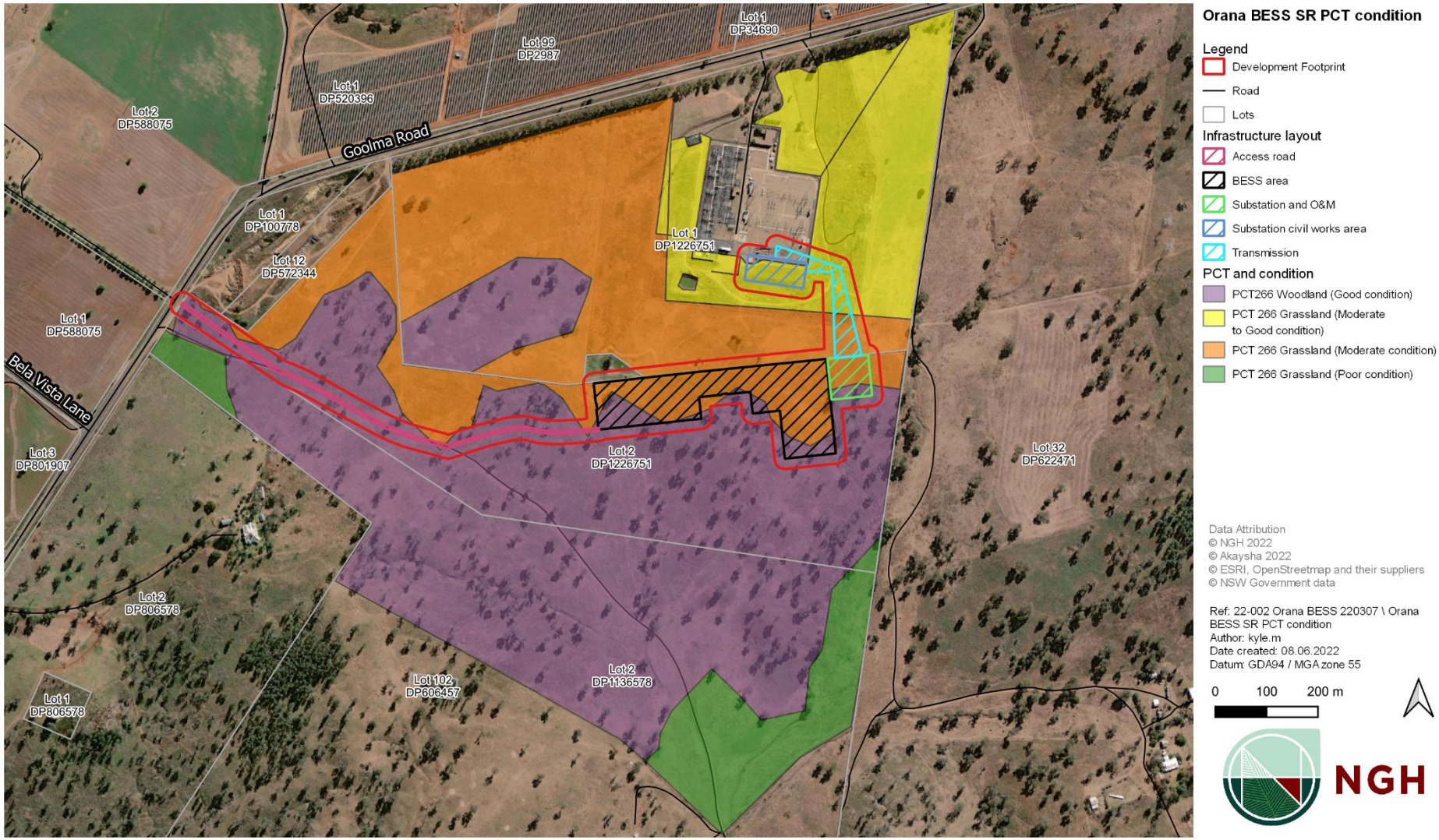

Figure 8-1 Biodiversity Constraints

Table 8-1 Summary of vegetation and habitat constraints across the site studied

Zone ID	PCT	Constraint	Description and dominant species	Site photo
1 - Woodland	266	Good condition	Overstory dominated by *Eucalyptus albens, Callitris glaucophylla*, good condition understorey, Some thistle, lots of native grasses, *Sclerolaena muricata*, *Atriplex semibaccata, Euchiton sphaericus, Austrostipa aristiglumis, A. scabra. Some Heliotrope. Carthamus lanatus, Chloris truncata, Trifolium arvense, Panicum effusum, Euchiton sphaericus*, *Arthropodium strictum, Rytidosperma spp., Wahlenbergia sp., Vittadinia cuteata, V. gracilis, Enneopogon nigricans, Boerhavia domini, Sida corrugata.*	

Zone ID	PCT	Constraint	Description and dominant species	Site photo
2 - Grassland	266	Moderate condition Poor condition	Overstory absent, high exotic component in areas but generally native species of high diversity across entire vegetation zone. *Centaurea calcitrapa, Carthamus lanatus, Austrostipa scabra, A. aristiglumis, Bromus catharticus, Heliotropium sp., Hordeum leporinum, Trifolium spp., Calotis lappulacea, Oxalis perennans, Vittadinia cuneata, Lepidium africanum, Glycine spp., Atriplex semibaccata, Euchiton sphaericus, Sida corrugata, Boerhavia domini.*	

Appendix D Social impact scoping worksheet

D.1 Potential social impacts and benefits to be further assessed in the EIS

Project phase & activity	Potential social impacts	Intended level of assessment	Justification
Pre-construction - initial project engagement within the community	• Potential negative impacts on community cohesion	Detailed	Negative impacts have not been observed to date for this or other major renewable energy projects in the area but have been observed elsewhere in NSW and should be considered as a potential impact. This will require more specific consideration in the SIA. Cumulative impacts may apply.
	• Adverse impacts to personal wellbeing (e.g., fear, anger, stress, anxiety) in people who oppose the project and/or are directly impacted	Detailed	Negative impacts have not been observed to date for this Project. This will require more specific consideration in the SIA. Cumulative impacts may also apply.
	• Real or perceived lack of inclusion in, or ability to influence, decision-making and planning processes	Detailed	This will require more specific consideration in the SIA. Cumulative impacts may also apply.
Construction - project demand for labour, goods and services	• Employment and labour impacts	Detailed	This has the potential to be a key benefit of the project.
	• Increase in economic activity within the local and regional area	Detailed	This has the potential to be a key benefit of the project.
Construction - influx of non-resident construction workers	• Constrained availability of temporary and rental housing	Standard	Given the short duration of the construction phase, this is unlikely to have significant impacts. Cumulative impacts may apply, and housing availability and affordability are key issues in the region.
	• Increased demand for social services and infrastructure	Standard	Given short duration of the construction phase, this is unlikely to have significant impacts. However, cumulative impacts may apply, and SEARS typically require a particular focus on this issue.

Project phase & activity	Potential social impacts	Intended level of assessment	Justification
	• Changing community composition	Detailed	This could be applicable for this project, and will require more consideration in the SIA, particularly regarding potential cumulative impacts.
Construction - intensive construction activity at the Development Footprint	• Access impacts from construction-related traffic on local and major roads	Standard	These impacts will need to be fully explored in other technical assessments within the EIS and considered from a social impact perspective.
	• Health and wellbeing impacts during construction (e.g., noise, air quality, lighting)	Detailed	These are generally issues of concern to nearby landholders, residents, and communities for major renewable energy projects. These impacts will need to be fully explored in other technical assessments within the EIS and considered from a social impact perspective.
	• Impacts on way of life (experience of commuting/travel, privacy, peace, and quiet enjoyment)	Detailed	These are generally issues of concern to nearby landholders, residents, and communities for major renewable energy projects. These impacts will need to be fully explored in other technical assessments within the EIS and considered from a social impact perspective.
Operations – an operational BESS located at the Development Footprint	• Health and wellbeing concerns (e.g., EMF, noise, hazardous materials contamination of soil)	Detailed	These concerns have not been observed to date for this project but have been observed elsewhere in NSW and should be considered as a potential impact. This will require more specific consideration in the SIA. Cumulative impacts may also apply.
	• Safety of surroundings, i.e., risk of bushfires and BESS fire/explosion	Detailed	These impacts will need to be fully explored in other technical assessments within the EIS and considered from a social impact perspective.
	• Opportunities for people to have a say in the project's community investment decisions.	Detailed	Community involvement in decision-making systems, including community benefits sharing, has the potential to be a key benefit of the project.

Project phase & activity	Potential social impacts	Intended level of assessment	Justification
	• Availability of adequate and responsive grievance and remedy mechanisms		
All project phases	• Improvements to the local road network through upgrades of intersections and roads	Detailed	Potential for this to be a key benefit of this project. These impacts will need to be fully explored in other technical assessments within the EIS and considered from a social impact perspective.
	• Negative impacts on Aboriginal cultural heritage, including the potential for intangible harm through 'cultural or spiritual loss'	Detailed	A search of relevant heritage registers for Aboriginal sites in February 2021 identified 20 Aboriginal sites within 1km of the Development Footprint, with two sites registered within 150m of the Development Footprint and three sites have restricted locations. These impacts will need to be fully explored in Aboriginal Cultural Heritage assessment and Aboriginal community consultation within the EIS and considered from a social impact perspective.
	• Impacts on visual amenity and aesthetics because of changing land use	Detailed	The project will involve a change of use of the land from rural, to land being used for the siting of energy infrastructure. The land is currently zoned Infrastructure (SP2). Initial viewshed analysis has confirmed that residual views are not likely to be high, and the BESS will not be located in an area highly likely to be valued for its landscape character. However, there is the potential for cumulative visual impacts on how people experience the landscape and nature values, with some initial concerns related to visual amenity. These impacts will need to be fully explored in other technical assessments within the EIS and considered from a social impact perspective.