

Prepared for ib vogt Development Australia Pty Ltd

Wagga North BESS

Statement of Environmental Effects

December 2025

Project Number: 230683

Document verification

Project Title:	Statement of Environmental Effects
Project Number:	230683
Project File Name:	230683 Wagga North BESS SEE Final V3.0

Revision	Date	Prepared by	Approved by
Draft V1.0	6/05/2025	B. Ghimire M. Wyburn	S. Kurta
Final V1.0	23/05/2025	Minor changes	S. Kurta
Final V2.0	5/08/2025	M. Wyburn	S. Hillis
Final V2.1	13/08/2025	M. Wyburn (TIA update)	S. Hillis
Final V2.2	04/09/2025	M. Wyburn (minor updates)	
Final V3.0	19/12/2025	M. Wyburn	S. Hillis

NGH Pty Ltd prints all documents on environmentally sustainable paper including paper made from bagasse (a by-product of sugar production) or recycled paper.

We acknowledge the traditional owners of this land and pay our respect to Elders past, present and emerging. We recognise that the First Nations peoples of Australia have traditionally managed the resources of this land in a sustainable way, and that they are the original stewards of the Australian environment.

Table of Contents

Acronyms and Abbreviations	vii
1. Introduction.....	1
1.1. Overview	1
1.2. Subject land and locality, site selection and design.....	2
1.3. Applicant and land ownership	6
1.4. SEE structure and supporting plans and documents.....	6
1.5. Legislative context (summary)	7
2. Proposed development	9
2.1. General overview	9
2.2. Proposed development (summary)	9
2.3. Construction phase.....	10
2.4. Permanent infrastructure	11
2.4.1. BESS Containers.....	11
2.4.2. Power conversion systems.....	12
2.4.3. Substation/transformers/switching station.....	12
2.4.4. Onsite cabling, distribution line and external connection.....	12
2.4.5. Connection to the Transgrid Wagga North 132/66 kV substation.....	12
2.4.6. Perimeter fencing and security CCTV.....	13
2.4.7. Access road	13
2.4.8. Bavin Road sealing.....	13
2.5. Materials, machinery and water use.....	13
2.6. Personnel and work hours	14
2.7. Operations.....	14
2.8. Decommissioning.....	15
2.9. Justification for the proposed development.....	15
3. Consultation	18
3.1. Department of Planning, Housing and Infrastructure.....	18
3.2. Wagga Wagga City Council	18
3.3. Essential Energy	21
3.4. Transport for NSW	22

3.5.	Near neighbour	22
4.	Environmental analysis	24
4.1.	Subject Land.....	24
4.2.	Site analysis and surrounds.....	24
4.3.	Noise	29
4.3.1.	Methodology	29
4.3.2.	Existing environment	30
4.3.3.	Potential impacts	32
4.3.4.	Mitigation measures.....	35
4.4.	Fire, ignition and hazards	36
4.4.1.	Methodology	36
4.4.2.	Potential impacts	36
4.4.3.	Mitigation measures.....	39
4.5.	Bushfire risk	40
4.5.1.	Methodology	40
4.5.2.	Existing environment	40
4.5.3.	Potential impacts	41
4.5.4.	Mitigation measures.....	42
4.6.	Land use compatibility.....	42
4.6.1.	Existing environment	42
4.6.2.	Potential impacts	43
4.6.3.	Mitigation measures.....	43
4.7.	Access and traffic.....	47
4.7.1.	Existing environment	47
4.7.2.	Potential impacts	49
4.7.3.	Operation	54
4.7.4.	Mitigation measures.....	54
4.8.	Aboriginal heritage.....	55
4.8.1.	Methodology	55
4.8.2.	Existing environment	55
4.8.3.	Potential impacts	59
4.8.4.	Mitigation measures.....	59

4.9.	Historic heritage	59
4.9.1.	Existing environment	59
4.9.2.	Potential impacts	60
4.9.3.	Mitigation measures.....	60
4.10.	Biodiversity.....	61
4.10.1.	Existing environment	61
4.10.2.	Potential impact.....	67
4.10.3.	Mitigation measures.....	67
4.11.	Visual	67
4.11.1.	Existing conditions	68
4.11.2.	Potential impact.....	68
4.11.3.	Mitigation measures.....	72
4.12.	Waste	72
4.12.1.	Operation	72
4.13.	Contamination	73
4.13.1.	Existing environment	73
4.13.2.	Potential impact.....	74
4.13.3.	Mitigation measures.....	77
4.14.	Air quality	78
4.14.1.	Existing conditions	78
4.14.2.	Potential impacts	78
4.14.3.	Mitigation measures.....	78
4.15.	Consideration of other hazards.....	79
4.15.1.	Soil	79
4.15.2.	Mitigation measures.....	80
4.15.3.	Hydrology and flooding	80
4.15.4.	Groundwater and water resource.....	83
5.	Statutory framework	86
5.1.	Commonwealth legislation.....	86
5.1.1.	Environmental Protection and Biodiversity Conservation Act 1999	86
5.2.	State legislation	86
5.2.1.	Environmental Planning & Assessment Act 1979	86

5.2.2.	Biodiversity Conservation Act 2016	87
5.2.3.	Roads Act 1993	87
5.2.4.	State Environmental Planning Policy (Regional—Precincts) 2021	87
5.2.5.	State Environmental Planning Policy (Resilience and Hazards) 2021	90
5.3.	Wagga Wagga Local Environmental Plan 2010	93
6.	Conclusion.....	94
7.	References	95
	Appendix A Development design plans and elevations	A-I
	Appendix B Infrastructure and utilities plan.....	B-I
	Appendix C Noise Impact Assessment	C-I
	Appendix D Preliminary Hazard Analysis	D-I
	Appendix E Bushfire Assessment Report.....	E-I
	Appendix F Landscape Plan and Specifications	F-I
	Appendix G Traffic Impact Assessment and Haulage Assessment.....	G-I
	Appendix H Aboriginal Cultural Heritage Assessment	H-I
	Appendix I Waste Management Plan.....	I-I
	Appendix J Preliminary Site Investigation	J-I
	Appendix K Stormwater Management Plan and Technical Report	K-I
	Appendix L Geotechnical Bore logs	L-I
	Appendix M Statement of Consistency.....	M-I
	Appendix N Consultation evidence	N-I

Figures

Figure 1-1	Preliminary design of the proposed development with existing transmission line easements shown as purple dashed line and native plantings shown in green. Proposed access road in light brown.	3
Figure 1-2	Proposed development site.....	5
Figure 2-1	Example of BESS module	12
Figure 4-1	View of development site, facing west towards Byrnes Road approx. 1km (Source: NGH, 2024).25	
Figure 4-2	View of development site and adjacent substation, looking east uphill (Source: NGH, 2024).....	26
Figure 4-3	View of proposed development site, facing north towards Transgrid Wagga North Zone Substation (Source: NGH, 2024)	27
Figure 4-4	View of proposed development site, facing south towards Bavin Road (not visible) (Source: NGH, 2024).....	28

Figure 4-5 Site and receiver layout (Marshall Day Acoustics, 2025)	31
Figure 4-6 BESS separation distances (ib vogt, 2025)	37
Figure 4-7 Bushfire prone land map (Source: Ember, 2025).....	41
Figure 4-8 Dwellings within 1km of the subject land	45
Figure 4-9 Location of transmission lines in the area	46
Figure 4-10 TfNSW Higher Mass Limit Network (Source: NVHR Restricted Access Vehicle Map)	49
Figure 4-11 Areas requiring further heritage assessment (Wagga Wagga SAP Master Plan, 2021).....	57
Figure 4-12 AHIMS sites within the search area.....	58
Figure 4-13 Title extract of forestry and carbon sequestration rights (Source: NSW Land Registry Services, 2025)	62
Figure 4-14 View of proposed development site as cleared cropped land (Source: NGH, 2024)	63
Figure 4-15 View of proposed development site as cleared cropped land (Source: Ember, 2024)	64
Figure 4-16 Native vegetation regulatory assessment (Source: WSP, 2020).....	65
Figure 4-17 Biodiversity constraints (Source: WSP, 2020)	66
Figure 4-18 View from back patio of closest non-associated receiver	69
Figure 4-19 View from bedroom window at access road from closest non-associated receiver	70
Figure 4-20 SAP Master Plan Landscape strategy for minimising visual impact (NSW Government Department of Planning, 2021)	71
Figure 4-21 Potential AECs.....	76
Figure 4-22 Regional geology. Development Site outlined in white (Source; WSP, 2020)	85
Figure 5-1 Regional Precincts SEPP Land zoning map.....	89

Table

Table 1-1 Accompanying plans and documents	6
Table 2-1 Summary of proposed development	9
Table 2-2 Vision for Wagga Wagga Special Activation Precinct	15
Table 3-1 WWCC traffic arrangements feedback.....	19
Table 4-1 Nearest receivers to the proposed development.....	32
Table 4-2 Construction noise management levels	32
Table 4-3 Summary of receivers and constructions stages where noise may be above the noise affected management level (Marshall Day Acoustics, 2025)	33
Table 4-4 Project noise trigger levels (Operational assessment).....	34
Table 4-5 Predicted LAeq,15min Operational Noise Levels at Sensitive Receiver Locations, dB(A)	35

Table 4-6 Indicative construction traffic volumes50

Table 4-7 Sight Distance Requirements51

Table 4-8 OSOM haulage pinch points for temporary alteration (Source: Impact, 2025)52

Table 4-9 Breakdown of previously recorded Aboriginal sites in the region56

Table 4-10 Peak flow rates from the proposal81

Table 4-11 Stormwater Quality Load Reduction Targets81

Table 5-1 Provisions of Schedule 1A of the Regional Precincts SEPP90

Table 5-2 Section 3.12 matters for consideration91

Acronyms and Abbreviations

AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BOM	Australian Bureau of Meteorology
CEMP	Construction environmental management plan
Cth	Commonwealth
DPHI	Department of Planning, Housing and Infrastructure (NSW) (formerly DPE)
EIS	Environmental impact statement
EPA	Environment Protection Authority (NSW)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
ESD	Ecologically Sustainable Development
ha	hectares
Heritage Act	<i>Heritage Act 1977 (NSW)</i>
km	kilometres
LALC	Local Aboriginal Land Council
LEP	Local Environment Plan
LGA	Local government area
m	metres
MW	Megawatt
MNES	Matters of national environmental significance
NPW Act	<i>National Parks and Wildlife Act 1974 (NSW)</i>
Planning Systems SEPP	State Environmental Planning Policy (Planning Systems) 2021 (NSW)

Regional Precincts SEPP	State Environmental Planning Policy (Precincts—Regional) 2021 (NSW)
RGDC	Regional Growth NSW Development Corporation
RH SEPP	State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW)
SEE	Statement of Environmental Effects
TfNSW	Transport for New South Wales
WWCC	Wagga Wagga City Council

1. Introduction

1.1. Overview

This Statement of Environmental Effects (SEE) has been prepared to support a Development Application (DA) seeking the Department of Planning, Housing and Infrastructure's (DPHI) consideration of proposed 120 Megawatt (MW) / 480 Megawatt hour (MWh) lithium-ion phosphate (LFP) Battery Energy Storage System (BESS) (the proposal) at 116 Bavin Road, Bomen (the subject land).

The BESS would be connected via underground connection to the Transgrid Wagga North Zone Substation, located immediately north of the subject land.

The proposal would include the following:

- Approximately 126 LFP battery containers, housing battery cells in modules and associated cooling systems.
- Approximately 42 associated Power Conversion Systems (PCS) comprising of;
 - The inverters, which convert direct current (DC) to alternating current (AC);
 - The medium-voltage transformer, which converts the inverter output voltage to the medium-voltage of the system (33 kilovolt (kV)); and
 - The medium voltage switchgear, which contains the medium voltage circuit breakers and disconnectors for the PCS
- A control room, which will contain battery-monitoring equipment and allows operators to control the plant remotely.
- A transmission line which would connect the BESS to the neighbouring Transgrid Wagga North Zone Substation. Transgrid considered several potential options and has advised the intended route would be from the proposed BESS, entering the zone substation from the south-western corner, adjacent to the existing water tank, and connecting with a new 132kV bay.
- A switching substation, which collects all the individual medium voltage cables from the PCS units in one location, including:
 - 33kV switchgear.
 - One 33/132kV transformer.
 - A 132kV circuit including busbars, circuit breakers, disconnectors, isolators, surge arresters, etc.
 - A plant auxiliary transformer and diesel generator.
- An Operations and Maintenance (O&M) building.
- A water tanks for static firefighting water supply.
- Bulk earthworks (cut and fill generally balanced) and stormwater management infrastructure such as diversion banks and a detention basin.
- Security fencing around the BESS perimeter and around the internal substation perimeter.
- Landscape screening to the northern, western and southern side of the BESS area.
- Temporary and/or permanent laydown area.
- Basic Left (BAL) turn, from Byrnes Road to Bavin Road.
- The sealing of Bavin Road, from the end of the existing seal to the Project driveway/access point.
- Access track from the existing Transgrid substation access to the east of the site, for Transgrid only access to their transmission assets/easement.

1.2. Subject land and locality, site selection and design

The subject land lies within the Wagga Wagga Special Activation Precinct (SAP), located in southwest New South Wales (NSW). The Wagga Wagga SAP planning framework took effect from August 2022 and is governed by the State Environmental Planning Policy (Precincts—Regional) 2021 (Regional Precincts SEPP). The subject land is zoned Rural Activity and SP2 Infrastructure under the provisions of the Regional Precincts SEPP.

The proposed development would be carried out on land known as 116 Bavin Road, Bomen and legally identified as Lot 2 DP1115229 (for the BESS and road connection to Bavin Road), and Lot 1 DP1115229 (for the Transgrid substation works). The subject land comprises 31.04 hectares (ha), whilst the development footprint relating to the BESS comprises approximately 4.05ha. The land is currently vacant and used for low intensity livestock grazing. Several major easements encumber the site. The easements in relation to the development site and site access road are shown in Figure 1-1 below and illustrated in Appendix A. Planted native vegetation is generally confined to the upper hillslopes around the eastern boundary.



Figure 1-1 Preliminary design of the proposed development with existing transmission line easements shown as purple dashed line and native plantings shown in green. Proposed access road in light brown.

Land to the north and west comprises of industrial land including logistics, manufacturing, and vehicle-related industry. Land to the south and east is rural land used for livestock grazing predominantly, with the operational Wagga Wagga North Solar Farm located about 600 metres (m) to the east/north-east over the ridgeline. The closest existing dwelling is approximately 650m south-west of the proposal.

The development site was selected based on analysis of landscape and topographical conditions, biodiversity values, agricultural values, distance from sensitive receivers and urban areas, compatible land use conditions, access to the electricity grid network, access to the road network, and the absence of hazards.

The design has been further analysed and adapted as necessary as part of the preparation of this SEE, consistent with the findings of associated supporting studies to avoid and minimise the environmental effects of the proposal.

The development site and surrounds are shown in Figure 1-2



Figure 1-2 Proposed development site

1.3. Applicant and land ownership

The Applicant, ib vogt Development Australia Pty Ltd, on behalf of WN BESS Pty Ltd, intends to construct and operate a BESS on the subject land. The BESS would be connected a new 132kV bay the Transgrid Wagga North Zone Substation, located immediately north.

The landholder is M. Hubbard. Landholder consent for this application is provided.

1.4. SEE structure and supporting plans and documents

This SEE has been prepared by NGH Pty Ltd (NGH) on behalf of the Applicant, ib vogt Development Australia Pty Ltd.

This SEE has been informed by design plans and reports prepared by NGH and other specialist consultants.

This SEE:

- Describes the proposed works, the development site, and the wider locality.
- Describes the planning context and statutory approval requirements.
- Identifies and assesses the effects on environmental values.
- Provides mitigation measures to avoid, minimise or mitigate identified impacts.

This SEE shall be read with the accompanying plans and documentation listed in Table 1-1.

Table 1-1 Accompanying plans and documents

Appendix	Title/Description	Prepared by
A	Development design plans and elevations	Applicant
B	Utilities Demand Report	NGH
C	Noise Impact Assessment	Marshall Day Acoustics
D	Preliminary Hazard Analysis	Pando Consulting
E	Bushfire Assessment Report	Ember
F	Landscape Plan and Specifications	Moir Landscape Architecture
G	Traffic impact assessment and Haulage Assessment	Impact
H	Aboriginal Cultural Heritage Assessment	NGH
I	Waste Management Plan	NGH

Appendix	Title/Description	Prepared by
J	Preliminary Site Investigation	NGH
K	Stormwater Management Plan and Technical Report	Xeros Piccolo
L	Geotechnical Bore Logs	Inland Geotech
M	Statement of Consistency	NGH
N	Consultation evidence	Various

1.5. Legislative context (summary)

The subject land is in the Wagga Wagga SAP, which is primarily governed by the State Environmental Planning Policy (Precincts—Regional) 2021 (Regional Precincts SEPP).

Under the provisions of the Regional Precincts SEPP, Lot 2 DP1115229 is zoned Rural Activity and Lot 1 DP1115229 is zoned SP2 Infrastructure (Electricity Transmission or Distribution). The proposed development is defined as electricity generation works.

Under the SP2 zone, the purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose, is development permitted with consent on that land. Under Schedule 1A section (3A) of the SEPP, development for the purposes of electricity generating works used for electricity storage is permitted with development consent on land in the Rural Activity Zone. Therefore, the proposed development is permissible with consent.

Where development requires consent in the SAP, the consent authority is the Planning Secretary (Department of Planning, Housing and Infrastructure (DPHI)). The proposed development would contribute to achievement of the zone objectives.

According to the Regional Precincts SEPP, the State Environmental Planning Policy (Planning Systems) 2021 does not apply in a SAP, i.e. development does not trigger the respective requirements for Regionally Significant Development and State Significant Development. Furthermore, the proposed development is not categorised as Designated Development according to Schedule 3 section 50 of the EP&A Regulation.

An Activation Precinct Certificate (APC 433) has been obtained for the proposed development in accordance with the provisions of the Regional Precincts SEPP.

The SEPP also requires the consent authority to have regard to the Master Plan and Delivery Plan and the zone objectives when determining a DA. A Statement of Consistency with the SAP Master Plan and Delivery Plan has been prepared to demonstrate consistency, having regard to the permissibility of the development, the proposed land use, development design, and site constraints, and is further detailed in Section 4 of this report.

Additional legislation relevant to the Proposal include the State Environmental Planning Policy (Resilience and Hazards) 2021. Compliance is achieved via the provision of a Preliminary Hazard Assessment (PHA) undertaken in accordance with clause 3.11 and 3.12 of the SEPP

As of July 2025, Wagga Wagga City Council (WWCC) voted to enhance protections for prime agricultural land from the development of renewable energy projects, which includes battery energy storage facilities. This decision comes in response to growing community concerns, particularly from local landowners who fear the impact of such developments on farming viability and rural lifestyles.

WWCC is currently drafting a Community Benefit Policy for energy developments, and creating a recycling policy for renewable energy technologies, with the aim to identify areas unsuitable for future renewable energy developments, rather than banning them outright.

2. Proposed development

2.1. General overview

The Applicant intends to develop a 120MW/480MWh BESS at 116 Bavin Road, Bomen NSW (Lot 2 DP1115229). The BESS would connect to the national electricity market (NEM) via Transgrid's Wagga North Zone Substation (Lot 1 DP1115229). Transgrid considered several potential options and has advised the intended route would be from the proposed BESS, entering the zone substation from the south-western corner, adjacent to the existing water tank, and connecting with a new 132kV bay.

2.2. Proposed development (summary)

Key features of the proposed development are summarised in Table 2-1 below, with design plans provided in Appendix A. Note that component specifications are subject to further detailed design and final product selection subject to rapid technological improvements.

Table 2-1 Summary of proposed development

Key Elements	Description
Subject land	Lot 2 DP1115229 and Lot 1 DP1115229 – approx. 31 ha Development site – approx. 4 ha
Battery Containers (LFP)	Approximately 126 x 20ft containers housing battery cells in modules and associated cooling systems
Power Conversion Systems (PCS)	42 x PCS (skid mounted)
Switch room	33 Kilovolt (kV)
Control Room	Contain battery-monitoring equipment and allows operators to control the plant remotely
Connection transmission line	A transmission line which would connect the BESS to the neighbouring Transgrid Wagga North Zone Substation and associated works.
Ancillary infrastructure	• Bunding. • Construction laydown areas. • Bulk earthworks and drainage. • Fencing and landscaping. • Internal access tracks within the subject land. • Security fencing. • On-site car parking. • Operations and maintenance (O&M) building.

Key Elements	Description
	- Ancillary storage. - Staff amenities. - Underground cables connecting site infrastructure. - Auxiliary low-voltage transformers. - Water tank.
Fencing	2m height, barb on top
Road upgrades	Intersection upgrade on Bavin/Byrnes Road Sealing of Bavin Road to site access point
Stormwater management	As per the Stormwater Management Plan (Appendix K)

2.3. Construction phase

The construction phase is expected to last approximately 12-18 months. The main construction activities would include:

- Sealing of Bavin Road
- Construction of site access road, from Bavin Road to the BESS site
- Construction of Transgrid transmission easement access
- Site establishment and construction of temporary facilities (fencing, ground preparation, upgrade of existing access points, preliminary civil works, and drainage, weed management)
- Construction of internal substation, BESS and PCS foundations and substation earthing mat.
- Installation of module components
- Sand trenching
- Installation of underground cabling and new overhead powerline as required.
- Installation of substation and switching equipment
- Construction of ancillary buildings and structures
- Site water detention and stormwater management
- Landscaping
- Testing and commissioning
- Removal of temporary construction facilities and rehabilitation of disturbed areas.

Temporary facilities established at the site during the construction phase would generally include:

- Material laydown areas.
- Construction site offices, generator and skip bins with wind shield and lid.
- Vehicle parking areas for construction workers.
- Staff amenities (portable toilet/s).
- CCTV at construction compound.
- Waste management areas.

Temporary staff amenities would be designed to accommodate the proposed maximum number of workers simultaneously at the site at the peak of the construction period.

The management of waste during the construction phase would observe the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.

Construction wastes would include:

- Packaging materials
- Excess building materials, scrap metal and cabling materials
- Masonry products, including concrete wash
- Excavation of topsoils and vegetation clearing
- Bio wastes facilities, hired from portable WC providers.

Waste produced during construction would be disposed of at an appropriately licensed waste facility. In accordance with the Protection of the Environment Operations Act (POEO Act) 1997 and associated waste classification guidelines, most waste would be classified as building and demolition waste within the class general solid waste (non-putrescibles).

Ancillary facilities in the site compound would produce sanitary wastes classified as general solid waste (putrescibles) in accordance with the POEO Act. Toilet hire and maintenance services would be employed to remove or pump out sanitary wastes on a regular basis. This would not be discharged to the land.

2.4. Permanent infrastructure

2.4.1. BESS Containers

Battery modules would be within a container as shown in Figure 2-1. The container would be approximately 5988mm wide, 2298mm deep and 2896mm high. They would be anchored to a concrete footing and would have an individual capacity of 4073.47kWh. There would be approximately 126 such containers within the development site, subject to final design.



Figure 2-1 Example of BESS module

2.4.2. Power conversion systems

These systems contains inverters which convert direct current (DC) to alternating current (AC); the medium-voltage transformer, which converts the inverter output voltage to the medium-voltage of the system (33kV); and the medium voltage switchgear, which contains the medium voltage circuit breakers and disconnectors for the PCS.

There are 42 PCS distributed throughout the development site. Three BESS containers are connected to each PCS via underground cables, and all PCS are connected to switchroom via 33kV underground cables.

2.4.3. Substation/transformers/switching station

A 33kV switch room would contain inverters which convert direct current (DC) to alternating current (AC); the medium-voltage transformer, which converts the inverter output voltage to the medium-voltage of the system (33kV); and the medium voltage switchgear, which contains the medium voltage circuit breakers and disconnectors for the PCS.

An on-site substation would be separately fenced within the facility and contain the 33kV/132kV transformer (HV transformer) to step the voltage up to the level of the substation. This high voltage transformer would be connected to the 33kV switch room via an underground cable. Harmonic filters would be installed with the HV transformer, if required to manage the voltage supplied to the grid within the necessary range of the broader network.

2.4.4. Onsite cabling, distribution line and external connection

The onsite cabling would consist of buried medium voltage AC cabling and low voltage DC cabling as well as the outgoing 132kV high voltage cabling that will connect the BESS to the substation. They would be at least 800mm below ground surface.

2.4.5. Connection to the Transgrid Wagga North 132/66 kV substation

Transgrid advised that the preferred connection from the proposed BESS to their asset is via an underground transmission line, entering the zone substation from the south-western corner, and termination at a newly constructed within the Transgrid Wagga North 132/66kV substation.

As part of these connection works, Transgrid would be responsible for the following works within their land:

- Construction of a new 132kV bay to facilitate the integration of the BESS within the substation infrastructure.
- Installation of associated secondary high-voltage equipment required for the selected connection option, ensuring compliance with Transgrid's technical and operational standards.
- Execution of any necessary civil works to support the bay construction, including foundation works, trenching, and structural reinforcements and laydown areas, as required.

The final design and scope of these works will be determined in coordination with Transgrid's technical and regulatory requirements.

The connection works to the zone substation would all be completed under the same DA as set out in this SEE report. As part of the connection works, additional construction traffic volumes are required. The potential impacts as a result of these works are discussed in Section 4.7 of this SEE.

2.4.6. Perimeter fencing and security CCTV

Standard rural fencing would remain around Lot 1 perimeter. Wire mesh fencing would be installed around the BESS site perimeter, approximately 2m high. Additional security fencing would be installed around the perimeter of the internal substation. Infra-red security technology and CCTV cameras may be installed on posts to a height of 2m around the perimeter fence and along the internal access road.

2.4.7. Access road

The existing access road from the Project driveway to the BESS site will be re-gravelled and reformed, with drainage installed as per the Stormwater Management Plan (Appendix K).

2.4.8. Bavin Road sealing

The current width and formation of Bavin Road will be retained. However, the Applicant has committed to sealing of the length of Bavin Road from the edge of the existing seal to the Project driveway.

2.5. Materials, machinery and water use

Construction materials would be sourced locally wherever possible. Gravel would be imported to surface hardstand areas and access road. Sand would be required for the bedding of underground cables. Concrete would be required for the switching station equipment, BESS, PCS, and transformer foundations.

Approximately 2ML of water would be required during construction, mostly for dust suppression, but also for cleaning, concreting, on-site amenities. Water would be trucked in and stored in temporary tanks if needed. Additional water would be stored for firefighting purposes in a prefabricated non-combustible storage tank of no less than 200kL, in accordance with Planning for Bush Fire Protection 2019 (RFS, 2019).

During operation, bottled water would be provided for any potable water needs for the proposed operations and maintenance building. Approximately 30kL of non-potable water would be needed for landscape establishment activities in the initial stages and will be trucked to site.

Refer to Appendix B for a Utilities Demand Report. The SAP Delivery Plan requires the applicant to address adequate services and development sequencing. However, is not applicable to the proposed development given the temporary facilities provided for construction, limited operational staff, and no connection to Council-maintained water supply, sewerage, and stormwater. Gas and telecommunication connections are also not a requirement of the Project, with electrical connection approved by Transgrid.

Indicative machinery/plant types are as outlined below. Equipment types, usage and various construction scenarios are assessed in the accompanying Noise Impact Assessment at Appendix C.

- Telehandler forklift
- Crane
- Padfoot roller

- Dump truck
- 30t excavator
- Water truck
- Bobcat tracked
- Scraper for topsoil stripping
- Grader (access track construction)
- Smooth drum roller (access track construction)
- 15t excavators for shallow trenches.

2.6. Personnel and work hours

At the peak construction period, the proposed development is expected to require approximately 80 workers. Where workers are non-local, they would be encouraged to use accommodation within the local area.

Construction activities would be undertaken during standard construction hours:

- 7.00 am to 6.00 pm Monday to Friday,
- 8.00 am to 1.00 pm on Saturdays.
- No work on Sundays or public holidays

Construction activities would be restricted to the hours indicated above, construction required outside of these hours would only be undertaken with prior approval from relevant authorities and in accordance with the development's Construction Environmental Management Plan (CEMP), or in the event of emergency circumstances i.e., to make work safe.

2.7. Operations

Once operational, the BESS would operate on a continuous basis; recharging when supply is high and energy prices are low and discharging when demand and energy prices are high. The BESS also has the ability to provide other ancillary services such as providing system strength and stability to the electrical network.

Staff would largely operate and monitor the BESS remotely and attend the site as required.

Batteries may require replacement after around 15-20 years. It is expected that a replacement of the batteries would occur no earlier than 20 years from commercial operation date with the current envisaged operation of the plant.

Regular repairs of the equipment caused by wear and tear will occur progressively over time. However, given the battery degradation and in an anticipated time around 20 years, it is expected that major battery replacement would occur all at once, since the technology available in 20 years from today is unknown.

Replacement of battery containers would be loaded onto trucks and transported to an appropriate licenced recycling location.

The BESS would be operational for approximately 35 years, after which it would be decommissioned.

2.8. Decommissioning

The timeframe for decommissioning works would be approximately 12 months. This would include the following key activities:

- Contractor mobilisation.
- Uncoupling of connections and cabling.
- Sorting and stockpiling materials and components for off-site recovery, recycling, disposal.
- Removal of BESS components including containerised batteries, power conversion stations off-site for processing and resource recovery/recycling.
- Removal of internal roads, footings, slabs and concrete pads and reinstatement.
- Removal of underground cabling and reinstatement.
- Removal of ancillary buildings and structures.
- Minor land shaping to return the site to a suitable state for agriculture to recommence.

2.9. Justification for the proposed development

The proposed development is consistent with the vision for the SAP as documented in the Wagga Wagga Special Activation Precinct Master Plan and addressed below. The proposed development would invest over \$200 million into the precinct and crucially, provide temporary energy storage of excess energy in the grid as generated by numerous solar farms in the region that feed the Wagga North zone substation. The battery's operations would enable a higher proportion of locally generated renewable energy into the grid during off-peak times (when the battery is charging) and increase the amount of renewable energy available during peak times (when the battery is discharging), supporting the expected 40 years of industrial growth in the SAP area.

Table 2-2 Vision for Wagga Wagga Special Activation Precinct

Objective and description	How the development meets these targets
Economic Development • A nationally significant economic precinct • A future-proofed Precinct • A strategic approach to managing growth	The proposed development is consistent with the social objectives of the SAP centred on driving economic growth and job creation in the area. The proposed development would be consistent with the proposed directions and recommendations of the Renewable Energy Analysis (WSP, 2020). The Wagga North zone substation requires substantial upgrades (additional 60MVA at completion of SAP Stage 1 development) to cater for energy supply from existing solar farms in the region, renewable energy generated from roof-top and biogas/biomass sources in the precinct and meet energy demand in the region. It is considered the BESS would be important in managing these needs and can help shift the timeline in which the upgrades are required. The proposed BESS would provide support to renewable energy sources, provide grid support services which are noted to be an issue,

Objective and description	How the development meets these targets
	better managing the potential for excess renewable energy in the grid, and shifting this to cover the energy needs of industrial development in the SAP which would likely extend outside the coverage provided by peak renewable energy production hours.
Place and Landscape • Industry in the landscape • A good neighbour • Quality design	The proposed development is a permissible use in the Rural Activity zone and would generally meet the acceptable solutions for development in this zone. Whilst the design is strictly required to be functional, the BESS has been sited to minimise impacts where possible and provide mitigation of visual impacts through landscape screening that is compatible with the precinct revegetation strategy.
Environment and sustainability • Eco-industrial precinct • Circular economy • Net zero emissions • Water security and quality • A safe precinct	The proposed development would be well-aligned with the sustainability goals for the precinct as it would more effectively use daytime excess solar-generated energy in the NEM. This would be advantageous for the Wagga Wagga SAP; however, will also have wider benefits for the NEM with storage off energy and release during peak consumption times. Increased storage capacity across NSW also supports additional renewable energy projects around NSW by reducing production curtailment and in turn helps achieve the net zero targets by 2050. At present it cannot be guaranteed that the energy supplied to the BESS would be solely from renewable sources, given coal is still the major energy generation source in NSW. However, renewable energy will soon be a major source of power generation in NSW, in alignment with relevant legislation and government strategies. Regardless, it is desirable that any daytime excess electricity in the grid (whether coal, gas or solar generated) is stored for discharge during peak times. The proposed development would be carried out in the Rural Activity Zone and would not compromise the achievement of the zone objectives. The BESS is considered a desirable and productive use of the land for this infrastructure, specifically providing storage of electricity and grid stability in an area that aims to support high intensity industrial development such as manufacturing. This will achieve resource efficient outcomes, in alignment with the SAP objectives. Due to the highly specialised equipment used, conventional

Objective and description	How the development meets these targets
	circular economy streams are unlikely to eventuate; however, recycled components are incorporated into the manufacture of the equipment and at the end of their operational life, recyclable components are again extracted and waste minimised.
Community • A connected, green place • Connection to Country	The Aboriginal cultural heritage values of the land were investigated through an Aboriginal cultural heritage assessment. No values were identified within the project footprint. Refer to section 4.8 of this report.
Infrastructure and transport • Digital connectivity • Integrated utilities • Great access for all modes	The proposed development would have minimal need for connection to the precinct infrastructure. It would be mostly self-sufficient and individually managed due to its operational nature and location in the rural zone.

3. Consultation

Advice on the level of consultation required was sought from the Regional Growth NSW Development Corporation (RGDC) and the DPHI State Rezoning team (Appendix N). The advice received was that engagement is not mandatory for local development applications in a Precinct. As part of the master planning process for the SAP, the Department and RGDC have conducted thorough engagement. Stakeholders consulted include:

- RGDC
- Former NSW Department of Planning, Industry and Environment (DPIE)
- Wagga Wagga City Council (WWCC)
- NSW EPA
- TfNSW
- Crown Lands
- Department of Primary Industries
- Landowners, businesses and community members.

When an application is lodged with a current APC, all required referrals or consultations have been completed, and no additional consultation is necessary prior to the lodgement of a development application.

Despite this, the Applicant has consulted with WWCC, Essential Energy and the nearest neighbours to the Project. Below details the consultation taken to date.

3.1. Department of Planning, Housing and Infrastructure

The proposed development was first presented to DPHI in September 2022, when it was identified by NGH that electricity storage, as a type of electricity generating works, was not permitted in the Rural Activity zone. Further information was presented to DPHI to support the suitability of the subject site for the proposed BESS. An amendment to the Regional Precincts SEPP was introduced by DPHI and gazetted in 2024.

A Scoping Report for the proposed development was also presented to DPHI and feedback received in August 2024.

3.2. Wagga Wagga City Council

The Applicant reached out to WWCC in November 2024, to introduce the proposal, discuss access arrangements and discuss preliminary terms for a Section 7.12 Infrastructure contribution. WWCC is intended to accept the standard infrastructure contribution.

WWCC was also consulted in the preparation of the Traffic Impact Assessment (TIA) for the proposed development. A meeting was held in November 2024 as detailed in section 8 of the accompanying TIA.

Through the assessment of the APC in May 2025, RGDC received feedback from WWCC as outlined in Table 3-1. A response to these matters has been prepared as outlined in the table. NGH, Impact (traffic consultant) and the proponent met with WWCC planning and traffic engineering officers in May 2025 to discuss the feedback and further responses. WWCC traffic engineering officers consider the proposed arrangements for the intersection of Bavin Road and Byrnes Road cannot be enforced. All other matters are

generally agreed upon. WWCC will be consulted further in the preparation of the TMP for the proposed development.

Table 3-1 WWCC traffic arrangements feedback

WWCC comment	Impact and NGH response
The contents of and recommendations made by the report are noted.	Noted.
A specific Traffic Management Plan for escorted Over Size Over mass (OSOM) vehicles, including a Traffic Control Plan is to be developed, in consultation with Council and Transport for NSW prior to the commencement of Stage 2 works.	Agreed, a TMP and TCP would be prepared.
A Traffic Management Plan (TMP), as recommended by this report (Section 7.2) shall be prepared, in consultation with Council and Transport for NSW prior to the commencement of any construction work.	Agreed, a TMP would be prepared.
Turning lane assessment indicates that a BAL and CHR treatments are warranted on Byrnes road at its intersection with Bavin Road based on the anticipated volumes. Whilst constraints in providing a CHR treatment are noted, relocation of the power pole or stormwater pit do not make a strong case for not providing the warranted CHR treatment.	As outlined in section 8 of the TIA, the provision of a CHR would also affect an existing residential driveway in close proximity to the intersection of Byrnes Road and Bavin Road. The relocation and upgrade of the HV power line and pole would be a significant undertaking. Traffic and access management as an alternative to a CHR intersection treatment is not uncommon where it relates to construction traffic only. Construction traffic can be managed through staggered shift start times, use of shuttle buses to minimise individual movements, avoiding HV deliveries during peak traffic and the like. In this instance, as a minimum, it is proposed to limit all light and heavy vehicles (excluding OSOM) to south-bound left in movements, given the nearby roundabout north on Byrnes Road would support the safe turnaround of vehicles.
Also, a left-in/left-out arrangement at the above intersection would be difficult to enforce.	As outlined in section 8 of the TIA, this can be enforced through contractor agreements and site management plans and is not an uncommon arrangement. Compliance would be monitored via a

	traffic monitoring camera and intersection. Only north-bound left in movements would be restricted. All other movements can proceed as normal.
It is further noted that the intersection of Bavin road/Byrnes road is proposed to be widened to facilitate simultaneous entry and exit of construction vehicles based on swept path of 26m B-Doubles. Consideration should also be given to widening Bavin Road up to the site access road to facilitate anticipated two-way movements by B-double and OSOM vehicles.	It is noted there would be no two-way movements with OSOM vehicles on Bavin Road, as OSOM movements are managed under escort and pilot vehicles would halt any oncoming vehicles on Bavin Road. Additionally, residents on Bavin Road would be advised of the two OSOM movements in advance. A temporary gravel passing bay within the Bavin Road reserve may be considered appropriate during the 6–9-month construction phase, subject to further detailed investigations and preparation of the TMP prior to the commencement of works.
It is noted that a detailed car park design has yet to be determined. Notwithstanding, all construction and operation vehicles should preferably park within the site.	Agreed, all construction vehicles would park within the site and can be accommodated. There would be no parking permitted on Bavin Road.
It is also noted a NHVR permit will be sought for use of Bavin Road by B-Doubles, which is expected to include an assessment of, among others, pavement load bearing capacity of Bavin Road.	It is not considered necessary to conduct a pavement load bearing capacity assessment of Bavin Road. As outlined below, the proponent would monitor and maintain the affected section of Bavin Road between the commencement and completion of construction works and again during decommissioning. If and where required, the road would be rehabilitated in accordance with the pre-commencement condition survey.
Should Bavin Road be approved as a B-Double route, including the proposed 40m extended sealed section, the upkeep and maintenance of the road shall be binding upon the applicant.	Agreed, the proponent would be responsible for upkeep and maintenance of Bavin Road, from Byrnes Road intersection to the site access point, from the commencement of works to the completion of construction works (and during the decommissioning period). This would be documented by a road dilapidation survey conducted for Bavin Road by a qualified consultation prior to the commencement of works.
A road dilapidation survey shall be undertaken by a qualified contractor/consultant along the approved haulage route prior to the commencement of	Agreed, a dilapidation survey would be conducted. However, the proponent could not be responsible for the entire haulage route as most of the roads

construction works. If required, roads must be repaired to their original condition upon the completion of construction works.	involved experience thousands of daily movements and the project would be responsible for only a small portion of such daily movements. As outlined above, the proponent is prepared to maintain Bavin Road, from Byrnes Road intersection to the site access point, from the commencement of works to the completion of construction works (and during the decommissioning period). This would be documented by a road dilapidation survey conducted for Bavin Road by a qualified consultation prior to the commencement of works.
---	--

WWCC reviewed the TIA in full in October 2025, noting the constraints of the high-voltage power line. Following their review, Council recommended as a minimum, a bitumen-sealed BAR intersection treatment, designed and constructed in accordance with Figure 7.1 of Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (2023b) for an 80 km/h environment, and to the satisfaction of Council, be included as a condition of consent.

A meeting was held with WWCC via teams in November of 2025, whereby draft intersection designs were provided. A detailed response on the unsuitability of these designs is included in the final TIA (Appendix G).

3.3. Essential Energy

The Applicant sent an enquiry to Essential Energy in October 2025, in relation to the construction of intersections and roads near their assets. This correspondence was recommended by DPHI following the WWCC advice on the Byrnes/Bavin Road intersection upgrades proposed.

Essential Energy noted the following:

1. Power pole setbacks are set by the Austroads standard and Guide to Road Design Part 6. Treatment of the intersection to make the road closer to the existing pole would trigger the need for a treatment.
2. The installation of a road barrier would be one method for the treatment. However, Essential Energy will not comment on its adequacy to reduce the risk.
3. In reviewing the affected pole opposite Bavin Road, the asset is a complex, dual circuit sub-transmission pole. There is a 66kV circuit and an 11kV circuit on the pole. The pole is also an operational pole with an 11kV gas switch and recloser.
4. The pole needs an (ideal) 10m radius of clear space around it to allow for access to operate the switch and fuses on the pole. As the asset is already close to the road, any widening will impact Essential Energy's ability to safely access and operate assets at this location, without having traffic control set up to keep our workers safe. Traffic Control is costly and impacts costs to operate and maintain the network.
5. Essential Energy does not approve reducing to current access to this pole - either with road widening or installation of a road safety barrier near the pole.

4. Relocation of this pole is possible, however this would require the addition of another pole into our network to maintain ground clearances. The pole cannot be moved back (west) off the road towards the fence as there is a gas main that prevents this and easements would need to be acquired in private land to cover the blowout into the private lot to the west.

Essential Energy does not recommend the road is widened towards their pole, as it creates an unsafe area for this operational pole. Essential Energy needs an area to park vehicles off the road to operate and maintain this pole. Relocation of the asset is possible by moving to pole north, however a new pole would need to be installed to the south to maintain ground clearance. Adding poles to our network increases costs to our customer base and is to be avoided if other solutions to the turning lane are available.

3.4. Transport for NSW

TfNSW was consulted in the preparation of the TIA for the proposed development. A meeting was held in November 2024 as detailed in section 8 of the accompanying TIA. TfNSW will be consulted further in the preparation of the TMP for the proposed development.

3.5. Near neighbour

The nearest neighbour to the west of the proposal was consulted in November 2025, at their home.

Concerns were raised over the following, with the following mitigation measures proposed:

Concern	Applicant Response
Dust, road use, and heavy vehicles	It was initially proposed to not seal Bavin Road for the construction period. Following neighbours concerns, the Applicant has committed to seal Bavin Road. It is a requirement of the Project to prepare a Construction Traffic Management Plan (CTMP), in consultation with WWCC and TfNSW. A permit is also required from the National Heavy Vehicle Regulator. The CTMP will ensure compliance with legal road safety and vehicle access standards. Traffic will be restricted to the proposed haulage route – use of other private driveways will not be permitted. The Applicant has committed to providing landholders on Bavin Road fencing, demarcations and signage during the construction period, to deter construction traffic from utilising private driveways.
School bus and student safety.	As detailed above, it is a requirement of the Project to prepare a CTMP, in consultation with WWCC and TfNSW. It is standard practice of a CTMP to explore bus and landholder safety, which includes coordinating vehicle movements outside of school bus arrival/departure times.
Biosecurity and waste	A Waste Management Plan has been prepared as part of this Development Application.

	Biosecurity will be included in the CEMP.
Water access	The Applicant has committed to truck all water to site and not connect to the Riverina Water network. As such, the Project will not impact or have access to neighbouring landholders water supply.
Visual, privacy and landscaping	It is understood broken views will be affordable from the closest receiver, as well as views of trucks along the access road. It is a Project commitment to screen the western side of the BESS facility, to reduce views. The Applicant has also committed to providing the impacted landholder with private landscaping to supplement their existing landscaping. This is to be maintained by the non-associated landholder.
Construction hours	Construction activities will be conditioned during standard construction hours: • 7.00 am to 6.00 pm Monday to Friday, • 8.00 am to 1.00 pm on Saturdays. • No work on Sundays or public holidays Work outside these hours will require pre-approval, and will be communicated to landholders. Construction hours will be managed through the Project Construction Environmental Management Plan (CEMP).
Strategic alternatives	It is noted that there is a current DA under consideration for subdivision at 330 Byrnes Road, Bomen (DA 2510636). This is however a private development, and access to the Project site has not been nor is required to be considered. Transgrid also have a right of way easement to the Substation via their existing access. As such, the Applicant cannot use this access. Transgrid always require unobstructed access to their own asset.

4. Environmental analysis

4.1. Subject Land

The subject land is known as 116 Bavin Road, Bomen and identified as Lot 2 DP1115229 (for the BESS and road connection to Bavin Road), and Lot 1 DP1115229 (for the Transgrid substation works). The subject land comprises 31.04 hectares (ha), whilst the development footprint relating to the BESS comprises approximately 4.05ha.

There is no existing dwelling present on the land, though, the landholder has a development consent to erect a dwelling at the southern end fronting Bavin Road. The land is currently used for low intensity livestock grazing. No waterways are present across the development site, and no farm dams are within the subject land.

The proposed BESS site (Lot 2 DP1115229) would be accessed from Bavin Road. The site has no alternative access points. The existing Transgrid substation is accessed from Byrnes Road via a Right of Way (ROW) through adjoining industrial land to the west (Lot 1 DP260958). Access to the proposed development site via this land was investigated; however, an agreement with the landholder could not be reached. In addition to this, Transgrid require unobstructed access to their own asset at all times.

4.2. Site analysis and surrounds

The proposed development sits within the Wagga Wagga SAP located in southwest NSW. The SAP currently comprises of mostly industrial and agri-industrial development. The subject land is adjacent to the Transgrid Wagga North Zone Substation. The closest residential receiver is located approximately 650m south-west of the proposed development site.

The development site will be accessed off Bavin Road. Bavin Road is a rural road, which is sealed at the Byrnes Road end. Byrnes Road connects with other major routes in the area including Eunony Bridge Road to the Sturt Highway and Merino Road to the Olympic Highway.

Land to the north and west comprises of industrial land including logistics, manufacturing, and vehicle-related industry. Land to the south and east is rural land used for livestock grazing predominantly. Wagga Wagga North Solar Farm is approximately 420m east of the subject land.



Figure 4-1 View of development site, facing west towards Byrnes Road approx. 1km (Source: NGH, 2024)



Figure 4-2 View of development site and adjacent substation, looking east uphill (Source: NGH, 2024).



Figure 4-3 View of proposed development site, facing north towards Transgrid Wagga North Zone Substation (Source: NGH, 2024)



Figure 4-4 View of proposed development site, facing south towards Bavin Road (not visible) (Source: NGH, 2024)

4.3. Noise

Marshall Day Acoustics (MDA) has conducted a Noise Impact Assessment (NIA) of construction and operational noise associated with the proposed development to address the requirements of Section 4.3 of the Master Plan and Section 6.3.3.3 of the Delivery Plan, as well as additional information requested by DPHI. The assessment report is summarised below and attached as Appendix C.

4.3.1. Methodology

Noise and vibration impacts are assessed in accordance with relevant policies, guidelines and standards including:

- NSW 'Interim Construction Noise Guideline' (ICNG) (DECC, 2009)
- NSW 'Noise Policy for Industry' (NPfI) (EPA, 2017)
- 'Assessing Vibration: A Technical Guideline (ATVG) (DEC, 2006)
- Road Noise Policy (RNP) (EPA, 2011)

Operational noise

The operational noise assessment is intended to provide an assessment of noise associated with the proposed project, based on the current project design, and is limited to the equipment selection provided by the proponent at this stage.

The assessment has considered:

- Sound power levels for representative equipment such as inverters, battery packs and transformers taken from original equipment manufacturer (OEM) noise datasheets.
- Project noise trigger levels derived in accordance with the procedures set out in the NPfI (as referred to in the SAP Delivery Plan).
- Noise modelling of the project layout in the context of surrounding environment, implementing the method described in ISO 9613-2:2024.

The implementation of ISO 9613-2 enables multiple sound transmission paths, including reflected and screened paths, to be accounted for in the calculated noise levels. It was designed to assume conditions that favour the propagation of noise from meteorological effects, described as a slight wind (1 to 5 m/s) blowing from source to receiver, or a well-developed moderate ground-based temperature inversion, such as commonly occurs on clear calm nights.

In lieu of a detailed evaluation of meteorological conditions for the area, noise enhancing meteorological conditions have been assumed for all assessment periods.

Construction noise

Predicted noise levels have been calculated in general accordance with the method detailed in AS 2436-2010. This method enables the prediction of noise levels for sound propagation over hard or soft ground but does not provide the ability to calculate predicted noise levels for mixed ground cover with varied soil conditions.

The standard also notes that caution must be applied when considering predicted noise levels at distances beyond 100 m. For these reasons, predicted noise levels have been conservatively determined as the arithmetic average of the hard and soft ground prediction methods.

4.3.2. Existing environment

The development site is located within the Rural Activity zone of the Wagga Wagga SAP. The BESS site directly adjoins the Regional Enterprise zone, which permits a wide range of industrial and business activities, particularly focussed on manufacturing.

Noise sensitive receivers up to 3km from the proposed development site have been identified and categorised to align with the receiver types identified in the NPfl. Their location is presented in Figure 4-5 and detailed in Table 4-1.

For the purposes of this assessment only the nearest receiver of each type has been considered. Compliance demonstrated at these nearest receivers would also mean compliance at receivers further away.

Wagga North BESS

Statement of Environmental Effects



Figure 4-5 Site and receiver layout (Marshall Day Acoustics, 2025)

Table 4-1 Nearest receivers to the proposed development

Receiver ID	Approximate distance to development site, m
Residential (2)	600
Commercial (71)	2,100
Industrial (1)	100

4.3.3. Potential impacts

Construction noise impacts

Construction of the proposed development would generate noise and vibration as a result of activities occurring within the development footprint. In NSW, construction noise is generally to be assessed in accordance with the ICNG and considering the AVTG. Off-site noise generating activities have not been considered within this assessment.

In accordance with the ICNG, the NIA established the following construction noise management levels. Only daytime noise management levels have been included as all construction works would be limited to daytime hours.

Table 4-2 Construction noise management levels

Receivers	Description	Relevant Noise Management Level (LAeq15min)	Highly noise affected
Residential	35 dB(A) adopted Background Noise Level + 10dB(A)	45 dB(A)	75 dB(A)
Commercial	External noise level	70 dB(A)	-
Industrial	External noise level	75 dB(A)	-

Noise levels associated with each of the main construction tasks (identified in section 7.2 of the NIA) have been predicted for all noise sensitive receivers of each land use category (residential, commercial and industrial) to provide an indication of the upper range of noise levels that may occur during construction (presented in Appendix K of the NIA). To provide a worst-case assessment, construction works have been assumed to be occurring at the nearest point in the subject construction area to the receiver, all equipment and plant items are assumed to be operating for 100% of the subject 15-minute period, and all equipment and plant items are assumed to be operating at the same location.

Table 4-3 Summary of receivers and constructions stages where noise may be above the noise affected management level (Marshall Day Acoustics, 2025)

Construction stage	Affected receivers
Public road upgrade	2, 3, 8, 9, 14, 17, 27, 32, 36, 38, 46, 47, 52
Access road construction	2, 3, 8, 9
BESS installation	2, 3, 8, 9, 14, 17, 27, 32, 36, 38, 39, 59, 60, 62
Cable trench digging	2, 3, 9
Gravel laydown	2
Site compound construction	2, 3, 8, 9, 14, 17, 27, 32, 38, 39, 59
Site rehabilitation	N/A
Substation & O&M facility construction	2, 3, 8, 9, 14, 17, 27, 32, 36, 38, 39, 59, 60, 62
Vegetation clearing	N/A

No residential receivers are indicated to be subject to construction noise levels above the highly noise affected management level.

No commercial or industrial receivers are indicated to be subject to construction noise levels above the respective noise affected management levels.

Due to the nature of construction works, equipment would only be in a single area for a short period of the overall construction schedule. Where adverse impact is indicated this is likely to only occur for a limited portion of the overall construction timeline.

The ICNG states that for residential receivers:

The noise affected level represents the point above which there may be some community reaction to noise.

- *Where the predicted or measured $L_{Aeq}(15\text{ min})$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level.*
- *The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.*

Based on the above noise reduction work practices and mitigation measures should be applied, where reasonable and feasible.

The NIA further notes that exceedances above the noise affected management levels are not unique to the subject development and are characteristic of many construction noise assessments due to the high 'at source' noise levels of construction equipment. Based on MDA's previous project experience, the predicted noise levels are typical of the range expected for a medium size infrastructure project in a semi-rural setting.

Construction vibration impacts

Construction vibration impacts were considered in the NIA at section 7.4. It was noted that a detailed vibration propagation assessment is site-specific and requires a combination of baseline vibration

assessment, empirical measurement of equipment and analytical methods. Assessment of this nature is typically associated with major infrastructure projects in an urban context, where vibration risks are significantly elevated. For the purposes of this project, given the significant distance between work areas and receivers, a risk assessment is appropriate.

Intermittent vibration

Works associated with public road upgrades to Bavin Rd are indicated to occur at distances less than 50 m to Receiver 3. This means that care must be taken to ensure equipment selection and operational periods do not lead to adverse impact. While calculation of specific VDV levels is not feasible at this stage, the proposed road upgrade works are similar to those carried out regularly on public roads and management practices are well known.

The types of construction likely to cause intermittent vibration i.e. impact pile driving and jack hammers, are not proposed for the project.

Continuous vibration

For public road upgrades on Bavin Rd, that may occur within 50 m of Receiver 3, use of the larger vibratory rollers (greater than 6 tonnes) may give rise to adverse impact. No other vibration intensive equipment is proposed to be operated for the public road upgrade construction stage.

Operation noise and vibration

In accordance with the NPfl, noise impact should be assessed against the project noise trigger level. According to the NPfl, the intrusiveness of a noise source may generally be considered acceptable if the equivalent continuous (energy-average) A-weighted level of noise from the source (represented by the LAeq,15min descriptor) does not exceed the background noise level measured in the absence of the source by more than 5dB(A). The NIA established the project noise trigger level, which is the lower (i.e. more stringent) value of the project intrusiveness noise level and project amenity noise level. Refer to Table 8 in the NIA and replicated below.

Table 4-4 Project noise trigger levels (Operational assessment)

Location	Day	Evening	Night
Residential receiver	40	35	35
Commercial premises	63 (when in use)		
Industrial premises	68 (when in use)		

Operational noise sources for the BESS are outlined in section 6.2 of the accompanying NIA and include the containerised batteries and associated fans (at 100% speed and silencer kit)/cooling systems, power conversion systems (PCS) and HV transformer.

To provide a conservative assessment, a modifying factor correction of +5 dB (as per the NPfl) has been applied to the predicted noise levels to account for the potential tonal characteristics of the noise from both the substation transformers and BESS equipment.

The assessment provided is considered a reasonable worst-case assessment with multiple decisions made to adopt conservative approaches.

Table 4-5 Predicted LAeq,15min Operational Noise Levels at Sensitive Receiver Locations, dB(A)

Receiver	Predicted noise level ^a			Project noise trigger level ^b			Compliance?
	Day	Evening	Night	Day	Evening	Night	
Residential							
2	33	33	33	40	35	35	✓/✓/✓
Commercial							
71	22	22	22	63	63	63	✓/✓/✓
Industrial							
1	50	50	50	68	68	68	✓/✓/✓

a Includes a + 5 dB modifying factor correction for tonality per Section 6.3

b Commercial and Industrial project noise trigger levels apply only when the subject premises is in use

The predicted noise levels associated with the proposed development are below the NPfl project noise trigger levels at the nearest, and therefore all, noise sensitive receivers. As such, the proposed development is capable of being designed and operated such that noise from operation is below the project trigger noise levels outlined in the NPfl. This is also considered to satisfy the requirements of Section 6.3.3.3 of the SAP Delivery Plan, specially PC62 and PC63.

Cumulative noise impacts were considered in the NIA, noting the Transgrid Wagga North Substation is an existing, operational facility, adjoining the proposed development. Existing environmental noise levels associated with this facility were not measured or quantified. The NIA notes that the NPfl project amenity noise level is designed 'to protect against cumulative noise impacts from industry' with modifications made to the recommended amenity noise level to account for noise contributions for existing industry. Given the compliance with project trigger noise levels indicated above, no further consideration was given to noise from other industrial sources. Assessment of cumulative industrial noise under the NPfl was considered satisfied.

The potential for sleep disturbance was considered in the NIA. It was noted the predicted noise levels at the closest residential receiver was comfortably below the screening criteria set out in the NPfl and therefore a detailed maximum noise level assessment was not considered warranted and sleep disturbance was not indicated to be a risk associated with this proposal.

4.3.4. Mitigation measures

The accompanying NIA found that operational noise impacts would comply with the relevant NPfl criteria; however, impacts of construction noise require further mitigations.

The following measures are proposed for this project.

- A suitably qualified acoustic consultant to be engaged during detailed design to ensure that compliance with relevant criteria is achieved at nearby noise sensitive receptors
- Prepare a Construction Noise and Vibration Management Plan (CNVMP), in line with the recommendations in Section 8 of the NIA. The CNVMP will include:
 - Staff training
 - Equipment selection

- Scheduling and respite
- General noise reduction measures
- Community engagement.

4.4. Fire, ignition and hazards

Pando Consulting has conducted a Preliminary Hazard Analysis for the proposed BESS. The PHA has been conducted to comply with the legislative requirements of the State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) and demonstrate that the risk levels associated with the BESS do not impede the approval of the proposed development. Key elements of the PHA are summarised below and the report attached as Appendix D.

4.4.1. Methodology

The methodology undertaken to prepare this PHA includes:

- Identification of the nature and scale of all hazards at the proposed development, and the selection of representative incident scenarios.
- Analysis of the consequences of these incidents on people, property, and the biophysical environment.
- Evaluation of the likelihood of such events occurring and the adequacy of safeguards.
- Calculation of the resulting risk levels of the facility.
- Comparison of these risk levels with established risk criteria and identification of opportunities for risk reduction.

The PHA was prepared in accordance with relevant Departmental requirements including the Hazard Industry Planning Advisory Paper No.6 – Guidelines for Hazard Analysis (HIPAP 6) and Multi-Level Risk Assessment (MLRA).

The PHA also includes a preliminary risk screening in accordance with the Hazardous and Offensive Development Application Guidelines – Applying SEPP 33. The risk screening process considers the type and quantity of hazardous materials to be stored on site as well as the expected number of transport movements. ‘Hazardous materials’ are defined as substances that fall within the classification of the Australian Dangerous Goods Code (ADGC) (i.e. have a Dangerous Goods (DG) classification). Detail of the DG classification is obtained from the materials’ Safety Data Sheet (SDS).

4.4.2. Potential impacts

Preliminary Hazards Assessment

The proposed development would comprise of approximately 126 CATL EnerC+ containerised liquid-cooled battery system containers, subject to detailed design, including:

- Around 40 modules (approx. 4MWh rated energy) per container with 104 LFP battery cells (52S2P) per module.
- Battery Management System (BMS) to ensure the stable operation of the energy storage system. The BMS would manage energy absorption and release, the thermal management system and low voltage power supply according to the detected data.

- Fire Suppression System (FSS) consisting of smoke detectors, heat detectors (optional), H2 detectors, fire control panel, aerosol, dry pipe (optional), smoke exhaust ventilation system and the Uninterruptible Power Supply (UPS). The FSS monitors for, and extinguishes, flame fire from a thermal run-away event.
- Thermal Management System (TMS) consisting of one powerful chiller, Positive Temperature Co-efficiency (PTC) heater and liquid cooling pipe. The TMS will control and manage the temperature of the battery within an optimised range.
- New generation LFP battery cells with high thermal stability.

In accordance with NFPA 855 14.3.2.2, the containerised BESS would be designed to include a 2-hour fire resistance rating, a fire alarm system, and an automatic sprinkler system.

Separation distance may be the most effective control to reduce the likelihood and consequence of fire propagation as a result of thermal runaway event. As indicated in Figure 4-6, the proposed separation distances for the BESS include:

- Ten metre wide Asset Protection Zone (APZ).
- Minimum clearance of 3.5 m between rows of container pairs and 3.0 m between back-to-back pairs.
- Minimum clearance of 0.9 m between back-to-back containers.

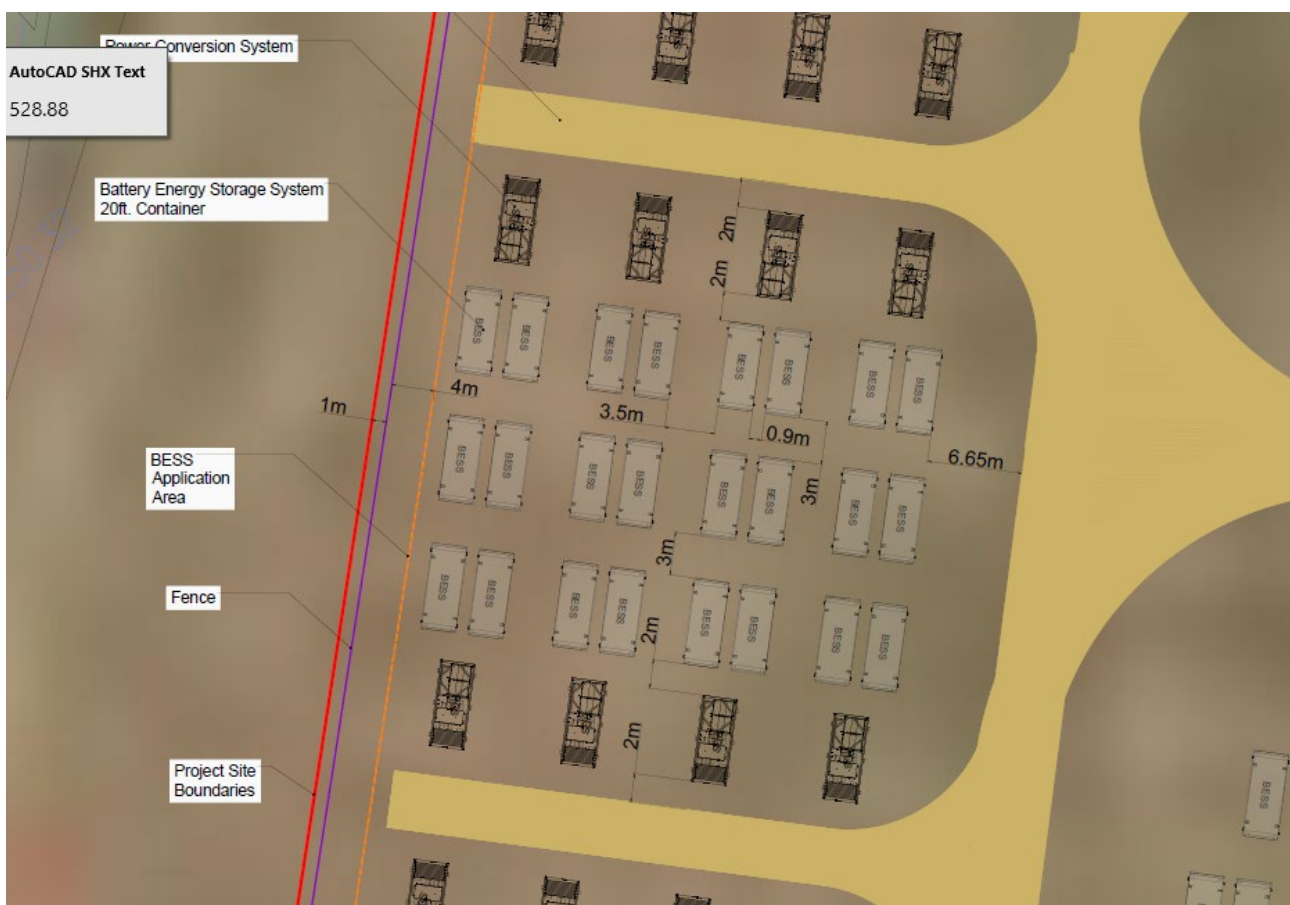


Figure 4-6 BESS separation distances (ib vogt, 2025)

The separation distances described above are in accordance with the CATL EnerC+ container product specification for back-to-back containers.

The PHA determined the separation distances proposed to be appropriate given they exceed the following relevant standards, specifications and assessments:

- CATL EnerC+ container product specification
- CATL UL9540A test report
- NFPA 855
- Readily available UL9540A test reports (for LFP only)
- Other BESS facilities approved by DPHI.

The PHA note the detailed design of the proposed development would be required to comply with the CAT-L EnerC+ container product specification, UL9540A test report recommendations and the fire safety study.

The resulting risk assessment indicated that the worst-case consequence is a fire from a variety of causes (e.g., release of flammable materials, battery thermal runaway, transformer fire). Such fires may have the potential to initiate bushfire to surrounding grasslands. The risk assessment indicated the highest likelihood rating for the identified events is unlikely (i.e., could occur in the next 10 years), which related to unauthorised personnel access to the proposed development site, resulting in vandalism/asset damage to the project infrastructure.

A total of 17 risk events (13 medium-risk events and 4 low-risk events) were identified. Based on the risk acceptance criteria used for the study, the risk profile for the project is considered tolerable, given the measures taken So Far As Is Reasonably Practicable (SFARP).

Most of the medium-risk events are related to fire incidents resulting from various causes. Considering the identified prevention and mitigation controls, the highest likelihood for these events was rated as very unlikely, indicating that while such incidents have been heard of in the industry, they are not expected to occur. Based on the size of the site, location of project infrastructure within, the proposed controls, and the distance to neighbouring land uses (including neighbouring properties and agricultural operations), the PHA determined the potential exposure to fire events would primarily affect the proposal's construction and operations workforce. Offsite impacts were expected to be minimal.

The risk assessment concluded that there was no potential for offsite fatalities or injuries. Therefore, the proposed development was considered to align with land use planning criteria.

Further, the qualitative assessment of a thermal runaway event indicated that, due to the separation distances, a multi module fire (i.e., fire propagating from battery container to battery container or battery unit to battery unit) is a non-credible event.

Section 5 of the CAT-L Performance Specification also details the proposed fire suppressant system (FSS). The fire extinguishing control strategy is divided into four levels:

- First level, alarm warning;
- Second level, ventilation and smoke exhaust to prevent deflagration;
- Third level, aerosol is released to extinguish the initial fire;
- Fourth level, dry pipe spraying to control the spread of fire.

The fire suppression system is divided into three parts: detection system, explosion-proof system and fire extinguishing system:

- The detection system has three types of detectors. All detection signals are received and processed by the fire control panel, and the hydrogen(H₂) detector can be linked with the explosion-proof fan system.
- The explosion-proof fan system meets NFPA855 (NFPA 69) standard and has the ATEX certification. The air inlet electric louver receives the alarm signal sent by the hydrogen(H₂) detector and opens the electric louver. When one of these two signals is received, the air inlet electric louver automatically closes. One signal comes from the hydrogen (H₂) detector, indicating that the combustible gas concentration is within a reasonable threshold range, and the other signal is a secondary alarm signal. The air outlet electric louver will turn on the explosion-proof fan and releases the combustible gas in the battery room after receives the alarm signal from the hydrogen(H₂) detector. The explosion-proof exhaust fan will automatically turn off when the concentration of combustible gas falls within the reasonable threshold.
- The fire extinguishing system is made up of the following:
 - Aerosol: When an initial fire occurs in the battery room, a fire alarm signal will occur, and the fire extinguishing system will automatically control the release of aerosol, which can also be triggered manually.
 - Dry pipe: As the last line of defense, the dry pipe system can effectively control the spread of fire. The flange is installed at the entrance of the dry pipe fire protection system, for the connection between the pipes. The HD Medium Velocity Water Spray Nozzles are open type (non-automatic) nozzles with rubber plug, designed for directional spray application in fixed fire protection system.

Preliminary Risk Screening

The objective of the preliminary risk screening is to determine whether the proposed development is considered as 'potentially hazardous industry' as defined by the Resilience and Hazards SEPP. The Resilience and Hazards SEPP defines 'potentially hazardous industry'.

A Preliminary Risk Screening was undertaken to consider the storage and transport of hazardous materials (dangerous goods) associated with the proposed development, as detailed in section 4 of the PHA. Seven hazardous materials were assessed, and none exceeded the relevant screening thresholds under the Applying SEPP 33 Guideline. No further assessment or action is required according to the Guideline. The proposed development is not considered a hazardous industry.

4.4.3. Mitigation measures

The PHA made the following recommendations.

- It is recommended that the results of the PHA be used as inputs into other safety studies required including:
 - Emergency response plan
 - Fire safety study.
- In addition to the above it is required that:
 - The detailed design of the BESS will be undertaken to comply with the requirements of section 3.2 of the PHA, including separation distances, UL9540A test reports and OEM recommendations.

- If the proponent chooses to use the Tesla Megapack, all recommendations from the Victorian Big Battery Fire Statement of Technical Findings – Victorian Government 2021 will be implemented.

4.5. Bushfire risk

4.5.1. Methodology

A Bushfire Assessment Report (BAR) was prepared by Ember. It is summarised below and attached as Appendix E to support the application. The methodology for the BIA included:

- On-site survey in November 2024.
- Bushfire threat assessment undertaken as per the relevant sections of the PBP.
- A detailed BIA report as per Section 4 of the PBP, together with recommendations needed for future development to satisfy specifications and requirements of the PBP.

4.5.2. Existing environment

The BAR noted the land was gently undulating, divided by a minor crest that separates the northern and southern halves. The development footprint slopes upward towards the eastern boundary where there are native plantings/windbreaks and land to the north and south of the footprint is generally level.

The subject land and surrounds have undergone historic widespread modification of native vegetation, primarily for the purpose of dry cropping and livestock grazing, which has resulted in large areas of cleared land treated as a grassland hazard.

The site is mapped as Bushfire Prone Vegetation Category 3, which is considered a medium bushfire risk classification. The site visit by an accredited consultant verified the bushfire risk mapping to be accurate and representative of the hazard applying to the site.

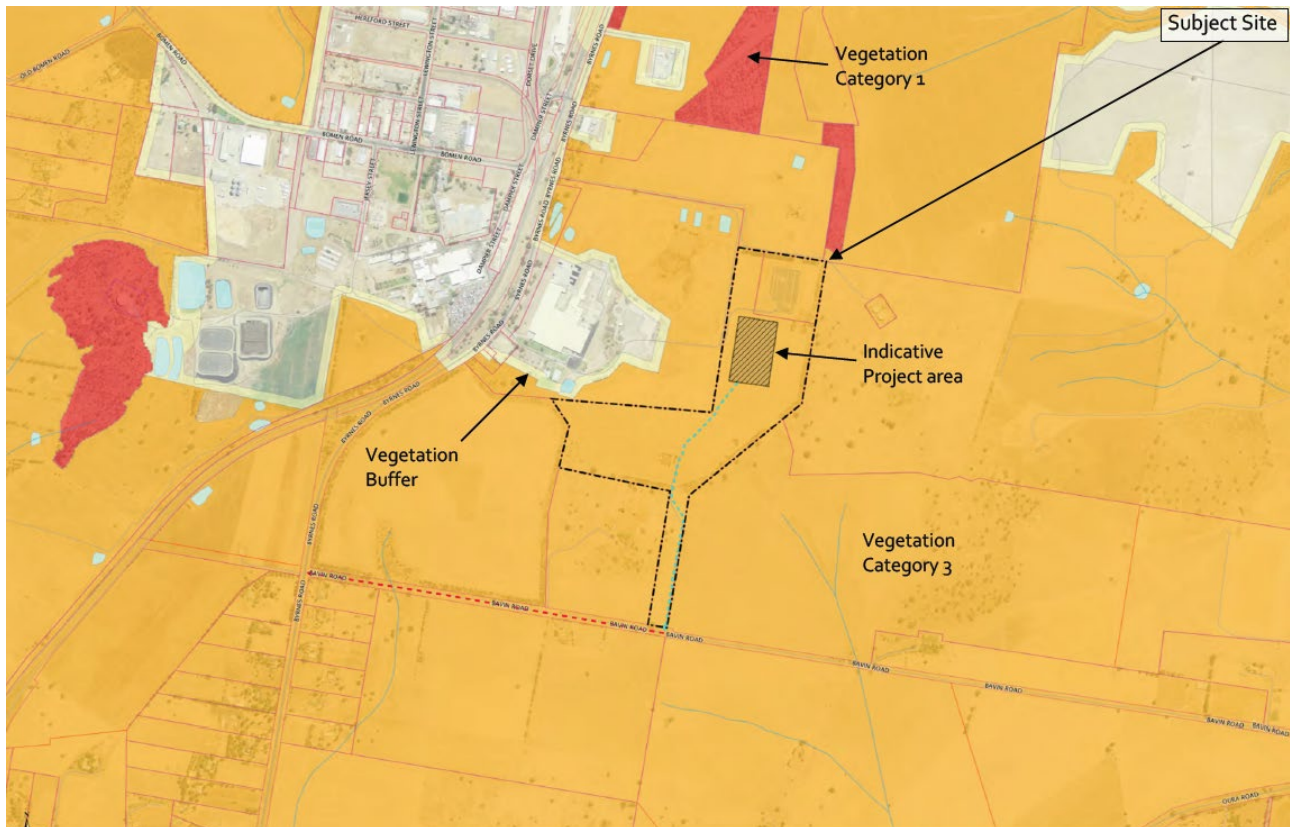


Figure 4-7 Bushfire prone land map (Source: Ember, 2025)

4.5.3. Potential impacts

Open, highly modified areas of woody vegetation were noted as few hundred metres to the east, south-east and south-west of the proposed development footprint. The development footprint and surrounds were considered grassland, with isolated paddock trees. The BAR noted the proposed development would be connected to Bavin Road via an 800m internal access road. Bavin Road connects with Byrnes Road and other major thoroughfares in the locality.

It was determined that the proposed siting, layout and design of the BESS provides sufficient space to achieve Asset Protection Zones (APZ) that ensure it is not exposed to radiant heat levels exceeding 29kW/m^2 , subject to final detailed design. Public road and internal road access is considered appropriate, and firefighting water supplies exceed the requirements of PBP.

According to the BAR, and with the implementation of mitigation measures, the proposed development would be able to satisfy the broad aims of the PBP and specific considerations in Section 8.3.9 of the Hazardous Industry PBP as follows:

- Afford structures protection from exposure to a bushfire.
- Provide for a defendable space.
- Provide appropriate separation between a hazard and structures to prevent the likely spread of fire.
- Ensure that appropriate operational access and egress for emergency service personnel is available.
- Provide for ongoing management and maintenance of protection and prevention measures.
- Ensure that utility services are adequate to meet the needs of firefighters.

The proposed development would therefore be consistent with the relevant bushfire requirements of the Wagga SAP Delivery Plan.

4.5.4. Mitigation measures

In response to the bushfire threat analysis, a suite of Bushfire Protection and Prevention Measures (BPMs) are proposed as follows:

- Appropriate setbacks from adjacent unmanaged hazardous vegetation of minimum 10m (APZ), confirmed subject to detailed design.
- Within the 11m APZ, minimum 4m wide all-weather gravel perimeter road, generally in compliance with the PBP.
- Manage and maintain the APZ as an Inner Protection Area as per the requirements of the PBP.
- Inclusion of 200kL static water supply, in line with the requirements of Table 7.4a of the PBP.
- Electrical services in line with the requirements of Table 7.4a of the PBP.
- Constructed to the appropriate Bushfire Attack Level (BAL) as per AS3959:2018 - Construction of buildings in bushfire-prone areas.
- Preparation of a Bush Fire Emergency Management and Operations Plan during the construction and operational phase of the BESS.
- Prior to construction, preparation of a Fire Safety Study and Emergency Plan in accordance with the relevant Hazardous Industry Planning Advisory Paper (HIPAP) documents
- Prior to construction, an Emergency Services Information Package will be developed for the site in accordance with FRNSW fire safety guideline

4.6. Land use compatibility

4.6.1. Existing environment

The subject land is located on the fringe of the Bomen industrial area, which consists of low-density industrial and agri-industrial development. The land is within the bounds of the Wagga SAP. The proposed development would be in the Rural Activity zone, which aims to manage a transitional area on the fringe of the industrial core of the SAP. Land to the south and east of the site is currently rural land, used for low-intensity dry cropping and livestock grazing. The land comprising the Transgrid substation is zoned SP2 Infrastructure.

The land was specifically selected for its position adjacent to the Transgrid North Wagga Zone Substation. The substation receives solar generated power from several solar farms in the wider region, consisting of over 400MW capacity. The BESS would play an important role in supporting these solar farms via temporary storage of excess power in the NEM.

The Main South Line (Inland Rail corridor) managed by ARTC adjoins Byrnes Road in some sections and is located about 700m to the west of the proposed development site.

The closest existing dwelling is a rural dwelling approximately 650m south-west of the proposed BESS footprint. The closest residential area is at North Wagga Wagga, approximately 4km south-west.

Part of the subject land is reserved by easement for private forestry. The proposed development would not obstruct these activities. No mining or exploration leases are known to relate to the subject land.

4.6.2. Potential impacts

The proposed development involves the establishment of 120MW of energy storage, immediately adjacent to the existing Wagga North Zone Substation. The energy storage is in the form of 126 containerised batteries as outlined and shown in section 2.4 of this report. The appearance of the site would be of a similar infrastructural nature to the adjacent substation. Landscape screening is additionally proposed around the proposed development in accordance with Delivery Plan requirements. Refer to Landscape Plan provided at Appendix F.

The proposed development is considered to be a desirable use for the precinct. It is permitted in the Rural Activity zone by way of a specific provision in the Regional Precincts SEPP. The proposed development can make effective use of this land resource whilst respecting the constraints posed by significant transmission easements and encumbrances on the site. These have been addressed in the design of the development.

The proposal would not be incompatible with the zone objectives and as a passive use, visually consistent with the neighbouring zone substation, would provide a transition and buffer between rural and urban land uses and not offend the rural character of the precinct. It is considered unlikely to cause land use conflict with other traditional uses within the transitional area, nor with adjoining employment lands.

The impacts on prime agricultural land have also been considered. Agricultural activities within the Development Footprint would temporarily cease upon commencement of construction in areas. However, upon operation, only the fenced area around the BESS would be excluded from agricultural activity. The proposed development would result in the temporary loss of approximately 4.05ha (at most, likely to be far less) of agricultural land for the life of the BESS (approximately 35 years). The impacts are considered negligible given the small area and does not significantly reduce the availability of land for primary production in the region. The fragmentation due to the change in land use would be low given the small footprint of the BESS, with the proposed development being highly reversible to the existing land use and conditions.

The BESS would provide opportunities for regional economic development and employment, incorporate the latest technology, contribute to the efficient use of energy in the NEM. Importantly, it would provide crucial energy support to help the Wagga SAP to flourish and achieve its vision around renewable energy and sustainability. The BESS would also play an important role supporting the hundreds of MW in solar generation capacity in the region, feeding to the Wagga North zone substation.

The proposed development would prevent continued agricultural use of a small portion of the land; however, most of the land will continue to be used in the current manner once the BESS is operational. If desired at that stage, the land can also be returned to agricultural use once the BESS is decommissioned.

4.6.3. Mitigation measures

Other relevant mitigation measures are outlined in this report to manage such impacts as noise, traffic, bushfire risk, and stormwater. The following mitigation measure/s would be implemented to minimise the impact to land use from the proposed development:

- Land rehabilitation to be detailed as part of a Decommissioning Plan, in consideration of relevant NSW Department of Primary Industries guidelines and best practice.
- Dismantle and remove all above and below ground structures and ancillary infrastructure, including (but not limited to) all underground cabling, inverters, internal roads, fencing, footings, and concrete from the site. Recycle, reuse, or disposal of material and waste products/

- Returning the site to its pre-existing use/.
- Disconnect the development from the electricity network
- Rehabilitation plans for all infrastructure during and after construction, incorporating appropriate groundcover management with local endemic species to mitigate dust and other land-use conflicts.
- Implementation of site landscaping in accordance with the accompanying Landscape Plan.

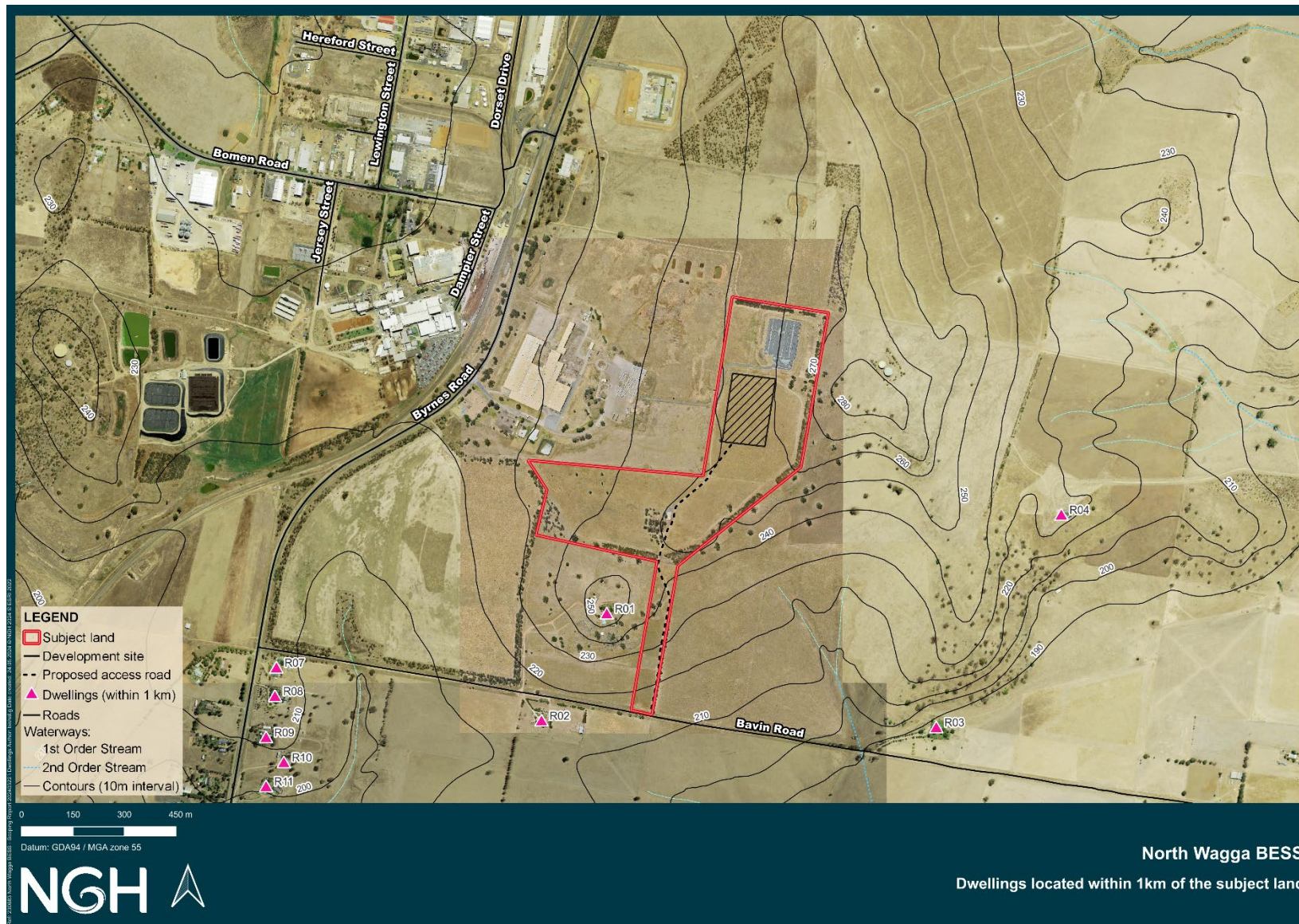


Figure 4-8 Dwellings within 1km of the subject land

Wagga North BESS

Statement of Environmental Effects



Figure 4-9 Location of transmission lines in the area

4.7. Access and traffic

A Traffic Impact Assessment (TIA) was prepared by Impact Traffic Engineering Pty Ltd (Impact) to assess the access and traffic implications of the proposed development. The findings are summarised below with the full TIA appended as Appendix G.

Impact met with Wagga Wagga City Council (WWCC) and Transport for NSW (TfNSW) regarding the proposed development in November 2024, and again in November 2025. This TIA was informed by details and feedback provided by WWCC and TfNSW and a response provided at section 8 of the TIA. Further comments were received from WWCC during the assessment of the APC, which is addressed in section 3 of this report.

4.7.1. Existing environment

Bavin Road

Bavin Road is classified as a local road (managed by WWCC). On maps it is shown to extend between Byrnes Road from the west to Windmill Road to the east; however, it is not trafficable at its midsection, approximately 1.5km from Byrnes Road intersection. The intersection of Bavin Road and Byrnes Road is sealed, with the constructed pavement extending for approximately 240m along Bavin Road. The western end of Bavin Road, where the proposed development access would be, services three rural dwellings. The majority of Bavin Road is unsealed, with no posted speed limit, the default rural speed limit of 100km/h applies.

No traffic movement data for Bavin Road was available at the time of writing this report, however based on observations made during an inspection of the site, the following estimations were noted / observed for each of these roads:

- No more than two vehicles observed across a 30-minute period.
- Estimated peak traffic no more than five vehicles in an hour, and less than 50 vehicles a day.

Byrnes Road

Byrnes Road is classified as an arterial road (managed by Transport for NSW (TfNSW)). Byrnes Road serves as a connection between the regional city of Wagga Wagga and the township of Junee. Byrnes Road is a sealed two-way single carriageway road with a posted speed limit of 80km/h near the subject land.

A unformalised bus stop is located directly south of the intersection of Byrnes Road and Bavin Road.

Vehicle movement data for Byrnes Road (19-27 July 2021) was provided by WWCC as follows. Council advised that additional development has occurred in the area since 2021 and volumes have likely increased.

- Byrnes Road (north of Bavin Road)
- Weekday average daily movements (total) - 3,175 vehicles.
- Weekday average heavy vehicles - 1,140 vehicles.
- Byrnes Road (south of Bavin Road)
- Weekday average daily movements (total) - 3,260 vehicles per day.
- Weekday average heavy vehicles - 944 vehicles.

Existing operations/businesses

Two (2) existing businesses currently operate east of Byrnes Road (where the proposed access for the Transgrid connection works are located). KJ Warden (electrical supply) and Prixcar Service (logistics and freight). Both sites are serviced by on-site parking facilities that accommodate staff vehicles and heavy vehicles (B-doubles).

This easement is used as the primary access route for both light and vehicle movements associated with these operations and is controlled by a sliding security gate. In consultation with these businesses, the following movements are generated on a daily basis:

- Heavy vehicles 30 - 35 movements per day; and
- Light vehicles 45 - 50 movements per day.

Assuming that 50% of the light vehicle movements, e.g. predominately staff arrive to site in the morning, this equates to approximately 25 inbound movements during the morning peak and 25 outbound movements during the afternoon peak.

Heavy vehicle movements are generally split across the day and typically avoids travelling during peak periods. Notwithstanding, it is assumed that up to four (4) heavy vehicle movements will occur during the peak periods.

A Right of Way (ROW) easement currently exists across 116 Bavin Road, which provides legal access to the Transgrid substation through the Subject Land. Transgrid have advised that the preferred access would be through the access off Byrnes Road mentioned above. Only construction vehicles for the BESS facility would utilise the access off Bavin Road.

Heavy vehicle routes

Figure 4-10 illustrates the Higher Mass Limit Network for the surrounding area. The green lines indicate approved B-double routes. As shown, Byrnes Road and the surrounding road network are B-double approved routes, with the site being accessible along the approved network via the Sturt Highway. Bavin Road is not approved for access and will require an application to the satisfaction of Council for the use of this road to use B-double construction vehicles. A permit from the NVHR would be required for B-double movements along Bavin Road.



Figure 4-10 TfNSW Higher Mass Limit Network (Source: NVHR Restricted Access Vehicle Map)

4.7.2. Potential impacts

Construction traffic volumes

Full assessment of construction traffic is provided in section 5.3 of the accompanying TIA and key issues are summarised below.

During construction, the proposed development is likely to generate additional light and heavy vehicle movements. The indicative timeframe for the construction period is as follows:

- Stage 1 – Early works / civil construction: 6 – 9 months
- Stage 2 - Construction and Electrical Installation 6 – 9 months.

The general traffic to / from the proposed development would typically be comprised of staff and courier movements, and it is expected that most staff would generally reside in Wagga Wagga for the length of construction. Heavy vehicles (HV) would be required for the delivery of BESS components, construction equipment and construction materials.

Table 4-6 on the following page details the breakdown of indicative traffic movements across the construction period.

Table 4-6 Indicative construction traffic volumes

Description	Staff	Two-way trips		Total daily movements (Two-way)	HV movements requiring escort (Two-way)	Peak daily construction traffic
		Light Vehicles (per day)*	Heavy Vehicles (per day)			
Stage 1 - 6-9 months	30	40	20	60	-	60
Stage 2 - 6-9 months	90	120	40	160	2	162

*These movements are based on an average occupancy of 1.5 persons per vehicle, with carpooling for staff to be encouraged as much as possible.

Note: These volumes are estimates only, intended to conservative estimate the highest number of movements expected on a daily basis during construction. These values should be refined and confirmed during the preparation for construction (as part of the Traffic Management Plan).

Light vehicles are expected to generate up to 60 inbound movements during the morning peak and up to 60 outbound movements during the afternoon.

Heavy vehicle deliveries will be split generally across the typical working day or up to four (4) vehicles during each peak period (morning and afternoon).

A total of 64 inbound and subsequently, 64 outbound peak hour movements are expected during peak construction activities.

In addition to the above table, HV deliveries requiring escort would be required for large substation components. There would be two such movements during the entire construction of the project.

The capacity of Bavin Road was assessed in section 6.6 of the TIA. Additional sealing of Bavin Road beyond the existing sealed section (western end) to the site access is recommended. It was considered that construction traffic would have a significant impact on the condition of the road and dust at nearby receivers, and additional sealing would ensure that Bavin Road can conveniently and safely cater to proposed construction traffic.

Construction traffic movements have the potential to impact on the local school bus route during school terms. Traffic management measures would be developed as part of the Construction Traffic Management Plan to ensure that no construction vehicle movements coincide with AM and PM school bus routes.

Sight distance assessment

A sight distance assessment was undertaken at the following key locations and the relevant requirements are outlined in Table 4-7 below:

- Site access / Bavin Road; and
- Bavin Road / Byrnes Road.

Table 4-7 Sight Distance Requirements

Road	Speed Limit Design Speed (km/h)	Sight Distance (m) Passenger Cars	Sight Distance (m) Heavy Vehicles
Bavin Road	100 110	300	366
Byrnes Road	80 90	226	269

The sight lines in each direction along Bavin Road exceeded 400m.

The sight lines along Byrnes Road were restricted by a vertical crest (southbound) and a bend in the road (northbound). Noting these constraints, the sight lines observed were:

- Bavin Road / Byrnes Road (south) – 290m
- Bavin Road / Byrnes Road (north) – 280m

Based on the available sight lines at each key location, the sight distances are in accordance with the relevant design standards and are not expected to present more than a negligible safety risk.

Intersection assessment

In addition to the above, a turning lane (intersection) assessment was undertaken in accordance with the *AustRoads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings*, to determine the potential requirement of a turn treatment for the Bavin Road / Site access point and the Bavin Road / Byrnes Road intersection.

Full details are included in section 6.4 of the accompanying TIA. Recommendations based off the assessment are as follows:

- Given the low external traffic volumes and adequate sight lines, the construction traffic can safely enter the site off Bavin Road without additional width for a turn lane.
- The increased construction traffic numbers would trigger a requirement to provide turning lanes / road widening for vehicles turning left and right into Bavin Road from Byrnes Road. However, it should be noted that there are several constraints associated with providing a right turn lane.
- Alternatively, it was recommended the direction of travel for vehicles travelling to the proposed development be restricted to a left turn into Bavin Road (travelling from the north) and a basic left turn (BAL) treatment provided. Vehicles arriving from the south will be required to proceed to the roundabout further north on Byrnes Road at the intersection with Merino Drive, turn around at the roundabout and proceed south on Byrnes Road and enter Bavin Road with a left turn. Any vehicles intending to travel north upon leaving the site would be required to turn left onto Byrnes Road, proceed south to the roundabout at the intersection with Hampden Avenue/Oura Road, turn around and proceed north on Byrnes Road. The left turn in/left turn out restriction at the Bavin/ Byrnes Road intersection is proposed and is not uncommon for major construction works.

Furthermore, a swept path assessment was undertaken to demonstrate the vehicle movements for the intersections of Bavin Road / Site access and Bavin Road / Byrnes Road. The assessment is outlined in

section 6.5 and Appendix A of the TIA. The outcomes of the assessment determined that no additional pavement is required to accommodate movement into the site from Bavin Road while a small additional pavement area would be required for the BAL at the Bavin Road / Byrnes Road intersection.

Intersection performance on Bavin and Byrnes Road was also analysed via a SIDRA assessment (Section 6.6.3 of the TIA). The results of the analysis concluded this intersection will operate in the 'Excellent' conditions range during the peak construction scenario, with minimal delays and queues.

A section 138 permit would be obtained from WWCC for such works within the public reservation of Byrnes Road/ Bavin Road. The subject application is considered Integrated Development.

Haulage assessment

Full assessment of haulage matters is provided in section 6.7 and Appendix B of the accompanying TIA and key issues are summarised below.

The TIA noted the Humelink project recently received approval for a similar vehicle type to be hauled along the Sturt Highway to the intersection with Elizabeth Avenue at Forest Hill (approximately 4km east of the subject site). In relation to the subject proposal, it was therefore agreed with both Council and TfNSW that vehicles associated with the proposed development would be able to arrive at Wagga Wagga via the Sturt Highway, following routes that have previously been approved by other projects. An analysis was therefore only required for the remaining route between the Sturt Highway/Elizabeth Avenue and the proposed development site at Bavin Road.

The following route was analysed for the purposes of this assessment:

- Sturt Highway turn right onto Eunony Bridge Road
- Eunony Bridge Road continue straight onto Byrnes Road
- Byrnes Road turn right onto Bavin Road.

A right turn from Byrnes Road onto Bavin Road is considered necessary in this instance as it relates to a maximum of two OSOM movements under escort (with pilot vehicles).

This investigation revealed that only minor modifications / works would be required along this local route to provide for OSOM access, as outlined in the table below. It is noted that any infrastructure (such as pavement or signage) that would be temporarily removed or changed, would also be required to be reinstated post construction (as required by the relevant authority). The TIA concluded the route is appropriate for transporting the over-size components from Sturt Highway to the subject site.

Table 4-8 OSOM haulage pinch points for temporary alteration (Source: Impact, 2025)

ID	Location	Coordinates	Works Required / Comments
IN-01	Sturt Highway / Eunony Bridge Road	35°07'32"S 147°25'14"E	Existing signage to be temporarily removed. Existing frangible light pole to be temporarily removed. Roundabout and traffic islands to be made mountable / trafficable.
IN-02	Eunony Bridge Road / Byrnes Road	35°06'00"S 147°24'10"E	Roundabout and traffic island to be made trafficable. Some signs to be temporarily removed.
IN-03	Byrnes Road / Bavin Road	35°05'05"S 147°24'22"E	No further modification work required*

Transgrid connections works

It is understood that the existing access point currently accommodates for vehicles up to 26m in length. No over-dimensional vehicles would be required as part of the connection works.

The following vehicle movements for the construction of the underground cable have been provided by Transgrid:

- Heavy vehicles - 3 vehicles per day; and
- Light vehicles - 7 vehicles per day.

For the purposes of this assessment, it is assumed that all seven (7) light vehicles and one (1) heavy vehicle form part of the peak inbound movements. It is noted that the above volumes represent a worst-case scenario and are not expected to occur on a daily basis throughout the 6-week construction period. It is assumed that 70% (231 movements) of traffic will arrive to/from the south via the Wagga Wagga township and the remaining 30% (99 movements) will arrive to/from the Junee Township to the north.

Once the connection between the BESS and the Transgrid substation is complete, ongoing traffic associated with operation and maintenance is expected to be negligible.

The available sight lines were measured between at Byrnes Road in each direction with the available sight lines exceeding the minimum requirement.

A turning lane assessment was undertaken for the intersection off Byrnes Road. Based on the above additional traffic numbers with existing traffic conditions, intersection will warrant the following:

- CHR(s): A short channelised right-turn lane; and
- BAL: A basic left-turn lane.

While the intersection of Byrnes Road and the Easement Access meets the warrants for a CHR(s) and a BAL based on the peak hour volumes, the provision of this infrastructure is not considered necessary noting the following:

- Short-term nature of the works: the construction traffic is temporary with movements limited and not expected to warrant unnecessary permanent infrastructure upgrades;
- Disruption to existing operations: any formal upgrade works will unnecessarily disrupt the operation for the neighbouring businesses;
- Existing road geometry: Byrnes Road currently provides adequate shoulder width and sight distances to accommodate safe deceleration and turning manoeuvres; and
- Conservative assessment: the turn lane analysis is considered conservative as it assumes that the peak Wagga BESS construction traffic will coincide with the Transgrid works. In addition, it also assumes that the existing operations (from KJ Warden and Prixcar Services) will operate during the same peak period as these works, all of which are unlikely to occur simultaneously. The installation of temporary advanced warning signage and traffic management is recommended to manage movements to and from the Easement Access during the construction period.

Consideration of nearby projects

The proposed Hydrogen Park Wagga Wagga project by AIGA is currently subject to an investment decision which is not expected until late 2025. The Hydrogen Park Wagga Wagga project is expected to generate significantly higher construction and operational traffic volumes and involve a longer construction duration compared to the proposed Transgrid works.

In contrast, the Transgrid works are short-term (approximately 6-weeks), will generate low and infrequent volumes and will not result in any permanent change to land use or long-term traffic generation. In addition, given the current status of the Hydrogen Park project, peak construction activities are unlikely to overlap with the proposed Transgrid works.

4.7.3. Operation

The proposed development is anticipated to have a negligible impact on the road network during operation. The expected traffic movements during operation would be limited to:

- Daily routine maintenance may be carried out by two staff. It is assumed that the daily traffic generation will not exceed two vehicle movements per day to the local road network, with all other movements being internal to the site.
- Occasional maintenance will occur when components of the development need to be replaced, such as replacing BESS unit components. This is expected to occur only very occasionally and will have no discernible impact on the external road network.
- Visitors to the site such as office-based staff and courier deliveries etc
- No additional vehicles outside current operations for Transgrid will be required.

4.7.4. Mitigation measures

The assessment concluded that the road network would not be adversely affected by the light and heavy vehicle traffic volumes generated by the proposed development. Traffic management measures are outlined in further detail in section 7 of the accompanying TIA and summarised as follows:

- Provision of a BAL turn treatment at the Bavin Road/ Byrnes Road intersection and restriction to left in/ left out only movements at this intersection.
- Extension of road sealing on Bavin Road (west) to site entrance.
- Minor modifications to pinch points between Sturt Highway/ Elizabeth Avenue and the subject site as outlined in Table 4-8.
- Preparation and implementation of a Construction Traffic Management Plan (CTMP). The CTMP should be prepared in consultation with TfNSW and relevant councils and implemented in accordance with Australian Standard 1742.3 and the *Work Health and Safety Regulation 2017*. The CTMP will include:
 - Neighbours of the Project to be consulted and notified regarding the timing of major deliveries which may require additional traffic control and disrupt access
 - Heavy vehicles will avoid travel during peak bus operating times to limit the interaction of larger vehicles and vulnerable road users
 - Requirement for site specific TMP's that include appropriate safety signage manage traffic and guide road users including regulatory signs that dictate rules and restrictions, warning signs alerting to potential hazards, guide signs for navigation, and temporary signs for events or road works.
 - Any OSOM vehicle trips be timed so they do not coincide with other OSOM vehicles within the surrounding area to limit the impact to the road network, which can be undertaken as part of the permit application
 - Requirements for clear fencing and signage to ensure construction traffic does not utilise private driveways

- Details to ensure compliance with the left-in only arrangement, such as cameras, GPS tracking and employee contract requirements
- Confirmation of the BESS construction timeframe and work stages.
- Confirmation of expected traffic volumes generated by the BESS facility for all work stages.
- Identification of all construction vehicle haulage routes for all work stages.
- A mechanism to review identified haulage route road conditions prior to the commencement of works.
- Mechanisms/agreements (if deemed necessary) to maintain haulage route roads and road infrastructure, including local public roads used by site traffic, during construction works and to reinstate roads to at least pre-construction conditions.
- Qualify any requirement for specific work stage construction traffic management plans.
- Qualify and identify any relevant mechanisms for OD vehicle permits and traffic management requirements.
- Confirm on-site the adequacy of available sight distances along Bavin Road from the site access point.
- Only construction vehicles for the BESS facility will utilise the site access off Bavin Road. All construction vehicles associated with the Transgrid connections works will be through the current access off Byrnes Road

4.8. Aboriginal heritage

4.8.1. Methodology

The Wagga Wagga SAP Master Plan requires further Aboriginal cultural heritage assessment be undertaken in accordance with the 'Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW' prior to any development on the land indicated as Aboriginal Heritage sites in Figure 4-11. The subject land is identified as further assessment area.

As such, NGH, on behalf of the Applicant, prepared an Aboriginal Cultural Heritage Assessment (ACHA) for the proposed development and has been summarised below and appended in full as Appendix H.

Consultation with Aboriginal stakeholders was undertaken and the draft ACHA provided for comment to Registered Aboriginal Parties (RAPs) for a minimum of 28 days. Survey fieldwork with subsequent subsurface test excavation was carried out from 7-9 May 2024.

4.8.2. Existing environment

Extensive searches of the Aboriginal Heritage Management Information System (AHIMS) were undertaken on the 19 December 2023 and 14 February 2025 (due to 12-month search validity). The AHIMS Client Service IDs were 850350 and 975659. There was 91 Aboriginal sites recorded within the search area during the initial search and three declared Aboriginal Places; two of the Aboriginal Places were duplicates of the same site. A single additional Aboriginal site was identified in the subsequent search of 14 February 2025. The Aboriginal Places identified are the Bomen Axe Quarry, Bomen Lagoon, and Wiradjuri Reserve & Gobba Beach, which are – respectively – 650m north, 2270m south west, and 4225m south west. The results of the AHIMS search area are shown in Figure 4-12 and summarised in Table 4-9 below.

Table 4-9 Breakdown of previously recorded Aboriginal sites in the region

Site Type	Number
Artefact	69
Modified Tree	20
Stone Quarry, Artefact	2
Stone Quarry	1
Total	92

No new Aboriginal objects were identified during the survey and therefore no new AHIMS sites were registered. While some native vegetation was present within the subject land, none of the trees present contained any signs of Aboriginal modification consistent with archaeological identification techniques (see Long 2005).

A subsurface test excavation programme was carried out in accordance with the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*. A total of 12 test pits were excavated across three landforms – the spur, mid slopes, and upper slopes – where they intersected with the proposed development footprint. A total of 3m² of soil was excavated, with a total of 0.77m² of that soil being sieved.

No Aboriginal objects were identified during the test excavations. The results of the test excavations are within expectations based on the desktop predictive models that were prepared prior to the assessment.

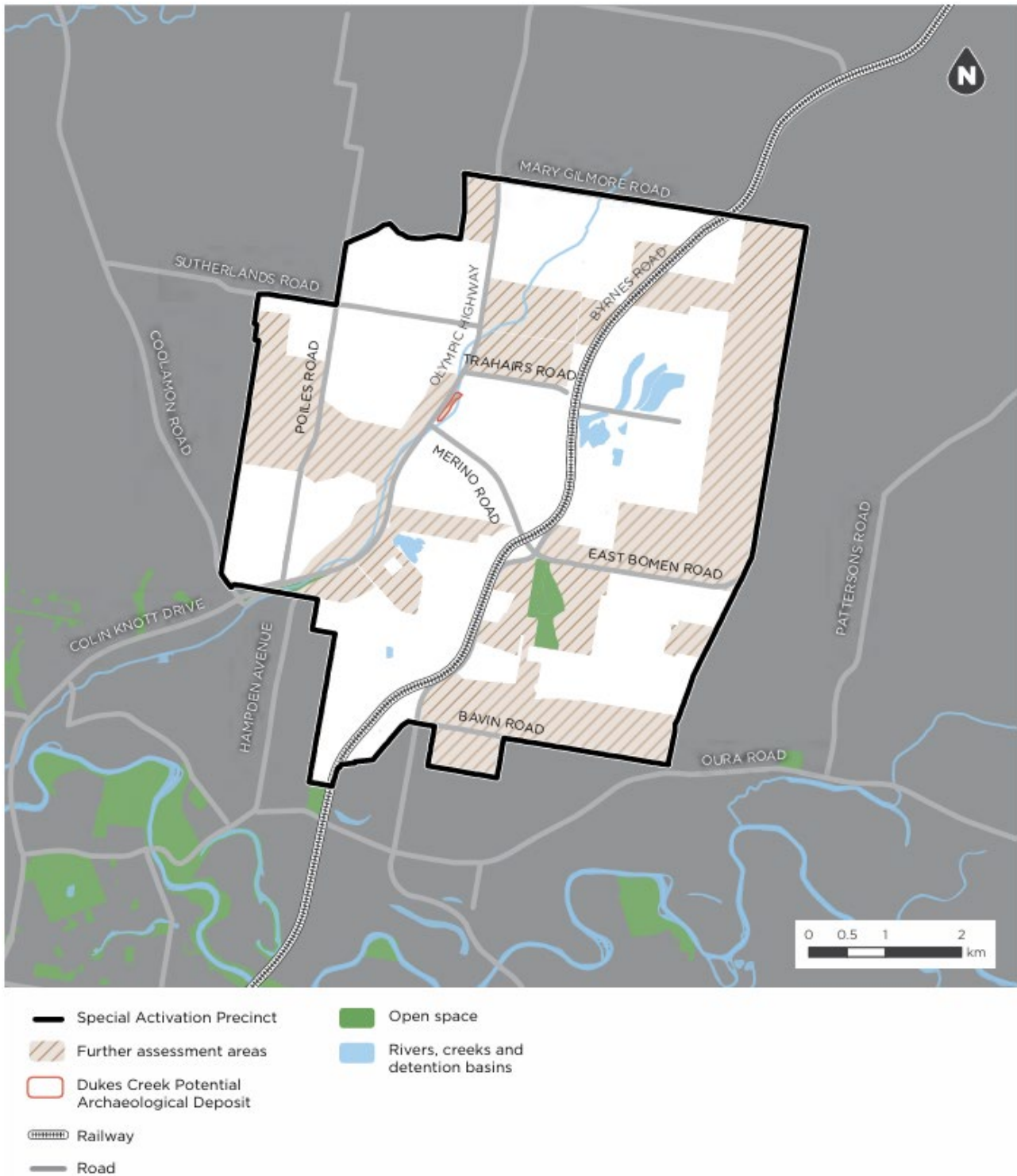


Figure 4-11 Areas requiring further heritage assessment (Wagga Wagga SAP Master Plan, 2021)

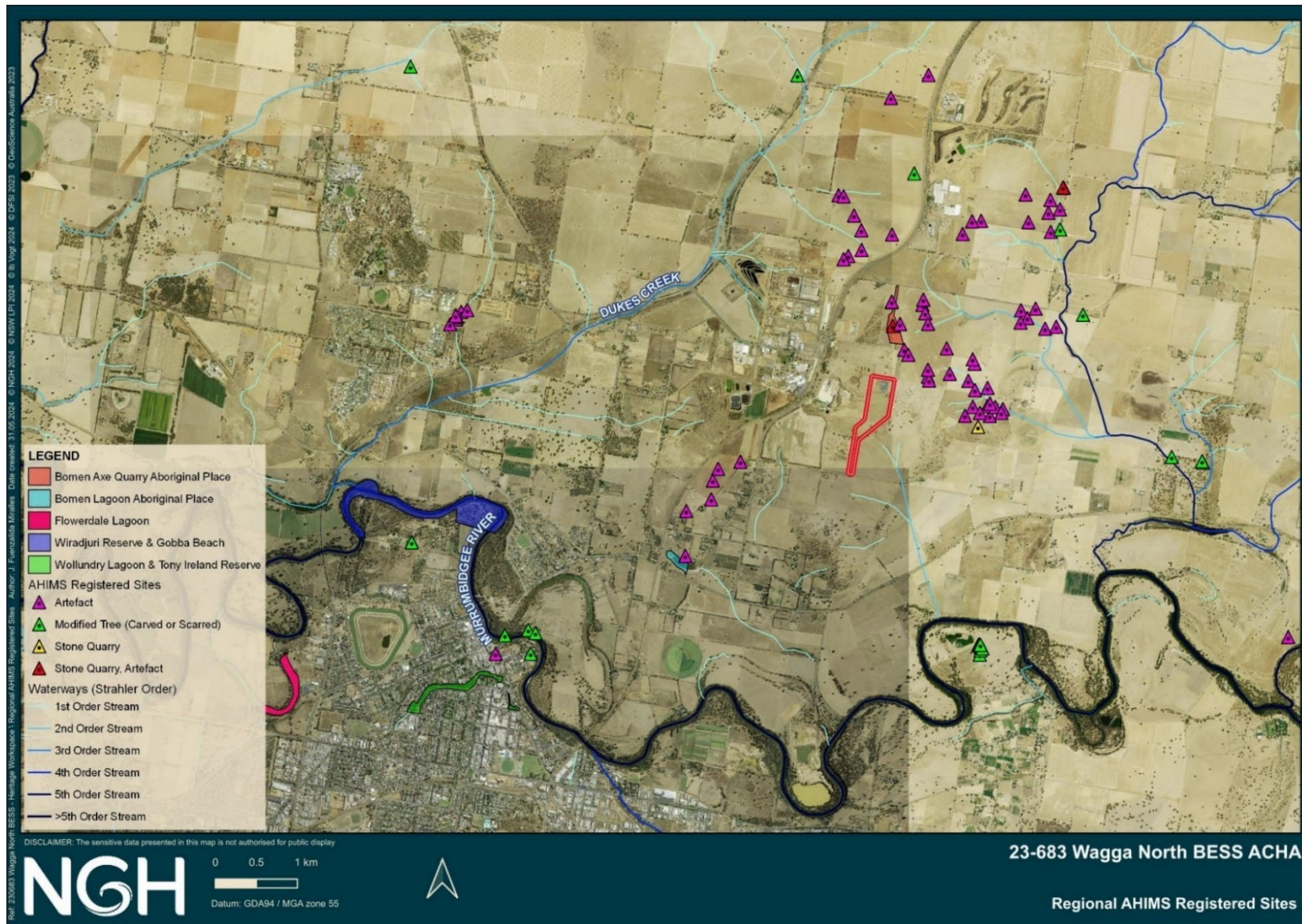


Figure 4-12 AHIMS sites within the search area

4.8.3. Potential impacts

No previously recorded AHIMS sites are located within the subject land. No Aboriginal sites of Potential Archaeological Deposits (PADs) were identified during the assessment. As a result, there are no Aboriginal heritage values associated with the subject land and therefore the proposed development would not impact any values. However, the remainder of the spur landform outside of the development footprint (as mapped in the ACHA) must be avoided as it may contain sensitivity due to its connection with the same ridgeline as the Bomen Axe Quarry Aboriginal Place.

4.8.4. Mitigation measures

The following mitigation measures have been recommended based on the information provided above:

- The proposed works within the development footprint may proceed with no further archaeological assessment required; noting that further archaeological assessment may be required if the proposed development extends outside of the subject land as assessed in this report. This would include consultation with the RAPs and may include further field assessments.
- All access to the site and laydown areas must be within the project area assessed by the report
- Prior to the commencement of the proposed works. Aboriginal Cultural Heritage Awareness training should be included as part of the induction, and all site personnel who will work on the project must complete it. The Aboriginal Heritage Awareness training must be prepared in consultation with the Registered Aboriginal Parties for this proposed development.
- If any items suspected of being Aboriginal in origin are discovered during the work, all work in the immediate vicinity must stop and Heritage NSW notified. The find will need to be assessed and if found to be an Aboriginal object, and Aboriginal Heritage Impact Permit (AHIP) may be required.
- In the unlikely event that human remains are discovered during the development works, all work must cease in the immediate vicinity; Heritage NSW and the police should be notified. Further assessment would be undertaken to determine if the remains were Aboriginal or non-Aboriginal. If the remains are deemed to be Aboriginal in origin, the Registered Aboriginal Parties should be advised of the find as directed by the appropriate heritage team within Heritage NSW. Heritage NSW would advise the Applicant on the appropriate actions required.
- The remainder of the spur landform outside of the development footprint must be avoided as it may contain sensitivity due to its connection with the same ridgeline as the Bomen Axe Quarry Aboriginal Place

4.9. Historic heritage

4.9.1. Existing environment

A search of State Heritage Inventory (SHI) on 29 May 2024 within the Wagga Wagga LGA identified 348 items. The search did not result in any cultural heritage items within the subject land. Bomen Railway Station (Id: 01093) is the closest listed heritage item. This station is listed under s170 of NSW State agency heritage register, State Heritage Register and Wagga Wagga LEP. This site is located approximately 770m north west of the subject land.

Including the Bomen Railway Station mentioned above, five heritage sites were identified within the Wagga SAP. A further two historic heritage sites of local significance were recorded within the Wagga SAP during a survey undertaken by Ozark Environment and Heritage (refer to Appendix C of the Wagga Master Plan, 2021). The sites recorded were the Brucedale Post Office (Wagga SAP HS-01) and change over stables (Wagga SAP HS-02). There is a possibility of further historic heritage being present within the SAP.

In the event that any unexpected substantial intact historic archaeological relics of State or local significance are unexpectedly discovered during the proposed works, the following management protocols will be implemented:

- Works at that identified heritage location will cease with an appropriate buffer zone of at least 20m to allow for the assessment and management of the find. All site personnel will be informed about the buffer zone with no further works to occur within the buffer zone
- A heritage specialist should be engaged to inspect and assess the item
- For items determined to be historic relics, work must remain ceased in the affected area and the Heritage Council must be notified in writing. This is in accordance with section 146 of the Heritage Act 1977 (NSW)
- Depending on the nature of the discovery, additional assessment may be required prior to the recommencement of work in the area. At a minimum, any find should be recorded by an archaeologist.

4.9.2. Potential impacts

The proposed development is not anticipated to impact any cultural heritages in the vicinity.

4.9.3. Mitigation measures

In the event that any unexpected substantial intact historic archaeological relics of State or local significance are unexpectedly discovered during the Development, the following management protocols will be implemented:

- Works at that identified heritage location will cease with an appropriate buffer zone of at least 20m to allow for the assessment and management of the find. All site personnel will be informed about the buffer zone with no further works to occur within the buffer zone
- A heritage specialist should be engaged to inspect and assess the item
- For items determined to be historic relics, work must remain ceased in the affected area and the Heritage Council must be notified in writing. This is in accordance with section 146 of the Heritage Act 1977 (NSW)
- Depending on the nature of the discovery, additional assessment may be required prior to the recommencement of work in the area. At a minimum, any find should be recorded by an archaeologist.

4.10. Biodiversity

4.10.1. Existing environment

A Biodiversity Assessment Report (BAR) was prepared for the SAP to identify and assess the biodiversity values of the investigation area in the context of the *Biodiversity Conservation Act 2016* (BC Act) and assess 'Matters of National Environmental Significance' (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) (WSP, 2020).

In accordance with section 6.8 (3) of the BC Act, an assessment of impacts on native vegetation and loss of habitat on category 1-exempt land (within the meaning of Part 5A of the Local Land Services Act 2013 (LLS Act)), other than any impacts prescribed by the regulations under section 6.3, is not required. The category 1- exempt land within the investigation area is shown at Figure 2.1 of the WSP assessment and replicated on the following page of this report (Figure 4-16). The subject land is identified as category 1- exempt land, excepting for existing paddock trees in the central section, as mapped.

According to section 2.6 of the BAR, existing paddock trees located within the subject site are native plantings and mixed ornamental plantings. Mixed Ornamental Plantings were typically recorded in small patches and appeared to have been planted for aesthetic rather than environmental purpose. The environmental importance of this vegetation class was determined as negatable according to the BAR.

Planted native vegetation which was not able to be assigned to a recognised NSW Plant Community Type was recorded as Miscellaneous Ecosystem (Native plantings) and generally comprised of indigenous endemic species such as *Eucalyptus melliodora* (Yellow Box), *Eucalyptus blakelyi* (Blakley's Red Gum), *Eucalyptus sideroxylon* (Mugga Ironbark) and *Brachychiton populneus* (Kurrajong) according to the BAR. These areas were classed as medium biodiversity constraints as shown in Figure 4-17.

Some native plantings on the site met the threshold for assessment as paddock trees. Of these, some trees were also determined to be hollow bearing. These areas were classed as high and medium biodiversity constraints as shown in Figure 4-17.

Along the eastern and south-eastern boundary of the subject site is a 20m tree belt, which is the subject of a timber forestry and carbon sequestration right. The rights are identified on the title of the land. The proponent is not permitted to impact these trees.

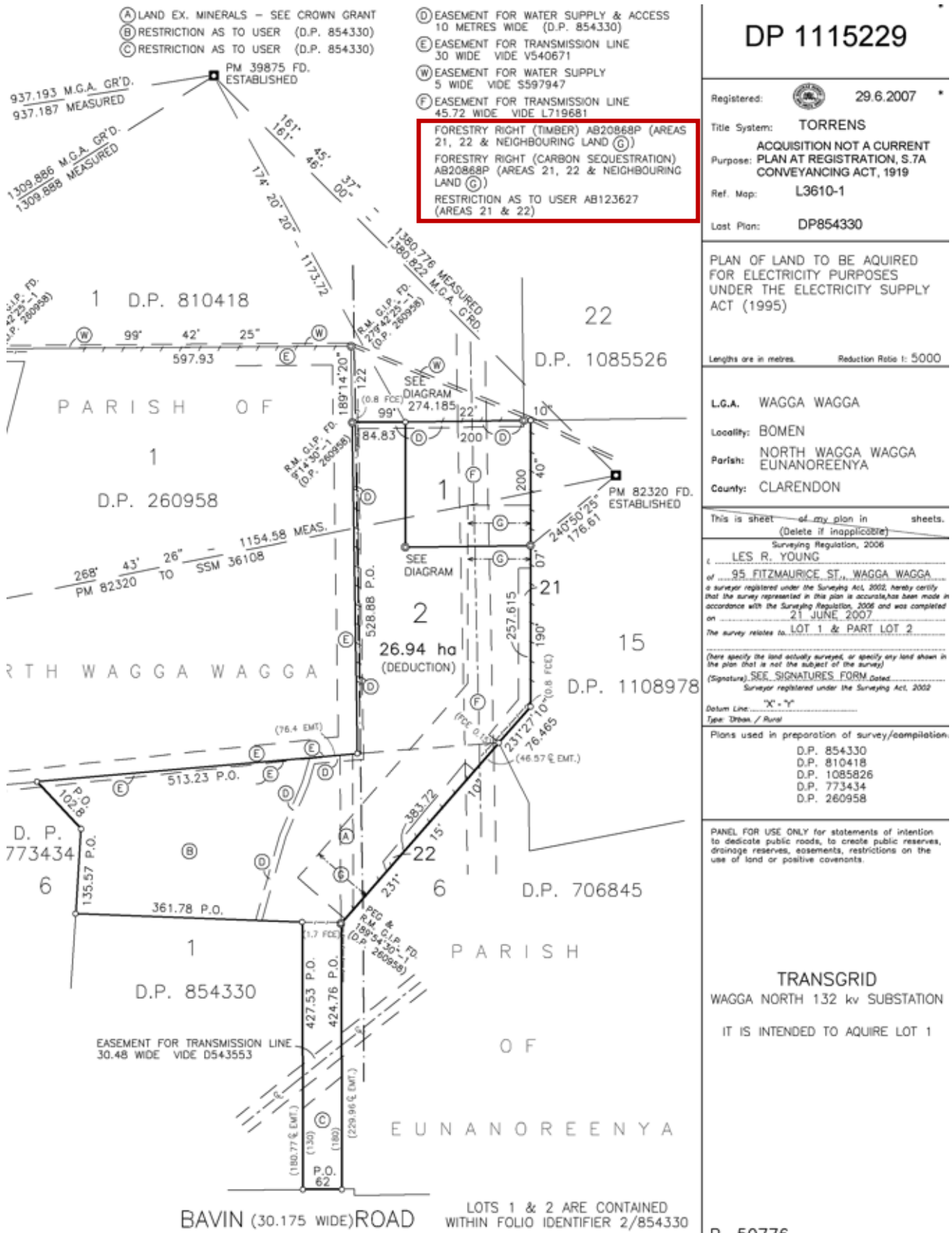


Figure 4-13 Title extract of forestry and carbon sequestration rights (Source: NSW Land Registry Services, 2025)



Figure 4-14 View of proposed development site as cleared cropped land (Source: NGH, 2024)



Figure 4-15 View of proposed development site as cleared cropped land (Source: Ember, 2024)

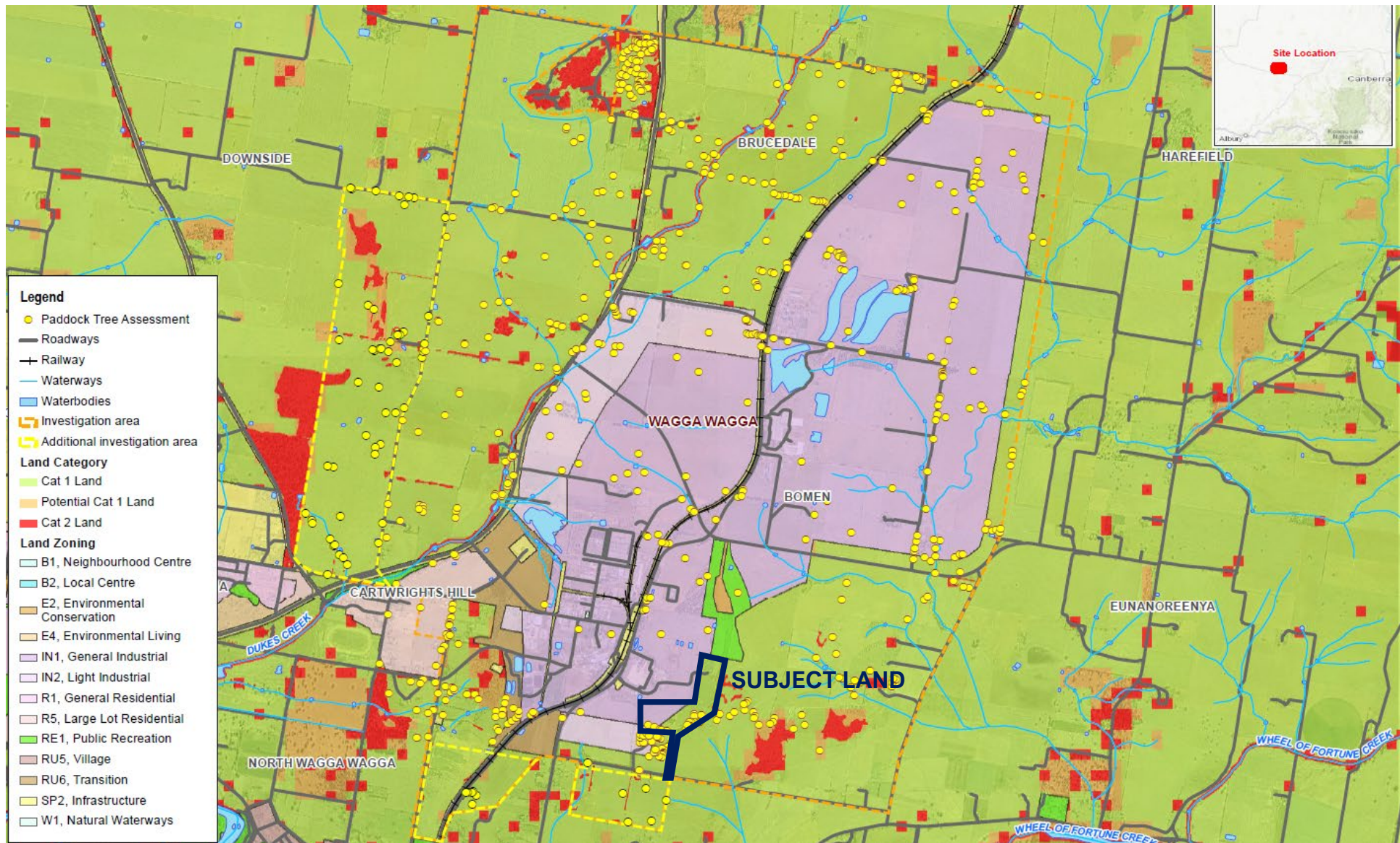


Figure 4-16 Native vegetation regulatory assessment (Source: WSP, 2020)

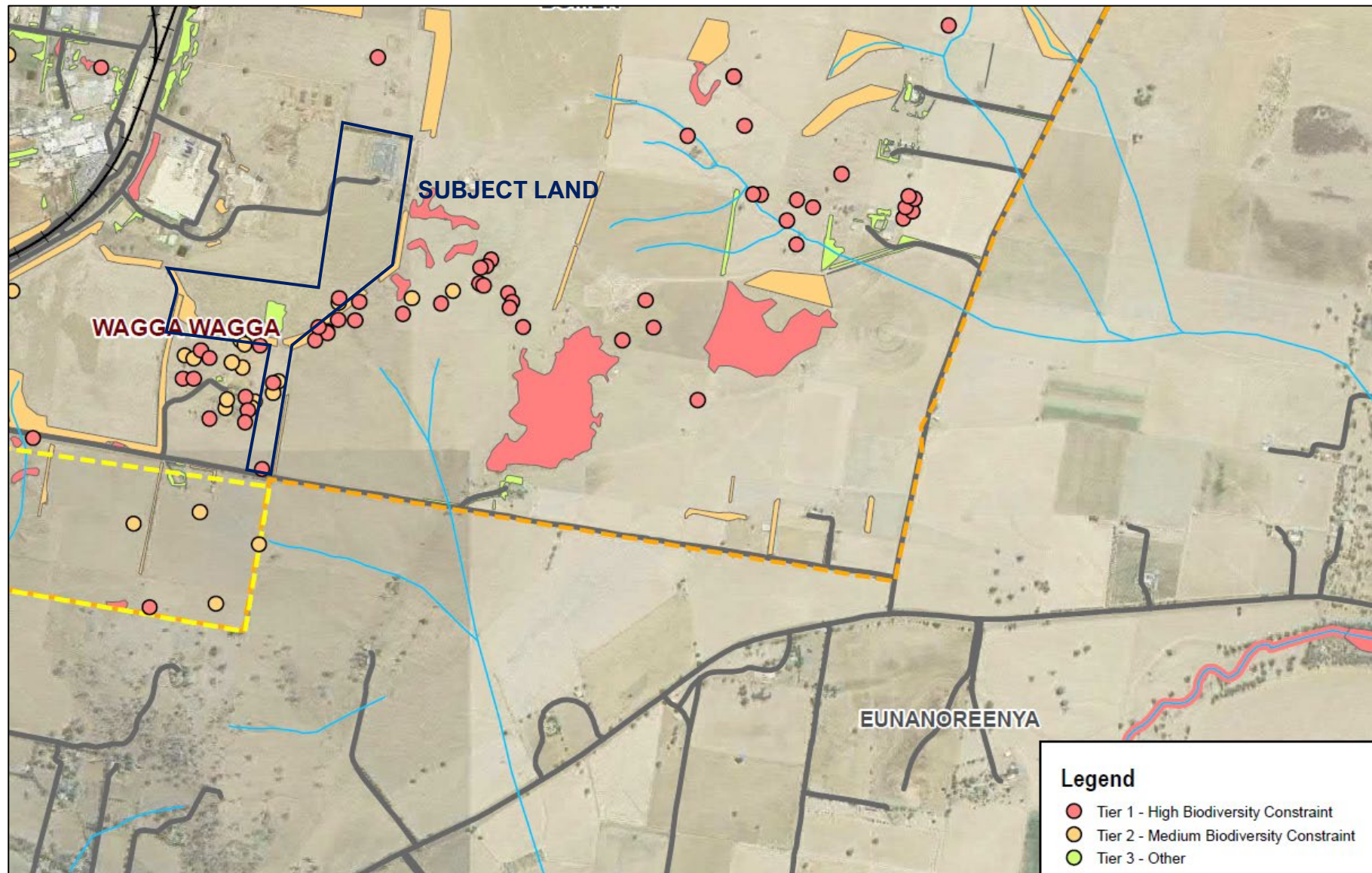


Figure 4-17 Biodiversity constraints (Source: WSP, 2020)

4.10.2. Potential impact

The proposed BESS is sited at the northern boundary of the property, within an area determined to be category 1-exempt land. The proposed access road from the BESS to Bavin Road generally adopts the alignment of an existing access track through the property (refer back to Figure 1-1 and Appendix A) The existing track is identified as a break in the mapped area of native plantings and the associated medium biodiversity constraint area. Accordingly, the proposed development would avoid any impact to medium biodiversity constraint area. Existing trees classed as high and medium biodiversity constraints would also be avoided by the proposed development. The proposed works would be carried out on category 1-exempt land.

The proposed development would be consistent with the relevant criteria under the Delivery Plan. Therefore, no further investigation is proposed.

4.10.3. Mitigation measures

The following mitigation measures and controls have been recommended to minimise any potential impacts from the proposed development:

- Establishment of exclusion zones during construction on the eastern and western side of the access road in the vicinity of the mapped biodiversity constraint area to avoid inadvertent impacts.
- Inclusion of biosecurity and hygiene controls within the Construction Environmental Management Plan, including:
 - Activities that could lead to the introduction, presence, or spread of a pest or disease of plants or animals, a pest animal or weed
 - Effective management of risks during both the construction and operational phases
 - Effective management of bulk earthworks (potential soil contamination), excess fill and new fill for the site
 - Identify risks, prioritise and develop strategies to prevent, eliminate or minimise these risks.

4.11. Visual

The proposed development is located within the Rural Activity Zone of the Wagga Wagga SAP. The Delivery Plan notes the Rural Activity Zone was created as a buffer to the Regional Enterprise Zone, while enabling the Rural Activity Zone to have productive uses and activities. Development in the RAZ should consider the landscape setting, existing vegetation, natural drainage paths, and opportunities to incorporate new tree and vegetation plantings. Planning for sites should also take into consideration the flatter locations more suitable for buildings, key vistas and viewing points as shown in Map 8.2, given these sites are likely to be highly visible both to Olympic Highway and surrounding residential areas.

Performance Criteria PC39 provides that: *Development in rural areas is compatible with the site context and designed and sited to minimise conflict between the industrial development located within the Rural Activity Zone and surrounding residential areas.*

4.11.1. Existing conditions

The proposed development sits within the rural landscape buffer area as defined in the Delivery Plan and provided in Appendix F. This map identifies the Transgrid zone substation is within a visually sensitive area; though, the proposed BESS site is not.

The proposed BESS sits within the elevation of 250m and 260m. The topography of the subject land is defined by two small hills nearby, one to the east of the zone substation on Lot 15 DP1108978 where two water reservoirs are located and to other to the south-west of the site on Lot 1 DP854330 where an existing dwelling is located. A spur also runs generally along the south-eastern boundary of the subject land.

The land is affected by several overhead transmission lines. Most of the land is used for cropping. Along the eastern boundary of the subject site is a 20m tree belt, which is the subject of a timber forestry and carbon sequestration right. Outside of the registered tree belt, there are some scattered paddock trees, generally in the western portion of the land.

4.11.2. Potential impact

The proposed development is of a low scale, generally not more than 4m in height, though some of the internal substation structures (lightning masts used to intercept lightning strikes) may be up to 8m above ground level as outlined in section 2.4 of this report.

Whilst the proposed development would be located in the Rural Activity zone, the buffer area of the SAP, it is a permissible use in the zone. The visual presentation of the proposed development would be congruous with the infrastructural nature of the adjoining zone substation. The site also immediately adjoins other established industry, which presents as numerous and highly variable shed structures fronting Byrnes Road. The proposed development would be similar to these developments and would not occupy a large footprint within the SAP (up to 4ha of the total 4,500ha).

The visual impact requirements of the Delivery Plan involve the provision of a 10m privately owned and maintained landscaped buffer to the site boundaries. This is required to be informed by the site's natural features and landscape and reflect the bioregion and vegetation typologies of the precinct in accordance with Chapter 3 Precinct revegetation strategy of the Delivery Plan. The proposed development would provide for a 10m landscape buffer to the northern, western and partial southern boundaries of the BESS site, which also adjoin the property boundaries. The south-eastern and eastern boundary of the site is host to an existing registered 20m wide tree belt as identified previously in this report. A landscape buffer is not intended along the southern boundary of the BESS, as :

- A landscape buffer along the remainder of the southern boundary of the BESS would interfere with returning the land to agriculture (cropping) post-decommissioning.
- There is an existing registered tree belt along the south-eastern property boundary providing screening from the south.
- The BESS is not visible from any receivers directly south The Delivery Plan identifies land to the west of the site as visually sensitive, therefore screening along the northern, western and south-western side of the BESS will address this issue.

Engagement with near neighbours have identified that there is a potential for views from residential properties located south-west of the proposal site. As a result, additional screening is proposed within the residential property to mitigate any potential views to the BESS and site access track during operation.

The Landscape Plan and accompanying specification is attached as Appendix F of this report.

As mentioned above, section 8.2 of the Delivery Plan, identifies the Transgrid zone substation to be within a visually sensitive area. The proposed BESS site is not; however, this may take into consideration the Rural Activity zoning of the land compared to land to the west. Works within the substation would be limited to a short overhead transmission line to a new bay, which is entirely consistent with the type of structures conventionally associated with the zone substation and which will continue to be required in future. Significant upgrades to the substation are required in future, to cater for the SAP.

Bavin Road is mapped as an area of corridor greening and upfront planting in the public road reserve. The proposed development would rely on Bavin Road as access route to the site. Impacts would be contained largely to the construction and decommissioning phases, within minimal usage during the approximate 30-year lifespan of the BESS.



Figure 4-18 View from back patio of closest non-associated receiver



Figure 4-19 View from bedroom window at access road from closest non-associated receiver

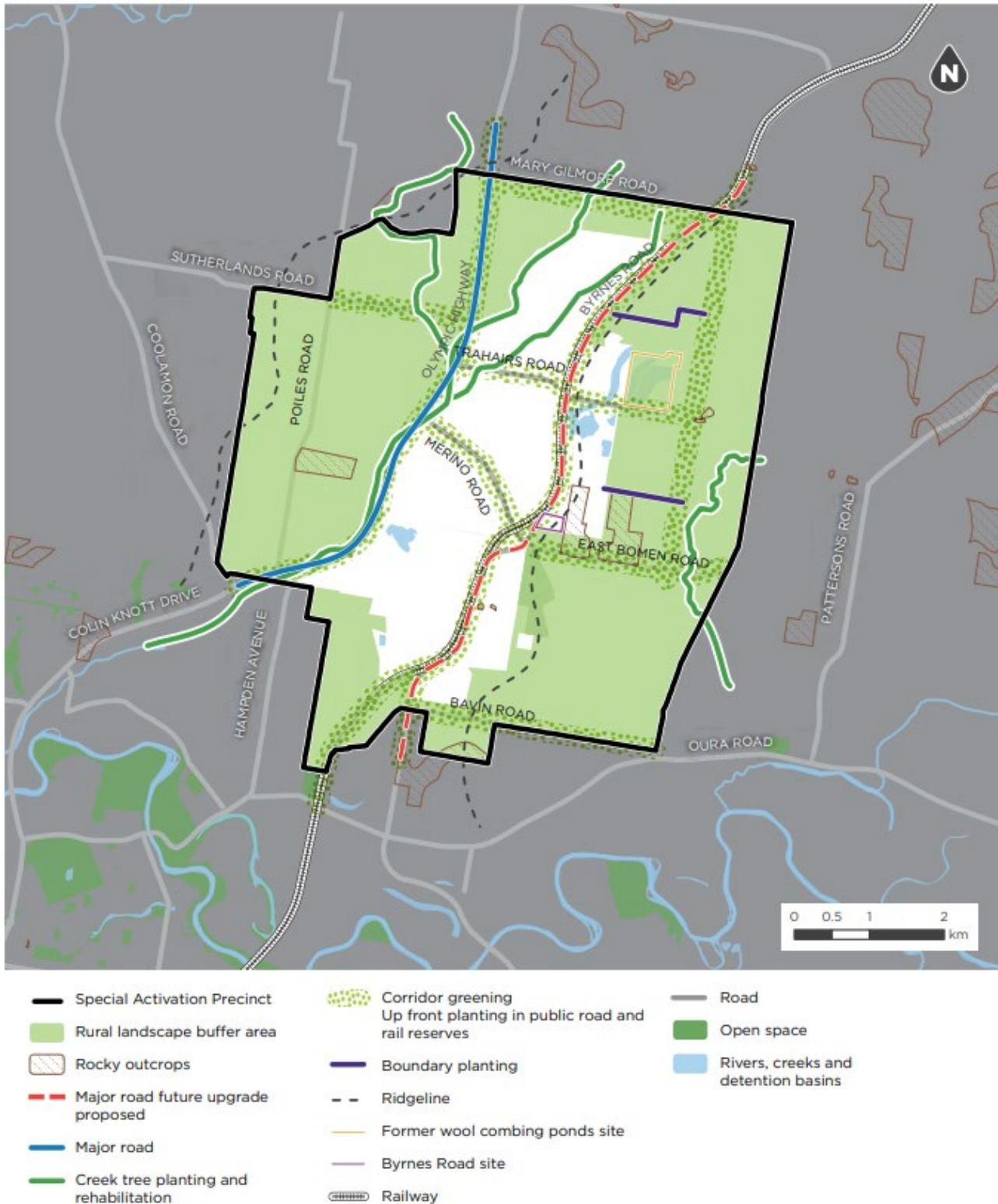


Figure 4-20 SAP Master Plan Landscape strategy for minimising visual impact (NSW Government Department of Planning, 2021)

4.11.3. Mitigation measures

The following mitigation measures are recommended to minimise any potential visual impacts from the proposed development.

- The Landscape Plan will be implemented based on the final detailed design, to minimise views of infrastructure
- Additional screening will be planted within the northern and eastern boundary of Lot 1 DP854330. Screening will be consistent with existing screening within the lot. Ongoing maintenance would be the responsibility of the non-associated landowner.
- Good design principles employed through the proposed development design phase can significantly reduce the visual impact. Consideration will be given to the colours, type and height of the facility to ensure minimal contrast and to help blend into the surrounding landscape to the extent practicable
- External lighting shall be installed to comply with Australian/New Zealand Standard AS/NZS 4282:2019 – Control of Obtrusive Effects of Outdoor Lighting, or its latest version
- Timed lighting shut off will be consistent with the adjacent substation operations.

4.12. Waste

Legal requirements for the management of waste are established under the POEO Act and the POEO (Waste) Regulation 2005. Unlawful transportation and deposition of waste is an offence under section 143 of the POEO Act. Waste management would be undertaken in accordance with *the Waste Avoidance and Resource Recovery Act 2001* (NSW) (WARR Act).

A Waste Management Plan (WMP) has been developed (Appendix I) and would be implemented during construction, operation and decommissioning to minimise wastes. The Plan addresses:

- Identification of opportunities to avoid, reuse and recycle, in accordance with the waste hierarchy.
- Quantification and classification of all waste streams.
- Provision for recycling management onsite.
- Provision of toilet facilities for onsite workers and how sullage would be disposed of (i.e., pump out to local sewage treatment plant).
- Tracking of all waste leaving the site.
- Disposal of waste at facilities permitted to accept the waste
- Requirements for hauling waste (such as covered loads).

4.12.1. Operation

Waste batteries

Lead-acid and nickel-cadmium batteries are considered 'hazardous waste' in accordance with the EPA's waste classification guidelines. LFP cells are not detailed within the guideline, but for the purpose of this assessment could be considered hazardous. A battery unit is made up of multiple individual cells. During operations, individual faulty cells will be replaced, rather than a whole unit. This occurs as part of the regular maintenance program.

Waste cells will then be transported to a recycling facility in small quantities, as a fault is detected. There will be no bulk storage of waste battery cells at the Wagga North BESS facility. All LFP cells will be transported from site as required in accordance with the *Dangerous Goods (Road and Rail Transport) Act 2008* and the Australian Dangerous Goods Code.

If temporary storage of waste battery cells is required, the operator of the proposal will adhere to the Victorian EPA guideline Storage and Management of Waste Batteries (2018).

4.13. Contamination

A PSI was prepared for the Wagga Wagga SAP (WSP, 2019) initially, which indicated the subject land (Lot 2) has remained relatively consistent over time, being largely used for agricultural purposes. It also identified several Areas of Environmental Concern (AECs) in proximity to the proposed BESS, including the Wagga North zone substation and neighbouring Laminex Facility and associated filled land, and the former wool hide merchant.

A site-specific Preliminary Site Investigation (PSI) was prepared by NGH to satisfy the requirements of the State Environmental Planning Policy (Resilience and Hazards) 2021 and PC57 of the Delivery Plan. The findings of the PSI are summarised below and appended as Appendix J.

4.13.1. Existing environment

The proposed development is mapped as containing Kandosols (Australian Soil Classification, ASC). Chief soils are neutral red earths (Gn2.12) which are often gritty and/or sandy. Neutral yellow earths (Gn2.25) can also be locally prominent. Soil mapping from the SEED data portal identifies the Greater Soil Group (GSG) associated with the site as the Red Earths (less fertile) and the Brown Earths (NSW Government, accessed 2024).

Extensive database searches were conducted in the preparation of the PSI, as outlined in section 2.3.4 of the report. A search of the Contaminated Land List returned no records within the site. The Contaminated Land Record of Notices did not return any notices within the site, nor is the land known to contain a former gasworks development.

The site has historically been used for the purposes of cropping. CoPCs associated with cropping include Organochlorine Pesticides (OCPs), Organophosphate Pesticides (OPPs) and herbicides. In addition to this, a substation has been constructed on Lot 1 DP1115229. CoPCs associated with substations include asbestos, benzene, toluene, ethylbenzene, xylene and naphthalene (BTEXN), total petroleum/recoverable hydrocarbons (TPHs/TRHs), polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), semi-volatile organic compounds (SVOCs), volatile halogenated compounds (VHCs), per- and polyfluoroalkyl substances (PFAS), heavy metals, phenols and herbicides.

A site history review, site inspection and review of anecdotal information identified the following potential Areas of Environmental Concern (AECs) and Chemicals of Potential Concern (CoPC):

- Potential onsite contamination sources
 - AEC 1 – Agricultural use - The aerial imagery review indicates that the site has been used for cropping activities. CoPCs associated with cropping include Organochlorine Pesticides (OCPs), Organophosphate Pesticides (OPPs) and herbicides.

- AEC 2 – Substation - Lot 1 DP1115229 contains an operational substation. These activities are associated with the following CoPCs: asbestos, BTEXN, TPHs/TRHs, PAHs, PCBs, SVOCs, VHCs, PFAS, heavy metals, phenols and herbicides
- Potential offsite contamination sources
 - AEC 3 – Contaminating activities (past and present use) - Lot 1 DP 260958 occurs immediately west of the site. This development is licenced for waste storage - including hazardous, restricted solid, liquid, clinical and related waste and asbestos waste. CoPCs include asbestos, BTEXN, TPHs/TRHs, PAHs, PCBs, SVOCs, VHCs, PFAS, heavy metals, phenols and herbicides.
 - AEC 4 – Former wool merchant - Former wool merchant on Lot 2 DP 1228221 – activities included wool storage and scourage. CoPCs include TRHs (confirmed), pesticides, heavy metals, chloride, sulfate, carbonate and nutrients (WSP, 2019)
 - AEC 5 – Filled land (associated with the Laminex Facility) - Lot 22 DP 1085826 is associated with the Laminex Facility. CoPCs include solvents, PAHs, pesticides, heavy metals, ammonia and creosols.

4.13.2. Potential impact

The site history review, site inspection and review of anecdotal information identified the following potential Areas of Environmental Concern (AECs) and Chemicals of Potential Concern (CoPC).

Potential onsite contamination sources

AEC 1 – Agricultural use

The aerial imagery review indicates that the site has been used for cropping activities. CoPCs associated with cropping include Organochlorine Pesticides (OCPs), Organophosphate Pesticides (OPPs) and herbicides.

AEC 2 – Substation

Lot 1 DP1115229 contains an operational substation. Historically, substations were associated with power pole storage and creosote storage. These activities are associated with the following CoPCs: asbestos, BTEXN, TPHs/TRHs, PAHs, PCBs, SVOCs, VHCs, PFAS, heavy metals, phenols and herbicides.

Potential offsite contamination sources

AEC 3 – Contaminating activities (past and present use)

Lot 1 DP 260958 (currently registered to Rodney's Transport Service (Australia) Pty Ltd) occurs immediately west of the site. This development is licenced for waste storage - including hazardous, restricted solid, liquid, clinical and related waste and asbestos waste. CoPCs include asbestos, BTEXN, TPHs/TRHs, PAHs, PCBs, SVOCs, VHCs, PFAS, heavy metals, phenols and herbicides.

During preparation of this PSI, Lot 1 DP 260958 was also identified as a former Laminex facility. Activities occurring for this development included hazardous, industrial or Group A waste generation / storage. Potential CoPCs include solvents, PAHs, pesticides, heavy metals, ammonia and creosols (WSP, 2019).

AEC 4 – Former wool merchant

A PSI was prepared for the Wagga Wagga SAP (WSP, 2019). The PSI identified a former wool merchant on Lot 2 DP 1228221 – activities included wool storage and scourage. CoPCs include TRHs (confirmed), pesticides, heavy metals, chloride, sulfate, carbonate and nutrients (WSP, 2019)

AEC 5 – Filled land (associated with the Laminex Facility)

The PSI prepared for the Wagga Wagga SAP identified filled land on Lot 22 DP 1085826, which is associated with the Laminex Facility (as described in AEC2 above). CoPCs include solvents, PAHs, pesticides, heavy metals, ammonia and creosols (WSP, 2019).

Potential AECs have been mapped in Figure 4-21.

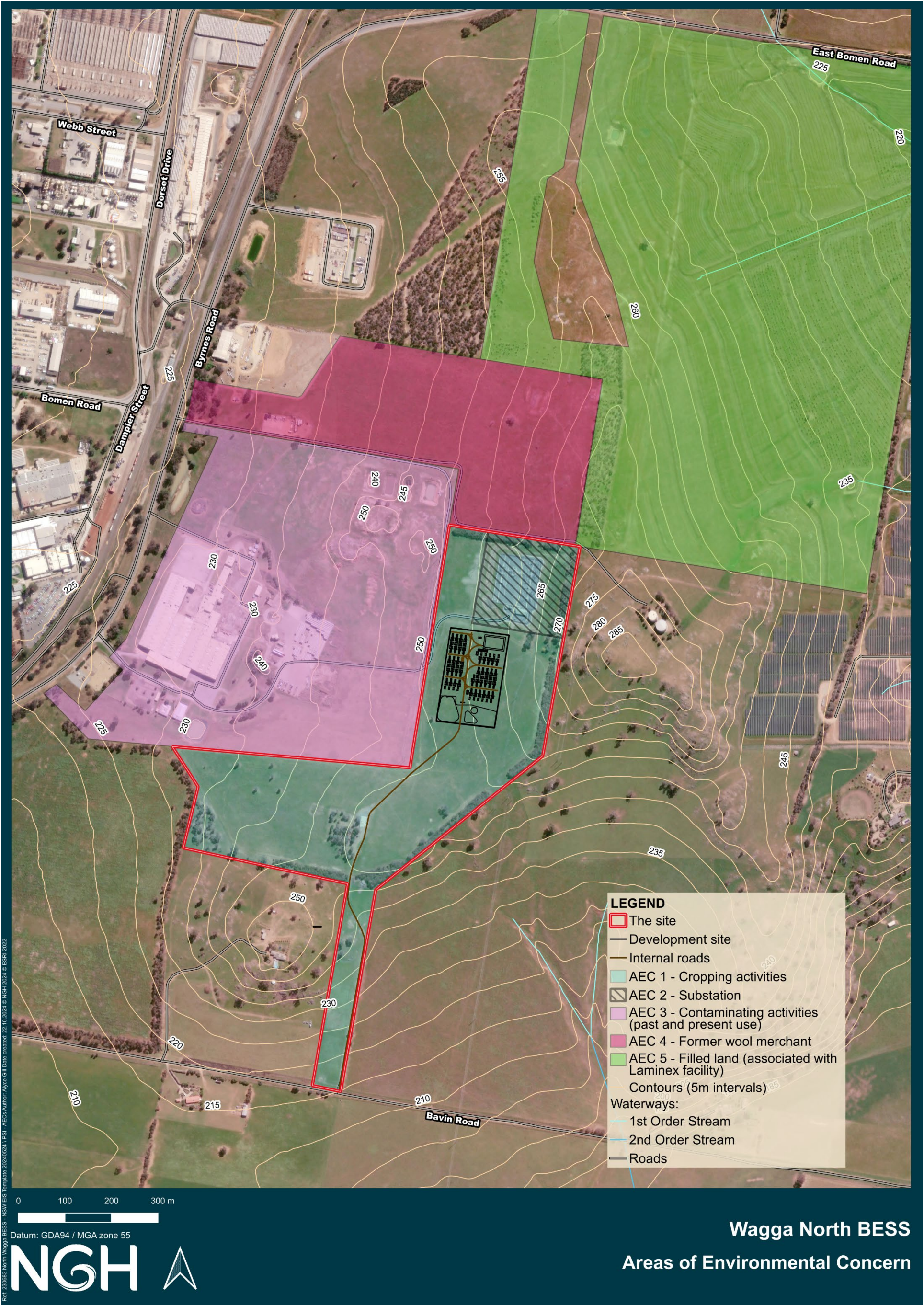


Figure 4-21 Potential AECs

The Project would result in a change to a less sensitive land use. In accordance the findings of the Wagga Wagga PSI (WSP, 2019), potential contamination associated with agricultural activities can be managed through the implementation of an Unexpected Finds Protocol (as part of the Construction Environmental Management Plan (CEMP)).

The results of the PSI indicate that the site is not likely to present a risk to human health or the environment. The site is considered to be suitable for the proposed land use. No further intrusive assessment is considered required. If contaminated material is identified onsite during the construction program, the Unexpected Finds Protocol (Appendix D of the PSI) will be implemented.

4.13.3. Mitigation measures

The following mitigation measures have been recommended to reduce the risk of potential contamination as a result of the proposed development.

- Any imported fill material will be checked to make sure that it is free of contaminants.
- If contaminated material is identified onsite during the construction program, the Unexpected Finds Protocol will be implemented.
- Prior to the commencement of construction, the Applicant will consult with Transgrid to determine whether any known spills or contaminating activities have occurred at the substation. If spills or contaminating activities are identified as result of this consultation, further investigation will be required.
- A Construction Environmental Management Plan (CEMP) will be developed and implemented for the Project. The CEMP will:
 - Acknowledge that soils at the site may be impacted with contaminants associated with cropping, including organochlorine pesticides (OCPs), organophosphate pesticides (OPPs) and herbicides
 - Include the Unexpected Finds Protocol (UFP) provided in Appendix E. The UFP will be implemented, should contamination be identified onsite during the construction program
 - Should groundwater be encountered during construction, works will cease and further investigation will be required.

4.14. Air quality

4.14.1. Existing conditions

The development site is located within Bomen, an industrial suburb of the regional city of Wagga Wagga. There are densely developed and populated areas of the city; however, the immediate area surrounding the subject site is open, undulating country with agricultural activity to the south and east and industrial / business development generally to the north/west. Air quality in the area is typical of the surrounding rural region.

A search of the current air quality in Wagga Wagga is rated 'Good', based on the Wagga Wagga North monitoring station (NSW Government, 2024). However, raised dust during the drier months contributes to sporadic reductions in air quality. During autumn, the level of particulate matter in the air increases due to the burning of agricultural residues and soil cultivation for cropping. In winter, the burning of wood in solid fuel fires contributes to elevated levels of particulate matter in the atmosphere.

4.14.2. Potential impacts

Air quality would be affected during the construction phase by vehicle and machinery exhaust emissions, although the emissions would be readily dispersed and any impacts to residents or workers at the site are expected to be transient and minor.

Construction and decommissioning traffic accessing the site may produce dust as the internal access road would be unsealed. Gravel surfacing would be improved on the internal access road where required. Dust has the potential to cause nuisance for neighbouring industries. Dust can also adversely affect the natural terrestrial and aquatic ecosystems which occur at the site. Any localised air quality impact would be actively managed and monitored to ensure no adverse impacts on neighbouring land. The condition of internal tracks and movement areas would be monitored regularly, and a water cart would be used as required for dust suppression.

During the operation phase, soils at the site would be stable and vegetated with perennial grass cover. Dust generation would be closely managed to avoid nuisance to surrounding receivers and ecosystems.

4.14.3. Mitigation measures

Subject to mitigation measures, any dust or other air quality impacts are likely to be minor, temporary, and highly localised. To minimise dust emissions from proposed development:

- Bavin Road will be sealed, from the edge of the existing seal to the site entrance
- A reduced speed limit would be enforced within the site.
- Vegetation clearing would be kept to minimum within the proposed BESS area.
- Stockpiles at the site which has a potential to generate dust would be covered.
- Equipment will be turned off while not in use.
- Weather will be monitored and if dust visually detected at any time during construction, a water cart would be used to suppress dust.
- Soil polymer will be used on the unsealed sections of the internal access track

- During the operation of the BESS, soils are to be protected, and perennial grass cover is to be maintained in order to slow dust generation.

4.15. Consideration of other hazards

4.15.1. Soil

Existing environment

A report by WSP states that the geology within the Wagga SAP comprises of multiple Quaternary formations (including alluvium and colluvium) with overlaying granites or sandstones. The subject land is mapped on Lower Silurian Wantabadgery Granite.

A search of the NSW eSpade database identified that the subject land is located on the East Bomen soil landscape (eSPADE, 2024). This soil landscape is generally comprised of shallow to moderately deep Eutrophic Red Dermosols on crests and ridges, to Eutrophic Brown Dermosols on slopes and drainage lines. Red Dermosols generally refer to sandy loam to light clay with Brown Dermosols referring to light to medium clay. The limitations generally associated with the soil landscape are a moderate erosion hazard, moderately acidic and locally shallow soils.

The soil chemistry throughout the proposed SAP area indicates that acid sulfate soils or potential acid sulfate soils (ASS/PASS) are not present, and saline soils are not present.

The subject land is mapped as having Class 3 and Class 5 capability soils as per ‘*The land and soil capability assessment scheme*’ (NSW OEH, 2012). Class 3 land is regarded as high capability land for agricultural uses while Class 5 land is regarded as moderate – low capability for agricultural uses. The subject land is not mapped as containing Biophysical Strategic Agricultural Land (BSAL). The subject land is not mapped as having Naturally Occurring Asbestos (NOA).

Potential impacts

Construction activities have the potential to impact on the soils within the development site, including trenching, drainage works and landscaping. Cut and fill across the proposed BESS area would be up to 4 metres in order to achieve the necessary stormwater management arrangements and provide a level platform for the operation of the battery containers.

The proposed earthworks would be carried out in accordance with the relevant requirements of AS3798. While the height of the cut exceeds the 1m identified in control A22.4, the cut and fill has been balanced to avoid the need for importation of fill material or disposal of excess material in line with the objectives of Performance Criteria 22(d) (encourage reuse of fill material from within the precinct).

Through the initial design process, any sensitive landforms would be protected, with minimal disturbance to the existing topography of the site in line with Performance Criteria 22(a). As detailed within the Landscape Plan (Appendix F), the proposed vegetative screening exceeds the overall height of the Project, with mature height of species potentially reaching 30m. This will assist in stabilisation of the landscape and protect the site from views/not be at interface with the public domain.

The proposed development would also not impact any existing vegetation in line with Performance Criteria 22(c) (minimise disturbance of vegetation that stabilises land, particularly on sloping sites).

The use of retaining walls are not proposed, with management of the cut and fill material stabilised through civil batters.

The Stormwater Management Report and associate plans (Appendix K) illustrate that the construction pad would be appropriately designed to manage and mitigation stormwater runoff and drainage (refer to Section 4.15.3 below).

Geotechnical investigations as part of the DA were conducted at the proposed BESS site included drilling four boreholes to a depth of 5m (refer to Appendix K). Material encountered included sandy clays to a depth of about 3-4m, underlain by extremely weathered clayey sands to the 5m borehole termination. No groundwater was encountered in any boreholes, and no refuse was encountered.

As such, it is considered that that the requirements of PC22 have been met, and no unacceptable solutions are proposed.

Prior to the commencement of works, further detailed geotechnical investigations and detailed civil design would be carried out for the Construction Certificate.

An Erosion and Sediment Control Plan has been prepared for the proposed development, as requested in the Activation Precinct Certificate (APC) checklist.

4.15.2. Mitigation measures

Mitigation measures in addition to above referenced measures are not intended.

4.15.3. Hydrology and flooding

Existing conditions

The subject site is not mapped as flood prone land according to the SAP Flooding and Water Quality Final Adopted Scenario Report (Rhelm, 2020) and Section 8 of the Delivery Plan. The report determined that a 0.5% Annual Exceedance Probability (AEP) would be appropriate to plan for the SAP. The subject land would not be affected during a 0.5% AEP event.

Xeros Piccolo Consulting Engineering has prepared a Stormwater Management Report (SMR) (Appendix K) for the proposal, to satisfy the requirements in the Wagga SAP Delivery Plan, in particular PC19 and PC21. A summary of the impacts and proposed mitigation measures are discussed below.

The site is currently undeveloped agricultural land and is not connected to any formal stormwater drainage infrastructure. Surface water on the eastern portion of the Wagga SAP drains into Kurrajong Lagoon on the Wheel of Fortune Creek, approximately 3km to the southeast. Wheel of Fortune Creek eventually drains into the Murrumbidgee River.

Potential impact

A DRAINS model was developed to calculate pre- and post-developed flow rates for a range of storm recurrences, and for durations from 5 minute to 24-hours, and the on-site detention basin outlet and volume were sized to ensure post-developed flow rates from site were at or below pre-developed rates.

Table 4-10 Peak flow rates from the proposal

Storm event	Pre-developed flow rate	Post-developed flow rate
0.2EY (5-year)	217 L/s	125 L/s
10% AEP (10-year)	286 L/s	207 L/s
5% AEP (20-year)	352 L/s	208 L/s
2% AEP (50-year)	428 L/s	246 L/s
1% AEP (100-year)	505 L/s	404 L/s

The calculated flow rates for various storm events demonstrate the post-developed flow rates are all lower than the pre-developed rates. Based on this, the requirements of PC21 are considered to have been achieved, and water quality management for the proposed development is considered acceptable and in accordance with Delivery Plan requirements.

Generally, stormwater management along the proposed access road would consist of the formation of shallow, vegetated open drains on the uphill side of the road to direct runoff to culverts under the road. These culverts would discharge to a suitable level spreader device, to return runoff to sheet flow conditions. Rock rip rap would be provided at the culvert outlets and at other critical locations in the open drain, to reduce potential erosion.

Water quality modelling using MUSIC was conducted for the BESS site to achieve the load reduction targets shown in Table 4-11.

Table 4-11 Stormwater Quality Load Reduction Targets

Pollutant	Target reduction	Achieved Reduction %
Total Suspended Solids	80%	80.1%
Total Phosphorus	60%	75.7%
Total Nitrogen	45%	62.7%
Gross Pollutants	70%	90.6%

To practically achieve these targets, an infiltration basin is required and would be incorporated into the base of on-site detention basin. The infiltration basin parameters are as follows:

- Infiltration Area: 600m²
- Filter Media Depth: 0.5m
- Extended Detention Depth: 0.2m (i.e. surface is 0.2m below the outlet pipe).

Contaminated water

Based on the above, the requirements of PC21 are considered to have been achieved, and water quality management for the proposed development is considered acceptable and in accordance with Wagga Delivery Plan requirements.

Contaminated runoff (fire incident)

It is important to note that in the event of a battery fire, water is not used to extinguish a fire. Instead, water may be used to cool neighbouring units to prevent fire propagation, and to extinguish spot fires that may result.

In a fire event and due to the construction of internal roads, it is expected that any water used will “pool” within the raised sections of the road due to the fall of the land. From this location, any water can be collected and the land remediated to ensure no contamination remains.

In addition to the above, stormwater shut-off valves are proposed within the Project drainage system:

- During critical events, automated shut-off valves 1, 2 and 3 will automatically close to prevent contaminated water from entering the stormwater basin and downstream waterway. Valve closure will be linked to an alarm system as required
- A manual override mechanism will be provided to enable authorised personal to re-open the shut-off valves as required
- If ponding within the raised section of the road (upstream of valves 2 and 3) exceeds acceptable limits, the valves shall be opened to allow flows to collect within the proposed basin
- Prior to opening valve 1, the proposed basin shall be cleaned in accordance with the site operations procedures to remove contamination, and the basin filter media and surfaces re-instated to a suitable condition.

Mitigation measures

The following mitigation measures are recommended:

- Implementation of the Stormwater Management Report and accompanying design plans, subject to any further detailed design as required.
- Ensure appropriate drainage controls are incorporated into the design to minimise the area of disturbance, runoff and pollutant generation.
- Erosion and sediment control measures will be implemented to mitigate any impacts in accordance with the guidelines in Landcom: Managing Urban Stormwater: Soils & Construction (the 'Blue Book').

4.15.4. Groundwater and water resource

Existing environment

A Hydrogeological Report (WSP, 2020) was prepared for the Wagga SAP. The findings of the Hydrogeological Report indicated that future development within the SAP may result in groundwater contamination, particularly the Wagga Wagga alluvium. This is primarily due to the susceptibility, connectivity and high productivity of the aquifers (upper and lower).

The subject site is not within the groundwater protection zone identified at Figure 15 of the SAP Master Plan. The proposed developed is situated on the Wantabadgery Granite Lower Silurian geology (refer to Figure 4-22).

No registered groundwater bores occur within the subject land; however, there are existing bores in the general area and groundwater resources are of critical importance to water supply in Wagga Wagga. Groundwater levels are at approximately 6-9m below ground level. As detailed above, geotechnical investigations as part of the DA were conducted at the proposed BESS site. No groundwater was encountered in any boreholes, and no refuse was encountered.

Potential impacts

During operation, the development would require approximately 50kL of potable water for the proposed operations and maintenance building. Approximately 30kL of non-potable water would be needed for Landscape establishment activities in the initial stages. A 200kL water tank is proposed on-site to cater for potable water supply to the operations and maintenance building, landscape screening establishment and firefighting static supply.

The development does not propose groundwater extraction directly from the site. Water demand would be fulfilled with the help of water trucks delivering supply to the site; however, it is noted that local water supply relies on groundwater resources primarily. The water quantities required are considered minimal, as outlined above.

The proposed development is not a type that would interact with groundwater resources in the area. As indicated above, groundwater levels are at approximately 6-9m below ground level. The underground cabling proposed for the development would not be at a depth greater than 1m hence would not interfere with the groundwater table. The site consists of sandy clay to a depth of approximately 4m, with no groundwater encountered.

The proposed development would not involve industrial processes; however dangerous goods would be stored on-site, as addressed in section 4.4.2 of this report. Quantities are generally small and would be always contained.

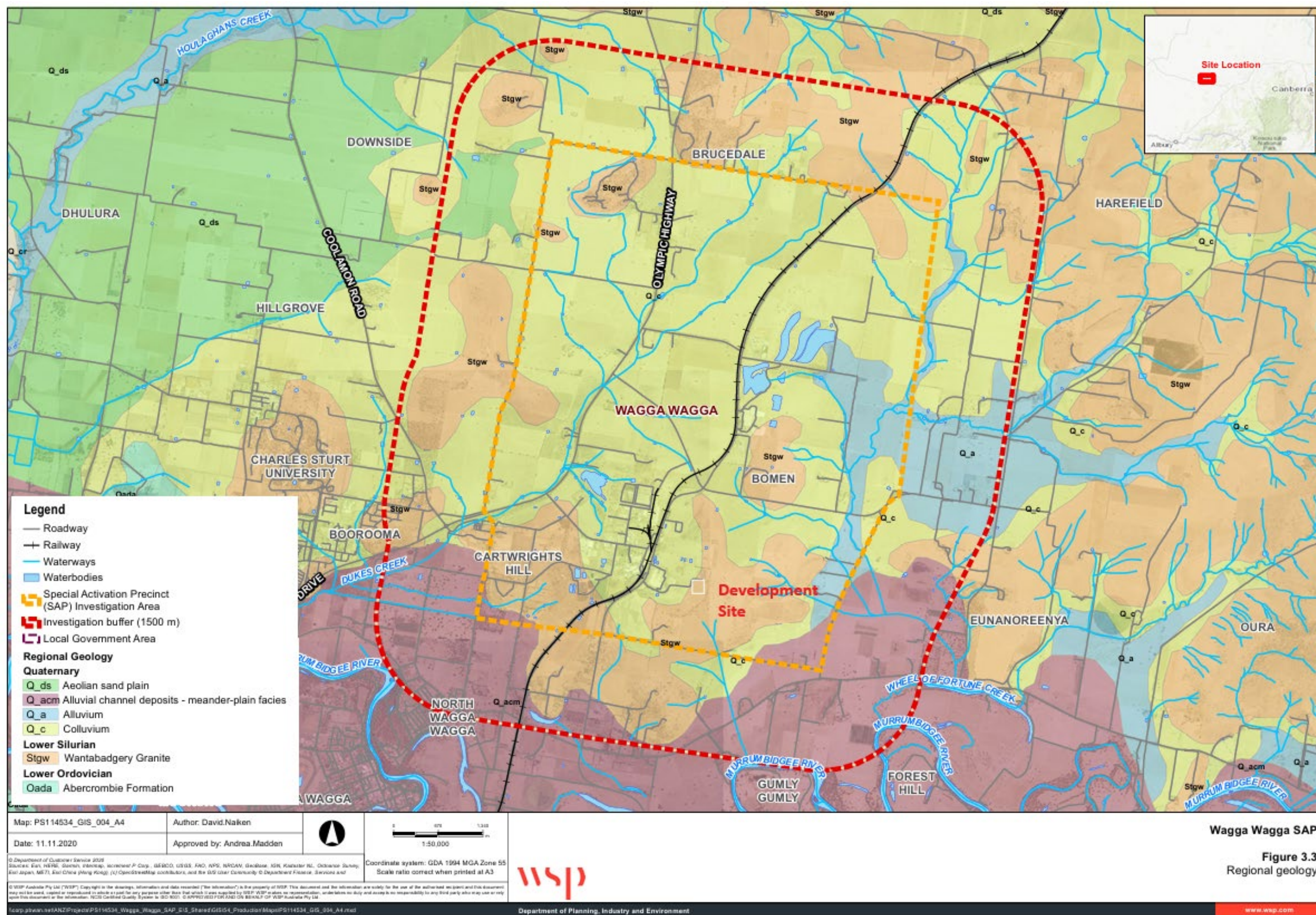


Figure 4-22 Regional geology. Development Site outlined in white (Source; WSP, 2020)

5. Statutory framework

5.1. Commonwealth legislation

5.1.1. Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is administered by the Commonwealth Department of the Environment and Energy (DEE). Under the EPBC Act, if the Minister determines that an action is a 'controlled action' then the action may not be undertaken without prior approval of the Minister.

Assessments of significance based on criteria listed in Significant Impact Guidelines 1.1 issued by the Commonwealth (Commonwealth of Australia 2013) are used to determine whether the proposed action is likely to have a significant impact (i.e. is likely to be considered a 'controlled action').

The proposed development would not be expected to trigger any relevant matters under the EPBC Act given the absence of impacts on native vegetation and threatened species habitat.

5.2. State legislation

5.2.1. Environmental Planning & Assessment Act 1979

Application for development consent would be assessed under Section 4.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The consent authority must not grant consent for certain development on bush fire prone land unless it is satisfied the development meets the relevant specifications and requirements of PBP. The proposed development has been assessed by a qualified bush fire risk consultant, and it was determined to meet the relevant specifications and requirements of PBP. Refer to further details in section 4.5 of this report and full assessment in Appendix E.

This Statement of Environmental Effects report and supporting documentation addresses the matters to be considered under Section 4.15 of the Act.

The proposed development requires a section 138 permit under the *Roads Act 1993* as outlined below. Pursuant to section 4.46(3) of the Act, the proposed development is considered **Integrated Development** as such a permit is required from WWCC, who is not also the consent authority for this development application.

The development is not Designated Development according to Schedule 3 Section 50(a) of the *Environmental Planning and Assessment Regulation 2021*.

5.2.2. Biodiversity Conservation Act 2016

Development assessed under Part 4 of the EP&A Act must also address the relevant requirements of the *Biodiversity Conservation Act 2016* (BC Act).

The proposed development must be assessed in accordance with the provisions outlined in clause 7.2 of the BC Act, to determine whether the development is likely to significantly affect threatened species. According to clause 7.7(2) of the BC Act, if the proposed development is likely to significantly affect threatened species, the development application is to be accompanied by a biodiversity development assessment report (BDAR). According to this clause, development is considered likely to significantly affect threatened species if:

- (a) it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3, (5 part Test) or*
- (b) the development exceeds the biodiversity offsets scheme threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, or*
- (c) it is carried out in a declared area of outstanding biodiversity value.*

The proposed development would not be carried out in an area of outstanding or high biodiversity value. The proposed development would not trigger BC Act thresholds according to the SAP biodiversity assessment, as the proposed development site is mostly category 1-exempt land. Existing native plantings generally along the south-eastern boundary and continuing to the west are noted as habitat that threatened species may use opportunistically; however, the proposed development would avoid impacts to these areas. The proposed development would not generate a Biodiversity Offsets Scheme (BOS) offset obligation. Further detailed assessment is not required according to the BC Act.

5.2.3. Roads Act 1993

The proposed development would require a s138 permit from WWCC for minor works on Bavin Road and at the intersection of Byrnes Road. The proponent would prepare detailed design plans and a TMP post-approval to obtain the section 138 permit from WWCC.

5.2.4. State Environmental Planning Policy (Regional—Precincts) 2021

The subject land is in the Wagga Wagga Special Activation Precinct (SAP), as declared under Schedule 1A of the Regional Precincts SEPP.

Permissibility

Under the provisions of Schedule 1A of the Regional Precincts SEPP, the land is zoned Rural Activity and SP2 Infrastructure (Electricity Transmission or Distribution), as shown in Figure 5-1. Under the SP2 zone, the purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose, is development permitted with consent on that land. The proposed development includes electricity transmission/distribution works on the SP2 land. Under Schedule 1A section (3A) of the SEPP, development for the purposes of electricity generating works used for electricity storage is permitted with development consent on land in the Rural Activity Zone. Therefore, the proposed development is permissible with consent.

Consent authority

Where development requires consent in the SAP, the consent authority is the Planning Secretary (Department of Planning, Housing and Infrastructure (DPHI)). The proposed development would contribute to achievement of the zone objectives.

Other relevant provisions

According to the Regional Precincts SEPP, the State Environmental Planning Policy (Planning Systems) 2021 does not apply in a SAP, i.e. development does not trigger the respective requirements for Regionally Significant Development and State Significant Development. Furthermore, the proposed development is not categorised as Designated Development according to schedule 3 section 50 of the EP&A Regulation.

An Activation Precinct Certificate (APC) has been obtained (APC 433) for the proposed development in accordance with the provisions of the Regional Precincts SEPP)..

The SEPP requires the consent authority to have regard to the Master Plan and Delivery Plan and the zone objectives when determining a DA. A Statement of Consistency with the SAP Master Plan and Delivery Plan has been prepared to demonstrate consistency, having regard to the permissibility of the development, the proposed land use, development design, and site constraints, and is further detailed in Section 4 of this report.

The objectives of the Rural Activity zone are to:

- To provide a transition between rural and urban land uses.
- To protect and enhance the rural character of Wagga Wagga Activation Precinct and contribute to the surrounding environment and its amenity.
- To provide a buffer between future residential and employment growth areas.
- To support agricultural and rural land use.

The objectives of the Infrastructure zone are to:

- To provide for infrastructure and related uses.
- To prevent development that is not compatible with or that may detract from the provision of infrastructure.

The proposed development would not be inconsistent with these objectives:

- Is proposed directly adjacent to existing electrical infrastructure, thus reducing any fragmentation between rural and urban land. As such, there is little transition between rural and urban land.
- Will be appropriately screened, to reduce views and protect the rural character of the area.
- The proposed screening is also aligned with the SAP planting palette, thus contributing to the surrounding environment.
- Is proposed on private land zoned RU1 – Primary Production, directly adjacent to existing electrical infrastructure. This land is not marked as future residential and employment growth areas.
- The balance of land can continue its current farming enterprise.

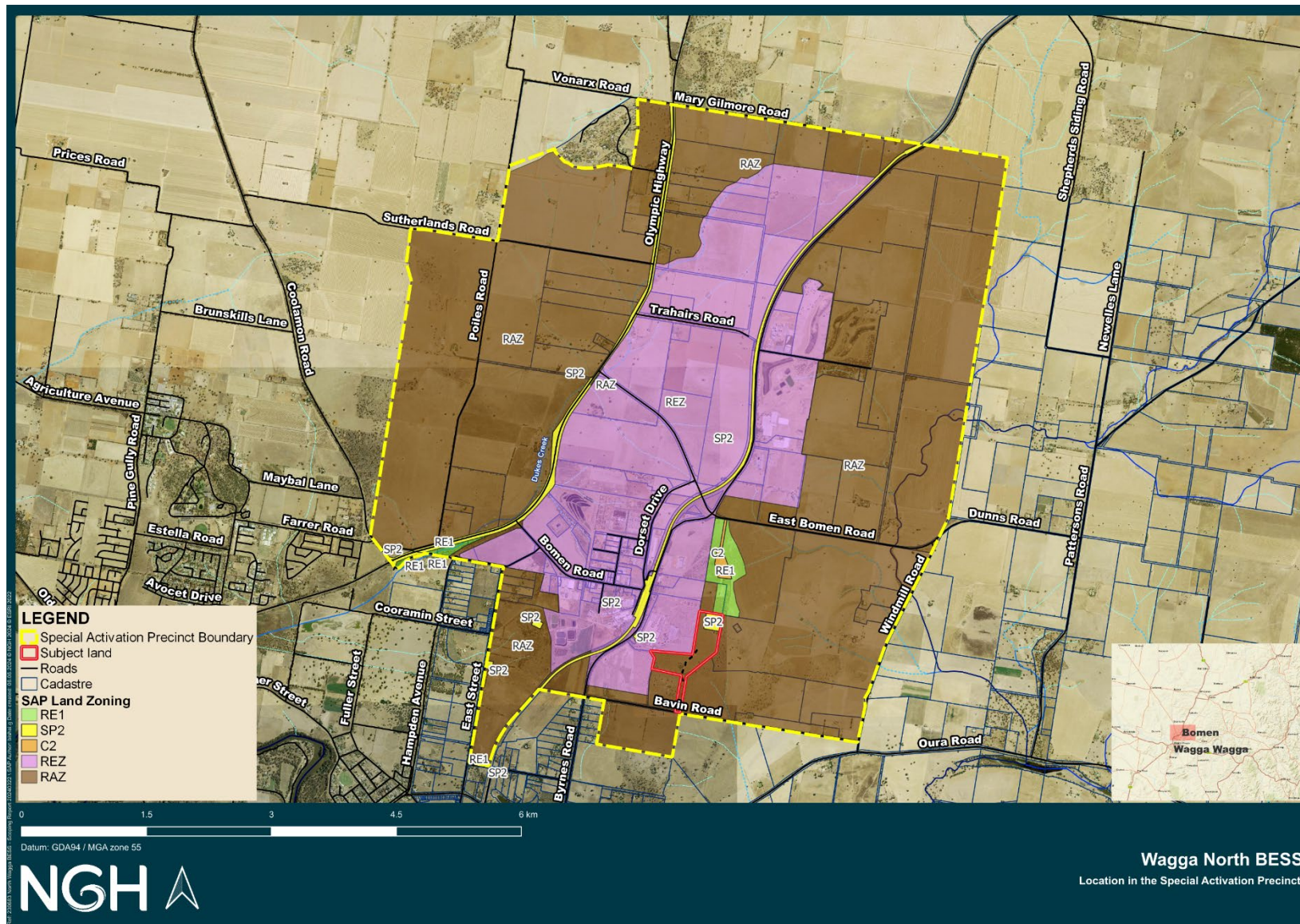


Figure 5-1 Regional Precincts SEPP Land zoning map

In accordance with section 3.4 of the SEPP, local environmental plans do not apply to land within an Activation Precinct except as provided under Schedule 1B section 14 and addressed in the table below.

Table 5-1 Provisions of Schedule 1A of the Regional Precincts SEPP

Provisions of Schedule 1A	Response
Section 12 Preservation of trees and vegetation	The proposed development would not be carried out on land identified as within an environmentally sensitive area on the Wagga Wagga Activation Precinct Environmentally Sensitive Areas Map. No further action is required.
Section 13 Heritage conservation	The proposed development is not likely to impact on any heritage items identified within the Wagga SAP.
Section 14 Application of Wagga LEP 2010	Clauses 2.6–2.8, 5.1, 5.8, 5.11 are not triggered or relevant to the proposed development.
Section 15 Application of State Environmental Planning Policy (Transport and Infrastructure) 2021	There are no relevant matters under this section.

Provisions of Wagga Wagga Special Activation Precinct Master Plan

The provisions of the Wagga SAP Master Plan are detailed within the Statement of Consistency (Appendix M). The SOC demonstrates compliance and consistency with the Wagga SAP Master Plan.

Wagga Wagga Special Activation Precinct Delivery Plan

The provisions of the Wagga SAP Delivery Plan are detailed within the Statement of Consistency (SOC - Appendix M). The SOC demonstrates compliance and consistency with the Wagga SAP Delivery Plan.

5.2.5. State Environmental Planning Policy (Resilience and Hazards) 2021

Chapter 3 and 4 of the State Environmental Planning Policy (Resilience and Hazards) 2021 (RH SEPP) have been considered for the proposed development as follows:

Chapter 3 Hazards and Offensive Development

Chapter 3 requires that consideration be given to the current circulars or guidelines relating to such development as published by the Department of Planning, when determining if the development is potentially hazardous or offensive.

Electricity generating works are not identified as a potentially offensive or potentially hazardous industry or storage facility in Appendix 3 of the Guidelines. However, the proposed use is considered to meet the

definition of potentially hazardous development and would involve the storage and transport of some dangerous goods.

The potential hazardousness and offensiveness of the proposed development have been assessed by way of a PHA prepared by a suitably qualified consultant in accordance with section 3.11 of the SEPP. Refer to summary provided in section 4.4 of this report and PHA provided in Appendix D.

According to section 3.12 of the SEPP, the consent authority must consider certain matters as addressed in the table below.

A PHA has been prepared for the proposed development which has recommended some measures to decrease the hazards associated with the BESS. This includes the preparation of emergency response plan, fire safety study and hazard audits. Altogether with these measures, those shown on the plans and described in this SEE would minimise impacts and are not likely to have a significant adverse impact in the locality or on the existing or likely future development on other land in the locality.

Table 5-2 Section 3.12 matters for consideration

Section 3.12 matters for consideration	Response
<i>(a) current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development, and</i>	The accompanying PHA has addressed all relevant circulars or guidelines published by the Department of Planning relating to hazardous or offensive development,
<i>(b) whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply, and</i>	The consent authority would undertake consultation with any other public authority it deems relevant.
<i>(c) in the case of development for the purpose of a potentially hazardous industry—a preliminary hazard analysis prepared by or on behalf of the applicant, and</i>	The proposed development has been assessed by way of a PHA prepared by a suitably qualified consultant in accordance with section 3.11 of the SEPP.
<i>(d) any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application), and</i>	Other feasible alternatives have been explored such as alternative sites, varying BESS sizes and varying technologies. The subject land was selected based on proximity to the Transgrid Wagga North zone substation, availability of an existing bay or willingness of Transgrid to facilitate an additional bay for connection as well as other relevant NEM grid features in the region. The initial site assessment also included a comprehensive list of other considerations such as land use conflicts, biodiversity values, indigenous and non-indigenous heritage, traffic/access,

	risks such as bushfire and flooding, soil conditions and proximity to sensitive uses. It is considered the selected site is appropriate and desirable for the proposed development, as outlined in detail in this report. Varying BESS sizes were modelled, with 120MW 4-hour storage determined to be the most viable options. Varying technologies were considered; however, the selected technology has been settled upon due to being an advanced manufacturer and battery type, appropriately robust safety and operational data, adequate safety systems including fire protection, expected noise impacts, product supply and cost considerations. Not proceeding with the proposed development is also an option considered. However, this also result in the forgoing of the economic and employment benefits of the project as well as the contribution the proposal can make to achieving the vision for the Wagga Wagga SAP. The proposal would also involve up-front monetary contributions via the Section 7.12 infrastructure contribution
<i>(e) any likely future use of the land surrounding the development.</i>	The adopted Master Plan and Delivery Plan provide a detailed framework for the future use of the subject land and substantial surrounding area in the Wagga SAP. The subject land is within the Rural Activity and Infrastructure zones and is a permitted use. It would contribute to the achievement of the zone objectives. The likely future adjoining and surrounding uses are continued agriculture in the Rural Activity zone and agri-industrial development, transport/logistics and manufacturing in the Regional Enterprise zone. The proposed development would be compatible with these activities but would achieve more efficient use of energy in the NEM and other ancillary functions to stabilise the grid. The key environmental and amenity impacts of the BESS have been assessed in this SEE and supporting reports. The risk of conflict with the likely future use of the land surrounding the development is considered low.

Chapter 4 Remediation of Land

Chapter 4 requires the consent authority to consider whether land is contaminated, whether the land is in a suitable state for the proposed development and whether land requires remediation to reach a state that is suitable for that development.

Pursuant to the provisions of section 4.6, the subject land is not located within an investigation area as declared under Division 2 of Part 3 of the *Contaminated Land Management Act 1997*, nor is it proposed to carry out development for residential, educational, recreational or child care purposes, or for the purposes of a hospital. The subject land has been used historically for agricultural activity which is a purpose referred to in Table 1 of the contaminated land planning guidelines.

A PSI was conducted for the subject land and proposed development, as summarised in 4.13 of this report and provided in full at Appendix J. It was concluded the subject land is in a suitable state for the proposed development.

5.3. Wagga Wagga Local Environmental Plan 2010

The relevant sections of the Wagga Wagga Local Environmental Plan 2010 are addressed in the above section.

6. Conclusion

This SEE has addressed the requirements of Section 4.15 of the *Environmental Planning and Assessment Act 1979*. The proposed Wagga North BESS meets the relevant provisions of the State Environmental Planning Policy (Precincts—Regional) 2021 and relevant controls of the Wagga Wagga SAP Master Plan and Delivery Plan.

The proposed development site was carefully selected and refined in response to early investigations. The proposed infrastructure layout was also designed in response to various considerations including environmental and amenity factors relevant to renewable energy facilities, neighbouring agricultural lands and the intensifying industrial setting adjoining the subject land.

The Applicant commits to carrying out the development in accordance with the safeguards and mitigation measures outlined in this SEE and supporting assessments. Overall, the proposed development is expected to have minimal environmental and amenity impact; it is suitably sited within the Rural Activity Zone and SP2 Infrastructure zone of the Wagga Wagga SAP. The development would result in a positive impact for the community and local economy.

Given the sustainability vision and adopted targets for renewable energy generation and usage for the Wagga Wagga SAP, it is considered the proposed BESS would be crucial in:

- Providing support to the numerous renewable energy sources in Bomen and surrounding region that feed to the Wagga North zone substation as well as other suitably sited future solar farms in the locality/region,
- improved management of excess renewable energy in the grid, as identified in the SAP Renewable Energy Analysis, and shifting this to cover the energy needs of existing and future industrial development in the SAP.

Adjoining rural lands would not be negatively impacted by the proposed development. The site was selected due to natural shielding from topography and existing vegetation. Additionally, landscape screening in accordance with the Delivery Plan would be carried out. Noise during operation would have an acceptable impact as identified by the noise assessment and construction noise will be subject to detailed design and investigations prior to commencement to ensure satisfactory impacts. Importantly, no remnant native vegetation or sensitive biodiversity features would be impacted by the proposed development.

This SEE and all supporting documents have shown that there are reasonable grounds to consider granting consent for the development. The safeguards and mitigation measures committed to by the Applicant in this SEE would enable a development that avoids and minimises environmental, and amenity impacts and would support the objectives and aims of the Wagga Wagga SAP.

7. References

- DEC. (2006, February). *Assessing Vibration: a technical guideline*. Retrieved from NSW Department of Environment and Conservation:
<https://www.environment.nsw.gov.au/resources/noise/vibrationguide0643.pdf>
- DECC. (2009, July). *NSW Interim Construction Noise Guideline*. Retrieved from NSW Department of Environment and Climate Change:
<https://www.environment.nsw.gov.au/resources/noise/09265cng.pdf>
- EPA. (2017, October). *NSW Noise Policy for Industry*. Retrieved from NSW Environmental Protection Authority: <https://www.epa.nsw.gov.au/publications/noise/17p0524-noise-policy-for-industry>
- eSPADE. (2024). *eSpade V2.2 Database*. Retrieved from NSW Office of Environment and Heritage:
<https://www.environment.nsw.gov.au/eSpade2Webapp/>
- NSW Government. (2024, December). *Current Air Quality in Wagga Wagga North*. Retrieved from Air Quality in NSW: <https://www.airquality.nsw.gov.au/riverina-murray/wagga-wagga-nth>
- NSW Government. (accessed 2024). *SEED*. Retrieved from NSW Government:
https://geo.seed.nsw.gov.au/Public_Viewer/index.html?viewer=Public_Viewer&locale=en-AU
- NSW Government Department of Planning. (2021). *Wagga Wagga Special Activation Precinct - Master Plan*.
- NSW Government RGDC. (2022). *Wagga Special Activation Precinct Delivery Plan*.
- NSW OEH. (2012, October). *The land and soil capability assessment scheme*. Retrieved from NSW Office of Environment and Heritage: <https://www.environment.nsw.gov.au/-/media/OEH/Corporate-Site/Documents/Land-and-soil/land-soil-capability-assessment-scheme-120394.pdf>
- Rhelm. (2020). *Flooding and Water Quality Final Adopted Scenario Report*.
- WSP. (2019). *Preliminary Site Investigation - Wagga Wagga SAP*. Department of Planning, Industry and Environment.
- WSP. (2020). *Biodiversity Assessment Report Stage 1, Wagga Wagga Special Activation Precinct*.
- WSP. (2020). *Desktop Hydrogeology Assessment Special Activation Precinct, Wagga Wagga*. Sydney: WSP.
- WSP. (2020, July). *Renewable Energy Opportunity and Constraints Analysis*. Retrieved from Department of Planning, Industry and Environment: [https://shared-drupal-s3fs.s3-ap-southeast-2.amazonaws.com/master-test/fapub_pdf/000-Wagga/Renewable+Energy+Opportunities+and+Constraints+Analysis+\(1\).pdf](https://shared-drupal-s3fs.s3-ap-southeast-2.amazonaws.com/master-test/fapub_pdf/000-Wagga/Renewable+Energy+Opportunities+and+Constraints+Analysis+(1).pdf)
- WSP. (2020). *Renewable Energy Opportunity and Constraints Analysis*.

Appendix A Development design plans and elevations

Appendix B Infrastructure and utilities plan

Appendix C Noise Impact Assessment

Appendix D Preliminary Hazard Analysis

Appendix E Bushfire Assessment Report

Appendix F Landscape Plan and Specifications

Appendix G Traffic Impact Assessment and Haulage Assessment

Appendix H Aboriginal Cultural Heritage Assessment

Appendix I Waste Management Plan

Appendix J Preliminary Site Investigation

Appendix K Stormwater Management Plan and Technical Report

Appendix L Geotechnical Bore logs

Appendix M Statement of Consistency

Appendix N Consultation evidence



NGH Pty Ltd

NSW • ACT • QLD • VIC

ABN 31 124 444 622 ACN 124 444 622

E: ngh@nghconsulting.com.au

GOLD COAST

2B 34 Tallebudgera Creek Road
Burleigh Heads QLD 4220

T. (07) 3129 7633

SYDNEY REGION

Unit 17, 21 Mary Street
Surry Hills NSW 2010

T. (02) 8202 8333

BEGA

Suite 11, 89-91 Auckland Street
(PO Box 470)
Bega NSW 2550

T. (02) 6492 8333

MELBOURNE

Level 14, 10-16 Queen Street
Melbourne VIC 3000

T: (03) 7031 9123

TOWNSVILLE

Level 4, 67-75 Denham Street
Townsville QLD 4810

T. (07) 4410 9000

BRISBANE

T3, Level 7, 348 Edward Street
Brisbane QLD 4000

T. (07) 3129 7633

NEWCASTLE - HUNTER & NORTH COAST

Level 1, 31-33 Beaumont Street
Hamilton NSW 2303

T. (02) 4929 2301

WAGGA WAGGA - RIVERINA & WESTERN NSW

35 Kincaid Street (PO Box 5464)
Wagga Wagga NSW 2650

T. (02) 6971 9696

CANBERRA

Unit 8, 27 Yallourn Street
(PO Box 62)

Fyshwick ACT 2609

T. (02) 6280 5053

SUNSHINE COAST

Building 1, 30 Chancellor Village Boulevard
Sippy Downs QLD 4556

T: 13 54 93

WODONGA

Unit 2, 83 Hume Street
(PO Box 506)

Wodonga VIC 3690

T. (02) 6067 2533