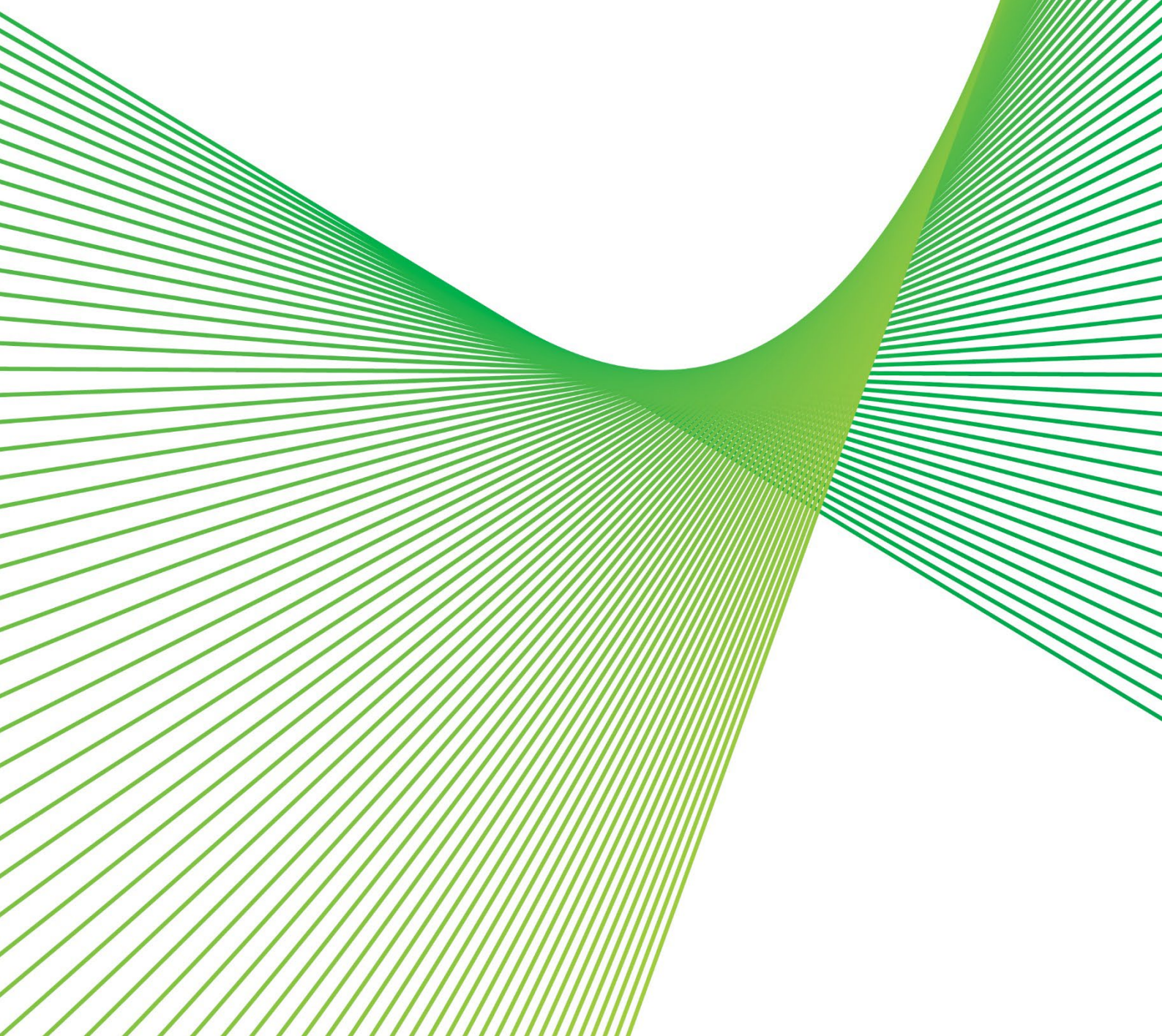


Submissions Report

EnergyConnect (NSW – Eastern Section)

May 2022



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Appendix F Department of Planning and Environment (Biodiversity and Conservation Division) – Detailed response

Abbreviations

Proposal term/ acronym	Definition
AER	Australian Energy Regulator
ARI	average recurrence interval
ARPANSA	Australian Radiation Protection and Nuclear Safety Agency
ARTC	Australian Rail Track Corporation
AS	approach surface
BCD	Biodiversity Conservation Division
BMP	Biodiversity Management Plan
CASA	Civil Aviation Safety Authority
CEFC	Clean Energy Finance Corporation
CEMP	Construction Environmental Management Plan
CSSI	Critical State significant infrastructure
DAWE	Australian Department of Agriculture, Water and the Environment
DGPS	differential GPS
DPE	Department of Planning and Environment
EIS	Environmental Impact Statement
EMF	electric and magnetic fields
EMS	Environmental Management System
EP&A Act	<i>Environmental Planning and Approvals Act 1979</i>
EPA	NSW Environmental Protection Authority
EPBC Act	(Commonwealth) <i>Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	environment protection licence
ERP	Emergency Response Plan
GDE	Groundwater Dependant Ecosystem
HV	high voltage
ICNIRP	International Commission on Non–Ionizing Radiation Protection
kV	kilovolt
Land Acquisition Act	<i>Land Acquisition (Just Terms Compensation) Act 1991</i>
LGA	local government area
MDBA	Murray–Darling Basin Authority
NEM	National Energy Market
NPWS	National Parks and Wildlife Services
NRAR	Natural Resources Access Regulator
NSW	New South Wales

Proposal term/ acronym	Definition
OLS	obstacle limitation surfaces
PAD	potential archaeological deposits
PANS–OPS	Procedures for Air Navigation Services – Aircraft Operations
Planning Systems SEPP	<i>State Environmental Planning Policy (Planning Systems SEPP) 2021</i>
RAP	Registered Aboriginal Parties
REZ	Renewable Energy Zones
RIT–T	Regulatory Investment Test for Transmission
SA	South Australia
SCA	State Conservation Area
SEARs	Secretary Environmental Assessment Requirements
SSI	State Significant Infrastructure
WHO	World Health Organisation
WM Act	<i>Water Management Act 2000</i>

Glossary

Proposal term	Definition
brake/winch sites	A brake and winch site is a temporarily cleared area where plant and equipment is located for the purposes of spooling and winching a conductor into place on erected transmission line towers along a transmission line easement. Dependent upon the angle of line deviation, the location of the brake and winch site at that angle may or may not be within the nominated transmission line easement. The brake and winch site is only required for the construction phase of the proposal. It does not need to be maintained for ongoing operation and/or maintenance of the transmission line.
construction impact area	Refers to the area that would be directly impacted by construction of the proposal comprising the following: • construction of all proposal infrastructure elements (including the proposed transmission line alignment, transmission line easement, substation site works (at both the proposed Dinawan 330kV and upgraded and expanded Wagga Wagga substations), optical repeater infrastructure, and other ancillary works) • locations for construction elements such as construction compounds and accommodation camps, access tracks (excluding public roads proposed to be used for access routes), site access points, water supply points, laydown and staging areas, concrete batching plants, brake/winch sites and site offices. The area is identified based on realistic project component locations and areas however it is indicative at this stage. The area would be confirmed during finalisation of the design and construction methodology and would be developed as part of the consideration of avoidance and impact minimisation. This area includes the operational impact area (including areas required for maintenance) (refer definition below). For heritage and biodiversity assessments, the construction impact has been divided into subset disturbance areas. These subsets relate to the identified level of disturbance in each area to reflect construction and operational requirements – specifically: • Disturbance area A, in which ground disturbance would be required • Disturbance area A (centreline) in which ground disturbance would be required • Disturbance area B, in which ground disturbance is not required except in limited circumstances. • Disturbance area hazard/high risk trees, in which trees could be removed/trimmed for operational requirements if they meet the definition of hazard/high risk tree. Further detail of these areas is provided below. From time to time during construction and operation, high risk trees may be removed from within, or adjacent to, the easement but outside the disturbance area.
Dosimetric analyses	Dosimetric analyses involves the measurement, calculation and assessment of the amount and distribution of electric field absorbed by an object, usually the human body. Dosimetric analyses is used to evaluate compliance with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) general public basic restrictions for electric field.

Proposal term	Definition
disturbance area A	Refers to an area at and around the transmission line towers (including associated construction work areas), areas for brake and winch sites and for new/upgraded access tracks in which vegetation would be removed during construction. The area also includes the proposed Dinawan 330kV substation site, the existing Wagga Wagga substation site and each of the main construction compounds and accommodation camps at Balranald, the Cobb Highway, Dinawan (Kidman Way), Lockhart and Wagga Wagga. It would include vegetation (including tree) removal and sub-surface impacts through construction activities such as grading, excavation, and full tree removal (i.e. root ball removal). Except in areas where only temporary disturbance is required (i.e. temporary access tracks and brake and winch sites), this area would also be subject to ongoing maintenance during operation (i.e. removal to ground level) for operational and safety requirements (including bushfire). This zone is a subset to the construction impact area (see definition above).
disturbance area A (centreline)	Refers to a centreline area between the proposed transmission line towers in which all vegetation (including trees) has been assumed to be removed during construction to ground level. In areas of known or potential heritage subsurface sensitivity (i.e. potential archaeological deposits (PADs)) sub-surface impacts in these areas would be avoided. In these areas vegetation would be cut to ground level and root balls would be retained as necessary to avoid subsurface impacts. Additionally, in areas of key Plains Wanderer primary habitat these centreline areas would not be subject to vegetation clearing. Alternative methods would be adopted in these key habitat areas for the conductor stringing activities. In circumstance where a tree is located within one of these areas that would exceed the vegetation clearing requirements then this tree(s) would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place) using methods that minimise potential impact to key habitat and to ensure avoidance of impact to bird individuals. This would occur under supervision of an ecologist. This area would also be subject to ongoing maintenance during operation (i.e. removal to maintain vegetation clearance requirements) for operational and safety requirements (including bushfire). This zone is a subset to the construction impact area (see definition above).
disturbance area B	Refers to an area between transmission line towers in the easement in which removal of vegetation (including trees) would be undertaken where they have the potential to exceed vegetation clearance heights. This removal may result in temporary ground disturbance. Vegetation that is to be removed would have root balls removed except where practicable to retain. Vegetation clearance heights are set by Transgrid for operational and safety requirements, including bushfire risk management. This area would also be subject to ongoing maintenance during operation. This zone is a subset to the construction impact area (see definition above).

Proposal term	Definition
disturbance area – hazard/high risk trees	Refers to discrete areas alongside the proposal alignment where vegetation (trees) located outside of the easement have been assumed to potentially meet the definition of hazard/high risk trees and as a result have had an impact assumed. The impact would include partial vegetation clearing which would be restricted to the operational phase. Vegetation that is to be removed would have root balls retained and where practicable impacts will be restricted to pruning. Vegetation clearing has been identified as being limited to maintenance of hazard/high risk trees within 10 metres of the easement edge (disturbance area B10 zone) where trees within vegetated areas exceed defined height thresholds of 30 metres for the 330kV line and 20 metres for the 500kV line. Locations identified for this disturbance area are shown Appendix B of the Revised BDAR. This zone is a subset to the construction impact area (see definition above).
EIS alignment	The proposed alignment presented in the EIS
EnergyConnect	An electrical interconnector of around 900 kilometres between the electricity grids of South Australia and New South Wales, with an added connection to north west Victoria. In NSW, EnergyConnect comprises two sections – Western Section (which has been the subject of a separate environmental assessment and approval) and the Eastern Section (the proposal the subject of this EIS).
hazard/high risk tree	Hazard/high risk trees are defined under Transgrid procedures and include any tree or part of a tree that if it were to fall would infringe on the vegetation clearance requirements at maximum conductor sag of the transmission lines. Hazard/high risk trees will be confirmed based on the final proposal design (considering the transmission line conductor profile) and following qualified arborist assessment of the tree. All hazard/high risk trees confirmed as posing a risk to the corridor shall be removed.
operational impact area	Refers to the area that would be directly impacted by permanent components of the proposal, including all proposed infrastructure elements such as the proposed transmission line easement, transmission line and transmission towers, any new or upgraded substation infrastructure, optical repeater sites, and permanent access tracks. Includes the disturbance area – hazard/high risk trees.
proponent, the	NSW Electricity Networks Operations Pty Ltd as a trustee for NSW Electricity Operations Trust (referred to as Transgrid). Transgrid is the operator and manager of the main high voltage (HV) transmission network in NSW and the Australian Capital Territory (ACT), and is the Authorised Network Operator for the purpose of an electricity transmission or distribution network under the provisions of the <i>Electricity Network Assets (Authorised Transactions) Act 2015</i> .
proposal, the	The proposal is known as 'EnergyConnect (NSW – Eastern Section)' as described in Chapter 5 and Chapter 6 of the <i>EnergyConnect (NSW – Eastern Section) Environmental Impact Statement</i> .

Proposal term	Definition
proposal study area	The study area for this EIS, which comprises a generally one kilometre wide corridor (500 metres either side of the proposal alignment) between the Buronga substation and the Wagga Wagga substation as well as additional proposal components located away from the transmission line easement (with the exception of the proposed water points which has had a 200 metre diameter applied around each site). The proposal study area has been applied to identify the constraints nearby to the proposal which may or may not be indirectly impacted by the proposal. It encompasses the components including the construction impact area, the optical repeater sites (and associated connections), construction water points and other ancillary construction facilities. Note: Where required, each specialist has also considered a specific specialist study area relevant to their discipline.
Refined alignment	Updated alignment as presented in this Submissions Report which takes into account refinements that have been identified along the alignment exhibited in the EIS based on ongoing land holder consultation and through changes to reduce potential environmental impacts.
transmission line easement	An area surrounding and including the transmission lines, which is a legal right allowing for construction of the transmission line, along with ongoing access and maintenance of the lines and will be acquired from land holders either by agreement or pursuant to compulsory acquisition process. The easement width would be 80 metres wide.

Executive summary

EnergyConnect

Transgrid (electricity transmission operator in New South Wales (NSW)) and ElectraNet (electricity transmission operator in South Australia (SA)) are seeking regulatory and environmental planning approval for the construction and operation of a new High Voltage (HV) interconnector between NSW and SA, with an added connection to north west Victoria. Collectively, the proposed interconnector is known as EnergyConnect.

EnergyConnect comprises of several sections that would be subject to separate environmental planning approvals under the relevant jurisdictions. It includes:

- NSW sections including:
 - Western Section, which would extend from:
 - > the SA/NSW border (near Chowilla in SA) to Transgrid's existing Buronga substation
 - > Buronga substation to the NSW/Victoria border at Monak (near Red Cliffs in Victoria)
 - Eastern Section, which would extend from the Buronga substation to the existing Wagga Wagga 330kV substation (including the proposed Dinawan 330kV substation) (the subject of this document)
- a Victorian Section, which would extend from the NSW/Victoria border to Red Cliffs substation
- a SA Section, which would extend from Robertstown to the SA/NSW border.

Planning approvals process

Transgrid is currently seeking planning approval for the NSW – Eastern Section of EnergyConnect (the proposal). An Environmental Impact Statement (EIS) was prepared to support the application for approval in accordance with the requirements of Division 5.2, Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The EIS was placed on public exhibition by the NSW Department of Planning and Environment (DPE) for a period of 28 days, commencing 19 January 2022 and concluding on 15 February 2022. During the public exhibition period, interested stakeholders and members of the community were able to review the EIS online or at display locations, participate in consultation and engagement activities, and make a written submission to DPE for consideration in its assessment of the proposal (refer to Chapter 2).

Following the conclusion of the public exhibition period, Transgrid have prepared a Submissions Report (this document) for the proposal to address the issues raised in community and stakeholder submissions. Transgrid have also prepared a separate *EnergyConnect (NSW – Eastern Section) Amendment Report* (WSP, 2022a) (the Amendment Report) to document proposed design refinements and additional environmental assessment undertaken since exhibition of the EIS.

Purpose of this Submissions Report

This Submissions Report considers the issues raised in all submissions received during the public exhibition of the EIS, as well as Transgrid's response to these issues. It also provides:

- a summary of the consultation activities undertaken prior to, during, and post public exhibition of the EIS, as well as activities proposed during the Pre-construction, construction and commissioning phases
- a summary of the proposed design refinements to the proposal and other key actions undertaken since public exhibition of the EIS
- revised consolidated environmental mitigation and management measures for the proposal, adjusted in response to the submissions received and the proposed design changes
- a response to the Request for Information provided by DPE on 3 March 2022.

Overview of submissions

Submissions from public authorities, organisations and the community were received by DPE and provided to Transgrid for consideration. A total of 75 submissions were received, comprising:

- 17 submissions from public authorities
- nine submissions from local councils
- 44 community submissions
- five organisation submissions.

Of the 49 submissions received from the community and organisations:

- two submissions provided support for the proposal
- five submissions provided comments on the proposal
- forty-two submissions objected to the proposal.

Key issues raised in community and organisation submissions included:

- out of scope items including:
 - general opposition to renewable energy development
 - concern regarding proposal ownership
- land use and property issues including:
 - compensation for property acquisition and property valuations
 - impacts to farming activities and general agricultural land uses
- hazards and risks issues including:
 - bushfire impacts during operation
 - impacts from electric and magnetic fields
- a range of biodiversity issues including:
 - impacts from bird strikes
 - impacts to threatened species
 - impacts to water birds/wetlands
 - the approach undertaken for the impact assessment.

A more detailed breakdown of these issues is provided in Chapter 2 of this Submissions Report.

Further discussion of each of the community and organisation submissions is provided in Section 4.1 of this Submissions Report.

Of the 17 public authority submissions received, none provided an objection to the proposal with all providing a range of comments on different topics related to their specific agency focus. Key comments raised across the submissions included, but were not limited to:

- aviation impacts, including the potential for the proposal to interfere with the existing obstacle limitation surface for Wagga Wagga airport
- biodiversity impacts, including:
 - the level of consideration of potential impacts for prescribed and serious and irreversible (SAIL) impacts
 - the level of detail regarding measures to mitigate, monitor, and manage impacts
 - the overall consideration of residual impacts and the resulting credit requirement
 - other specific impacts such as the level of discussion on direct impacts on native vegetation and threatened species habitats
 - other various assessment approach matters.
- Aboriginal and non-Aboriginal heritage issues, in particular:
 - the need for further assessment of potential impacts (through activities such as test excavations)
 - identification of recommendations for guiding these investigations
- potential impacts on conservation areas from the proposal, in particular impacts to the Yanga State Conservation Area from perspectives such as heritage, visual and landscape and route selection
- comments from both the Rural Fire Service and Fire and Rescue NSW regarding the need for appropriate management plans and mitigation measures to maintain a safe environment during construction and operation
- impacts to local and regional roads, including identification of access points and the need for management and monitoring through activities such as conducting dilapidation surveys.

Further discussion of each of the public authority submissions is provided in Section 4.2 of this Submissions Report.

Based on the issues raised, some of the mitigation measures presented in the EIS have also been updated and some new mitigation measures have been added. The revised suite of proposed mitigation measures have been included in Appendix B.

Design refinements to the proposal

Since the exhibition of the EIS, a series of design refinements have been made to the proposal in response to both submissions received, ongoing field investigations and further work regarding outstanding issues previously identified in the EIS. A separate Amendment Report has been prepared following the public exhibition of the EIS to describe the proposed changes, outline the justifications for the changes and provide a full assessment of the potential impacts. Where changes have been made as a result of a submission(s), a cross reference to the change has been made in this report.

This Submissions Report should be read in conjunction with the Amendment Report.

Conclusions and next steps

The EIS, this Submissions Report, the Amendment Report and the supplementary technical assessments will be reviewed by DPE, on behalf of the Minister for Planning. Once DPE has completed their assessment, a draft assessment report will be prepared for the Secretary of DPE, which may include recommended conditions of approval. A final assessment report will then be provided to the Minister for Planning, who will determine the proposal.

A copy of this Submissions Report will be published on DPE's website following submission of the report to DPE for assessment. Following assessment, the Minister for Planning's determination will also be published on DPE's website, as well as any conditions of approval (should the proposal be approved).

Given the status of the proposal as a controlled action under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), following determination of the proposal by DPE (assuming the proposal is approved), the proposal would then be assessed using the bilateral assessment process by the Australian Department of Agriculture, Water and the Environment (DAWE) for the required Commonwealth approval.

1. Introduction

This chapter provides an overview of the approval process, describes the purpose and structure of this report and describes the key features of the proposal as presented in the EIS. This chapter also provides a summary of the main consultation activities that were undertaken during and after the EIS public exhibition period.

1.1. The assessment and approval process

The NSW portions of EnergyConnect (including the NSW – Eastern Section (the proposal) have been declared to be Critical State significant infrastructure (CSSI) under section 5.13 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and by amendment to Schedule 5, clause 15 of the *State Environmental Planning Policy (Planning Systems) 2021* (Planning Systems SEPP). As CSSI, the proposal requires approval from the NSW Minister for Planning under Division 5.2, Part 5 of the (NSW) EP&A Act.

An Environmental Impact Statement (EIS) was prepared to support Transgrid's application for approval of the proposal in accordance with the requirements of Division 5.2 of the EP&A Act. The EIS was placed on public exhibition by the NSW Department of Planning and Environment (DPE) (formerly Department of Planning, Infrastructure and Environment) for a period of 28 days, commencing 19 January 2022 and concluding on 15 February 2022. During the public exhibition period, interested stakeholders and members of the community were able to review the EIS online or at display locations, participate in consultation and engagement activities, and make a written submission to DPE for consideration in its assessment of the proposal.

A referral under the (Commonwealth) *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was also submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the proposal to be a controlled action on 30 September 2020 and that it would be assessed using the bilateral assessment process. As such, the proposal also requires approval from the Australian Minister for the Environment under the EPBC Act. This Submissions Report would be provided to DAWE as part of the package of information to allow them to make their determination regarding the proposal.

1.2. Purpose and structure of this report

The Secretary of DPE provided copies of the submissions received on the proposal during public exhibition of the EIS to Transgrid. This Submissions Report has been prepared in accordance with the requirements for State Significant Infrastructure (SSI) projects under Division 5.2, Section 5.17(6) of the EP&A Act, which specifies that:

'The Secretary may require the proponent to submit to the Secretary:

- a) a response to the issues raised in those submissions, and*
- b) a preferred infrastructure report that outlines any proposed changes to the State significant infrastructure to minimise its environmental impact or to deal with any other issue raised during the assessment of the application concerned.'*

This Submissions Report is structured in line with the *State significant infrastructure guidelines – preparing a submissions report* (DPIE, 2021) as follows:

- an introduction to the report, including a description of the consultation that was undertaken for the public exhibition of the EIS and ongoing consultation activities planned (Chapter 1)
- an analysis of the submissions received, including numbers and types of submitters and key issues raised in submissions (Chapter 2)
- a summary of actions taken to refine the proposal since public exhibition of the EIS and undertake further assessment of the proposal's potential impacts (Chapter 3)
- a summary of the issues raised in community, organisation and public authority submissions (Chapter 4) and responses to the issues raised
- an updated proposal justification/evaluation, conclusion and next steps (Chapter 5)
- report references (Chapter 6).

Appendices to this Submissions Report include:

- Appendix A – an overview of the community submissions, and where they have been responded to in the report
- Appendix B – updated mitigation measures for the proposal
- Appendix C – a *Community guide to the EIS for EnergyConnect (NSW – Eastern Section)*
- Appendix D – Response to Department of Planning and Environment Request for Information
- Appendix E – Desktop survey report of the proposed haulage routes
- Appendix F – Department of Planning and Environment (Biodiversity and Conservation Division) – Detailed submission response.

Transgrid have also prepared a separate Amendment Report to document proposed design refinements and additional environmental assessment undertaken following public exhibition of the EIS.

To support responses to certain submissions received during the public exhibition of the EIS and in considering the potential impacts of the refined proposal, a series of supplementary technical assessments have also been prepared. These supplementary technical assessments are:

- Supplementary technical assessment 1 – *Revised Biodiversity Development Assessment Report* (WSP, 2022b)
- Supplementary technical assessment 2 – *Revised Aboriginal Cultural Heritage Assessment* (Navin Officer, 2022a)
- Supplementary technical assessment 3 – *Historical Heritage Impact Assessment Addendum Report – Hut site, Nyangay pastoral holding (PEC–E–H4)* (Navin Officer, 2022b)
- Supplementary technical assessment 4 – *Revised Visual Impact Assessment Addendum* (Iris, 2022)
- Supplementary technical assessment 5 – *Aviation Impact Assessment* (Aviation Projects, 2022).

1.3. Key features of the proposal

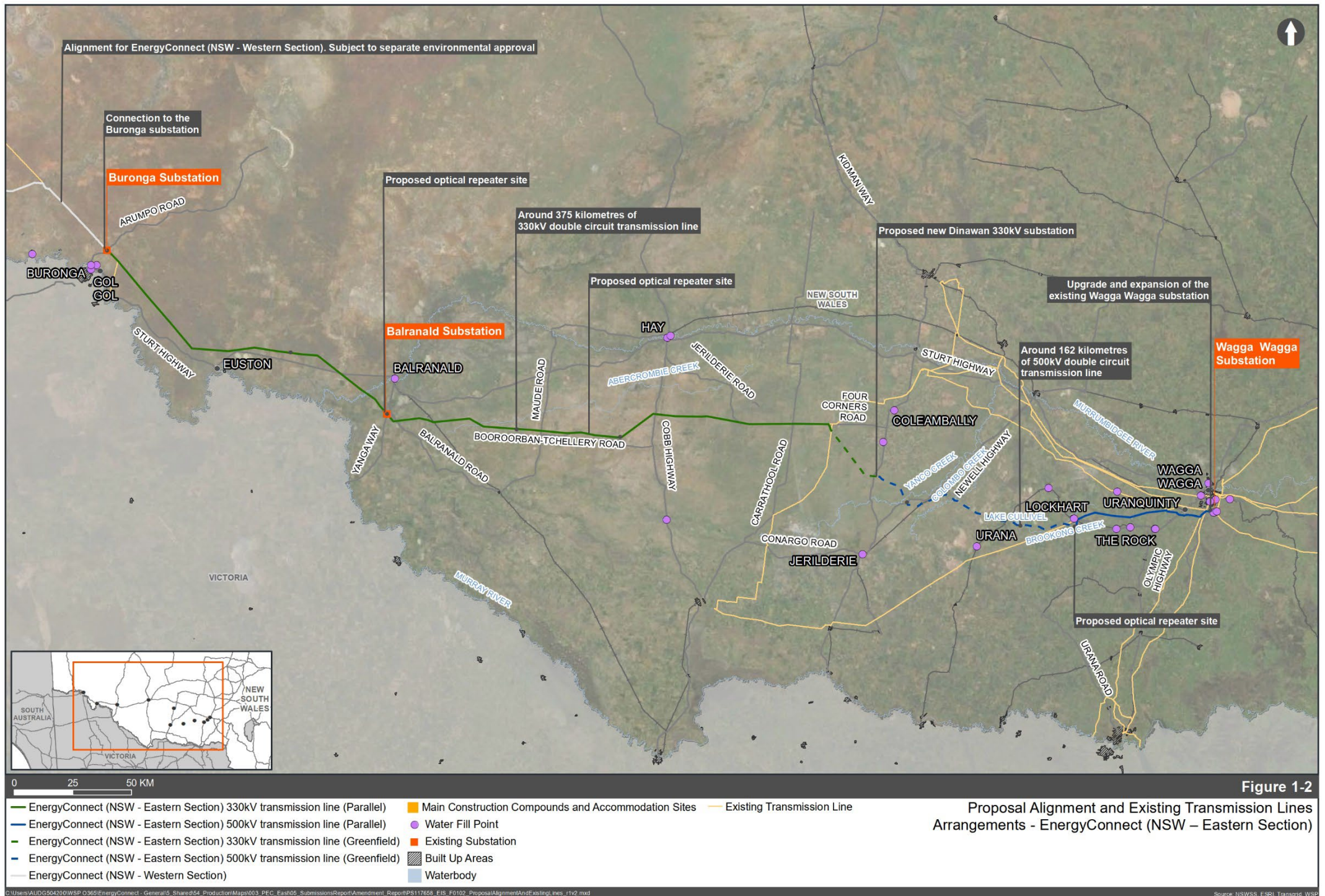
As described in the EIS, the proposal comprises the NSW – Eastern Section of EnergyConnect. The key components of the proposal (as outlined in the EIS) include:

- about 375 kilometres of new 330kV double circuit transmission line and associated infrastructure between the Buronga substation and the proposed Dinawan 330kV substation
- connection of the proposed transmission lines to the existing Buronga substation
- construction of a new 330kV substation around 30 kilometres south of Coleambally, referred to as the proposed Dinawan 330kV substation
- connection of the proposed transmission lines to the proposed Dinawan 330kV substation
- about 162 kilometres of new 500kV double circuit transmission line and associated infrastructure between the proposed Dinawan 330kV substation and the existing Wagga Wagga substation at Wagga Wagga, NSW
- upgrade and expansion of the Wagga Wagga substation to accommodate the new transmission line connections including the installation of new line bays, relocation and upgrade of existing bays and associated electrical and civil works (road, kerb, gutter, drainage works and earthworks)
- provision of three optical repeater structures and associated connections to existing local electrical supplies
- new/and or upgrade of access tracks as required
- ancillary works required to facilitate the construction of the proposal (e.g. laydown and staging areas, concrete batching plants, brake/winch sites, site offices and accommodation camps).

An overview of the proposal, as presented in the EIS, is provided in Figure 1-1. Further detail on the key infrastructure components of the proposal and construction activities were provided in Chapter 5 and Chapter 6 of the EIS respectively. Where aspects of the proposal infrastructure or construction method have been refined following public exhibition, these changes have been summarised in Chapter 3 of this Submissions Report and detailed in a separate Amendment Report (WSP, 2022a)

Overall, the proposal alignment has been designed to maximise the route running parallel to existing transmission lines as far as possible in consideration of other constraints and operational requirements. The proposed alignment of the transmission line easement would be parallel to existing lines for around 407 kilometres of the full approximately 537 kilometre-long route (refer Figure 1-2).

The proposal would be located across nine local government area (LGAs) which consist of the following: Wentworth, Balranald, Murray River, Edward River, Hay, Murrumbidgee, Federation, Lockhart and Wagga Wagga LGAs.



1.4. Consultation undertaken during and after the EIS public exhibition

This chapter describes the consultation activities undertaken prior to, during and post public exhibition of the EIS for the proposal, and the consultation that would be undertaken during future stages of the proposal. Transgrid is committed to an engagement process that is proactive, transparent and represents a genuine desire to work with stakeholders. Transgrid recognises that a two-way feedback process is the key to understanding the needs and views of stakeholders and communities who are directly and indirectly affected by its operations.

1.4.1. Overview of consultation activities to date

During the public exhibition of the EIS, consultation activities were conducted to involve stakeholders and the broader community in public exhibition activities. Consultation activities provided guidance on the submissions process, encouraged parties to engage with the information in the EIS and make a submission accordingly. Submissions on the EIS were made directly to DPE. Submissions were accepted by DPE via electronic submission or by post.

The EIS was placed on DPE's Major Project website providing public access to all EIS documentation (<https://www.planningportal.nsw.gov.au/major-projects/project/40021>). The project-specific page on Transgrid's website also included a link to the Major Projects portal for ease of access and to encourage public participation. Additional engagement activities and tools used to encourage participation during public exhibition included:

- providing project specific information on the EnergyConnect website (transgrid.com.au/energyconnect). This included an overview of the proposal and provided key links including to the DPE website and other available documentation
- an online, interactive digital EIS – an interactive data portal and map were made available on the Transgrid website (<https://eastern-digitaleis.transgrid.com.au/>). The digital EIS provided an online tool to explore the key outcomes of the EIS through interactive mapping and provided another way to view the EIS
- updates to government agencies, local council, Federal and State MPs and other stakeholders
- nine community information sessions during the public exhibition period for the EIS. These community consultation activities demonstrated stakeholder interest in the EIS process. Generally, attendees fell into one of two broad categories – land holders already engaged via direct discussions, and members of the community seeking to understand the proposal. Community information sessions were held at the following locations:
 - Coleambally (21 January 2022)
 - Urana and Lockhart (1 February 2022)
 - Wagga Wagga (2 February 2022)
 - Hay (8 February 2022)
 - Booroorban and Moulemein (9 February 2022)
 - Balranald (10 February 2022)
 - Buronga (11 February 2022)
- advertising and promotion of the drop-in sessions across the following media:
 - 21 paid print media advertisements across eight publications including the Daily Advertiser, Riverine Grazier, Sunraysia Daily, Mildura Weekly, Deniliquin Pastoral Times, New South Western Standard Bulletin, The Irrigator and The Area News. These publications have a combined readership of around 97,755 people
 - 10 community social media and online posts with a combined following of around 43,370 people

- an electronic newsletter sent directly to around 400 people
- an electronic newsletter sent directly to around 200 land holders and neighbours along the proposal alignment
- the EnergyConnect web page, which attracted around 1,360 views during the campaign between 20 January 2022 and 12 February 2022
- preparation of a Community guide to the EIS for EnergyConnect (NSW – Eastern Section) to provide an overview of the proposal and assist stakeholders understand the EIS documentation (Appendix C)
- ongoing engagement through the EnergyConnect telephone number (1800 490 666) and the EnergyConnect website (transgrid.com.au/energyconnect).

Engagement opportunities were conducted in accordance with the NSW State Government Public Health Orders in response to the COVID–19 pandemic. Examples of the public information produced for the public exhibition of the proposal are shown in Figure 1-3 to Figure 1-4.

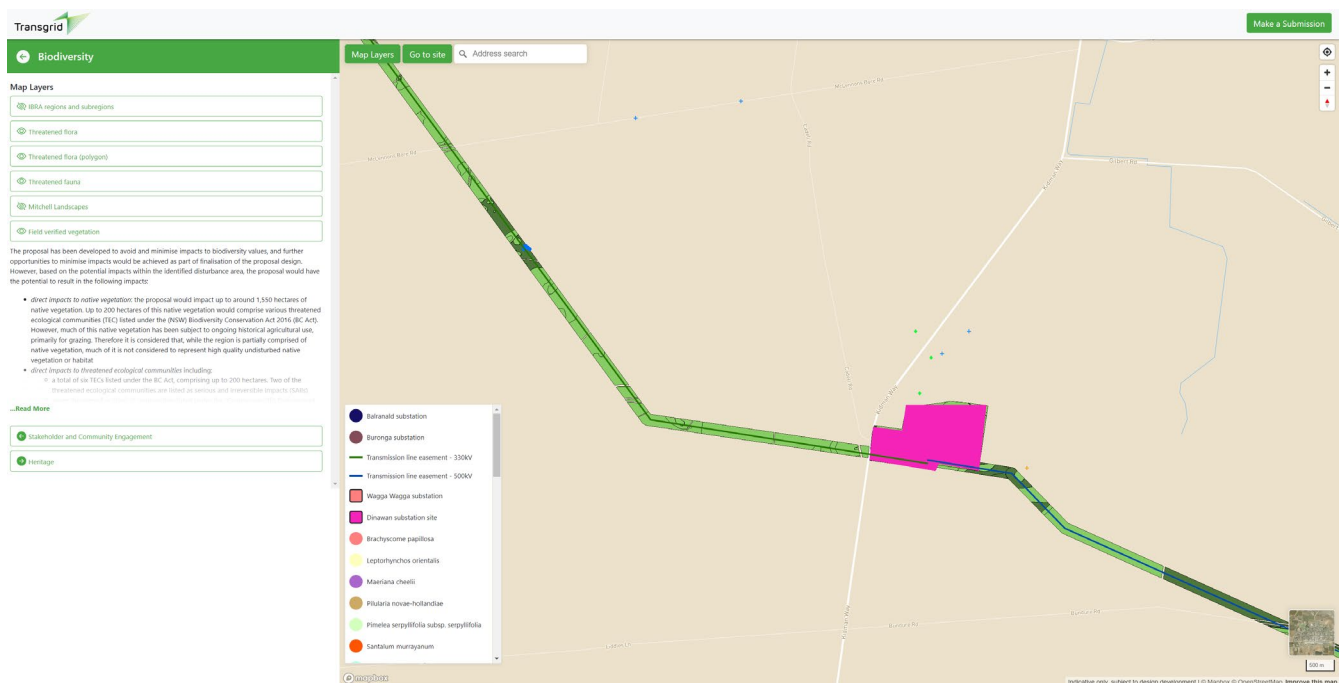


Figure 1-3 Screenshot of the online interactive digital EIS for the proposal (showing a point near the proposed Dinawan 330kV substation)

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About EnergyConnect

What is the project and why is it needed?

EnergyConnect is one of the nation's largest electricity infrastructure projects. It will deliver the infrastructure required to support Australia's transition to a clean energy future and includes a new 900 km electricity transmission line, known as an interconnector.

The interconnector is being built between Wagga Wagga in New South Wales and Robertstown in South Australia, with a connection to Red Cliffs in Victoria, connecting the power grids of the three states.

EnergyConnect will also lower power bills for homes and businesses and create 1,500 jobs, primarily across regional NSW.

How is the project being delivered?

The NSW Minister for Planning has declared EnergyConnect Critical State Significant Infrastructure.

Transgrid is delivering the NSW section of EnergyConnect in two stages:

- NSW-Western Section from the NSW/SA border to Buronga through to the NSW/Victoria border
- NSW-Eastern Section from Buronga to Wagga Wagga.

The NSW Government has approved the NSW-Western Section. You can register with the [NSW Government's Major Projects Portal](#) to receive updates.



This document is a community guide to the EnergyConnect (NSW-Eastern Section) Environmental Impact Statement (EIS). The EIS assesses environmental issues, including landscape character, visual amenity, economic impact, traffic, and cultural heritage. The EIS also identifies strategies to avoid, mitigate, and manage potential impacts.

To view the EIS, please visit the [Department of Planning and Environment \(DPE\) website](#).

1 | EnergyConnect (NSW-Eastern Section)

What is an Environmental Impact Statement?

Under the *Environment, Planning and Assessment Act 1979* (NSW), *Critical State Significant Infrastructure* must go through a comprehensive assessment process, which includes the development of an Environmental Impact Statement (EIS).

An EIS is a document that provides information on a project to help the Minister for Planning decide whether that project should be approved.

An EIS:

- summarises the technical studies carried out to determine the potential impacts of a project including economic, social and environmental considerations
- sets out proposed management measures to avoid or minimise those impacts
- summarises the stakeholder and community engagement undertaken and the engagement results.

EIS timeline

Early engagement and studies

Feedback from local community members and landholders allows the project team to understand regional and site-specific concerns to help determine the interconnector route

Scoping report exhibition and consultation

A scoping report details the results of early engagement and preliminary studies such as biodiversity, cultural and visual amenity. Formal public comment helps inform DPE's instructions about what the EIS must include

Continued engagement and EIS studies

Specialist studies are carried out across a range of areas, including economic, social, heritage, and land use. Together with ongoing community feedback, the studies identify matters to be considered, managed, and mitigated

EIS exhibition and consultation

The EIS is lodged with DPE and placed on public exhibition for a minimum of four weeks. During this period, all community members, stakeholders, and government agencies have their say by making a submission

Response to submissions and approval

DPE publishes all submissions online and we respond with a report. DPE determines the project, and we continue to engage with landholders and the local communities along the route

Engagement activities

Building project awareness

- 97 print advertisements across 10 media publications with an estimated readership of 153,200+
- 72 social media posts across 25 local community pages with 63,500+ followers
- 2,700 flyers, poster displays, and other materials displayed at prominent locations

Providing accessible information

- 11 guides and fact sheets developed for EnergyConnect
- 124 community calls and emails responded to via the project phone line and email address
- 400+ recipients to a monthly e-newsletter
- 9,500+ visits to the project webpage

Implementing consultation activities

- 29 community information sessions both online and at 15 locations along the route
- 643 property-specific meetings with landholders and property managers
- 9,500+ views of the online interactive map, with 319 comments provided

Figure 1-4 Extract from the community guide to the EIS

In general, the community feedback was primarily positive, focusing on:

- local procurement and employment opportunities
- community investment initiatives (supporting local communities via sponsorship of activity)
- future engagement activities.

Community members were asked to rate how informative they found the drop-in session in relation to learning about the EIS and the project in general. On a scale of 'Very unhelpful', being 1, to 'Very helpful' being 5, the average rating was 4.17. Ninety-four (94) per cent of the respondents stated they found the session 'very helpful' or 'helpful'. In addition, land holders sought to further their previous conversations regarding construction and the compensation process.

A post-event survey also obtained local suggestions for future EnergyConnect community engagement activities. The majority of responses were complimentary regarding the current format of the sessions, especially within the COVID-19 environment. Other suggestions included:

- holding sessions at local community or sporting events
- visiting local schools
- creating a private space at drop-in sessions for one-on-one conversations with land holders
- holding large, open sessions (town halls).

1.4.2. Ongoing consultation

Consultation with the community and key stakeholders is ongoing, and would continue in the lead up to and during construction of the proposal (subject to approval). Ongoing consultation activities would aim to provide:

- the community and stakeholders with a high level of awareness of all processes and activities associated with construction of the proposal
- updates on the proposed timing of construction
- accurate and accessible information and a timely response to issues and concerns raised by the community
- opportunities for feedback and input.

The EnergyConnect phone number and email address will continue to be available during construction. Targeted consultation methods, such as letters, notifications, signage and face-to-face communications, will also continue to occur. The Transgrid webpage and social media platforms will also include updates on the progress of the proposal.

SecureEnergy, the nominated construction contractor, has prepared a community engagement and communication strategy. The strategy outlines the continued engagement approach with all members of the community and provides information on the proposal, upcoming impacts and answering enquiries.

The project engagement team will continue to build on the constructive relationships formed by providing:

- true and clear information
- information on how Transgrid and SecureEnergy will meet commitments made to the community
- opportunities to collaborate, work together and generate shared experiences.

The SecureEnergy Community Engagement Strategy also includes a feedback management procedure to manage communications with the community such as enquiries, complaints or disputes. Any feedback provided by the community will be managed with respect and be responded to efficiently and in a timely manner, with each stakeholder interaction being treated as an opportunity for a positive experience.

2. Analysis of submissions

This chapter provides an analysis of the submissions received, including a breakdown of the types of submitters, the number of submissions received, and the key issues raised in submissions.

2.1. Submissions received

During the public exhibition of the EIS, submissions from public authorities, organisations and the community were received by DPE. All submissions received were provided to Transgrid for review and consideration. A total of 75 submissions were received and registered by DPE. A breakdown of the submissions by type of stakeholder is provided in Table 2-1 and shown in Figure 2-1.

Table 2-1 Breakdown of submissions received by submitter type

Submitter type	Number of submissions received
<i>Community and organisation submissions</i>	
Community members/individuals	44
Organisations	5
<i>Total community and organisation submissions</i>	49
<i>Public authorities</i>	
State government departments/agencies	17
Local council	9
<i>Total public authority submissions</i>	26

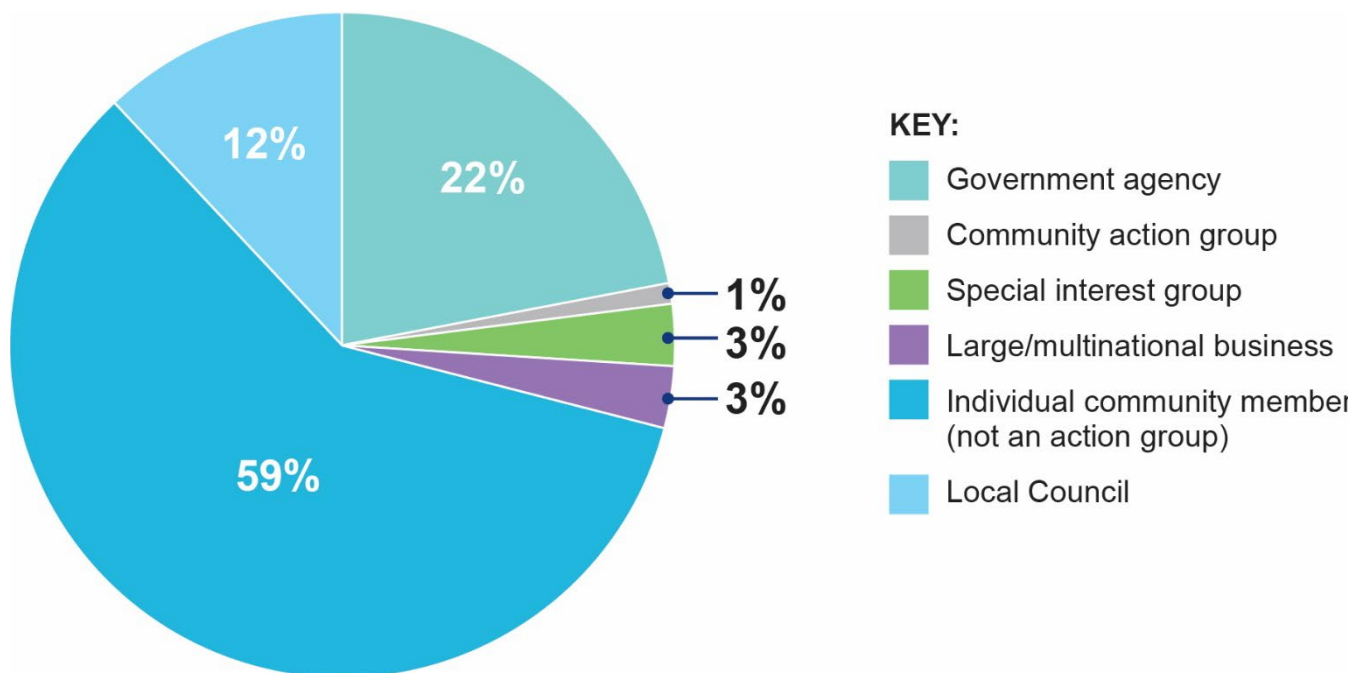


Figure 2-1 Breakdown of submissions received by submitter type

2.2. Approach to analysis of submissions

An assessment of each submission received during public exhibition of the EIS was undertaken, with each submission being numbered and individually reviewed to understand the issues raised.

2.2.1. Community and organisation submissions

An assessment of each community and organisation submission received during public exhibition of the EIS has been undertaken. A unique identifier was assigned to each submitter to link the summary of the issue and the corresponding response (refer to Appendix A). The content of each community submission was then reviewed and categorised according to the key issues (e.g. noise and vibration) and sub-issues (e.g. construction noise) raised. These categories formed the basis for the structure of responses to the submissions, which are issue-specific. The key issue categories were also generally developed to be consistent with the structure presented in the EIS. Section 4.1 provides details of the issues raised in community and organisation submissions.

Each issue identified in Section 4.1 has been presented as a summary of similar issues raised by individual submissions. This means that, while the exact wording of each a particular submission may not be presented in the summary of the issue, however the intent of each individual issue raised has been captured. A response has been provided to each grouped issue summary in Chapter 4 of this report.

2.2.2. Government agency and local council submissions

Submissions from government agencies and local councils were considered separately to community submissions and submissions from organisations. The content of each Government agency and local council submission was also reviewed and a summary of each key issue raised provided in this Submissions Report. Issues raised by public authority stakeholders were not grouped, as the issues raised were largely dependent on each stakeholder's technical discipline area and/or assets. Where relevant, input to the responses was sought from the specialists who assisted with preparation of the EIS such as biodiversity specialists to respond to the submission from the Biodiversity Conservation Division (BCD) of DPE and heritage specialists to respond to relevant heritage-related submissions from agencies and the community.

Responses to each Government agency and local council submission issue are provided in Section 4.2 of this Submissions Report.

2.3. Support/objection

Of the 49 submissions received from the community and organisations:

- two submissions provided support for the proposal
- five submissions provided comments on the proposal
- forty-two submissions objected to the proposal.

Of the remaining 26 submissions from Government agencies and local councils, none provided an overall objection to the proposal, with all providing some level of comment or recommendations regarding the proposal.

2.4. Community and organisation submissions

2.4.1. Summary of submissions

A summary of the top five key issues and sub-issues raised in submissions received from the community and organisations is provided in Table 2-2 and Figure 2-2.

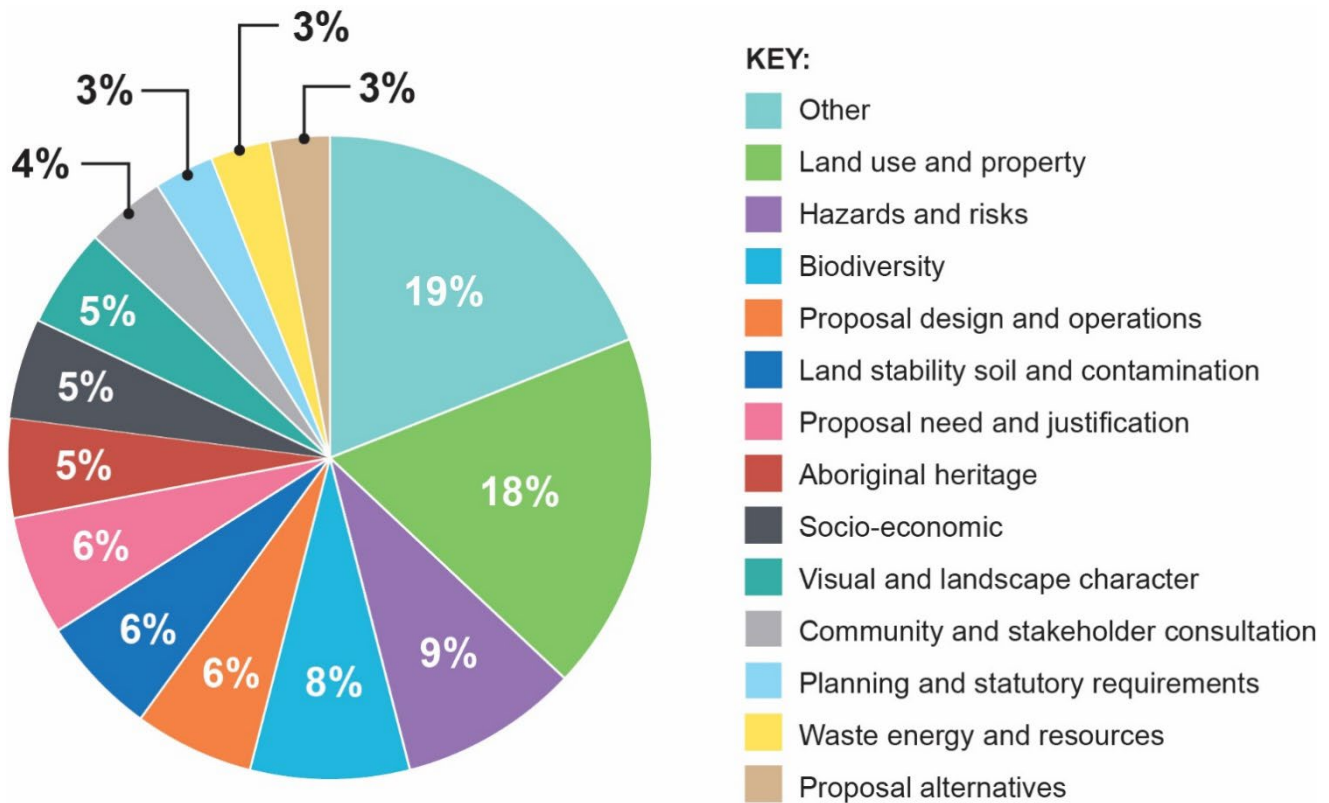


Figure 2-2 Breakdown of the key issues raised in community submissions

As most of the community and organisation submissions raised more than one issue, the number of issues identified is greater than the total number of submissions received. The percentages in Table 2-2 were calculated by determining the number of times a key issue was raised in a submission compared to the total number of issues raised in the submissions.

This shows that impacts to items such as other/out of scope and land use and property were the most frequently raised issue (noting that the other category comprised of a majority of objections relating to the development of renewable energy developments in general which is not directly related to the EIS for the proposal).

Table 2-2 Summary of key and sub issues raised in community and organisation submissions

Key issue category	Sub-issue	Number of submissions issue was raised in	Percentage of submissions issue was raised in
Other/out of scope items	General opposition to renewable energy development	24	49%
	Concern regarding proposal ownership	6	12%
	Other out of scope issues	6	12%
Land use and property	Compensation for property acquisition and property valuations	5	10%
	Agricultural impact assessment	1	2%
	Impact to farming activities – general	19	38%
	Impact to farming activities – agricultural uses	3	6%
Hazards and risks	Bushfire impacts – operation	5	10%
	Electric and magnetic field impacts	8	16%
	General hazards and risks – operation	3	6%
Biodiversity	Impact assessment approach – timing of surveys	1	2%
	General biodiversity impacts	10	20%
	Biodiversity impacts – operation	2	4%
	Bird strike	4	8%
	Impact to threatened species	2	4%
	Impacts to water birds/wetlands	3	6%
Proposal design and operations	Dinawan 330kV substation design – General	1	2%
	Dinawan 330kV substation design – Impacts from Coleambally Irrigation levee	1	2%
	GPS interference	3	6%
	Operational lifespan	3	6%
	Transmission line design – 330kV v 500kV	2	4%
	Transmission line design – General	3	6%
	Transmission line design – Towers	3	6%

Note: Percentages provided response raised as a percentage of community and organisation submissions

In addition to the top five overall key issues raised in submissions, the following sub-issues were also of particular note from submissions:

- contamination impact of proposal (although most submissions appeared to relate to issues for contamination from solar farm developments) – nine responses
- benefits of the project – seven responses
- impacts to Aboriginal heritage items – six responses
- level of consultation undertaken – five responses
- visual impacts – operation – five responses
- impacts to local businesses and agricultural operations – five responses
- construction waste management – five responses.

Of the submissions received, none were in the context of a form letter or petition, however some individual responses had some similarities (such as where they had been prepared by separate family members etc).

2.4.2. Summary of submission respondent locations

Of the responses received from community members and organisations, the noted spatial location of these responses varied from local residents to members of the public from outside of NSW. A summary of the location of the respondent is provided below:

- seventeen of the respondents were local from locations including, Lockhart; Milbrulong; Booroorban; Morundah; Uranquinty; Urana; Wagga Wagga and Koorringal
- nine of the respondents were from within the broad region including Walla Walla, Leeton, Jindera and Albury
- seventeen of the respondents were from outside the area including further regional or Sydney-based locations
- six of the respondents were noted as being out of state, primarily from Queensland or Victoria.

2.5. Government agency and local council submissions

Submissions were received from the following 17 government agencies during public exhibition of the EIS:

- Airservices Australia
- Civil Aviation Safety Authority
- Fire and Rescue NSW
- Geological Survey of NSW – Mining, Exploration & Geoscience
- Heritage NSW – Aboriginal Cultural Heritage
- Heritage NSW – Heritage Council of NSW
- National Parks and Wildlife Service
- NSW Department of Planning and Environment – Biodiversity Conservation Division
- NSW Department of Planning and Environment – Crown Lands
- NSW Department of Planning and Environment – Water and the NSW Natural Resources Access Regulator
- NSW Department of Primary Industries (Agriculture)
- NSW Department of Primary Industries (Fisheries)
- NSW Environmental Protection Authority (EPA)
- NSW Rural Fire Service

- The Murray–Darling Basin Authority
- Transport for NSW
- WaterNSW.

The following nine local councils also provided a response to the public exhibition of the EIS:

- Balranald Shire Council
- Edward River Council
- Federation Council
- Hay Shire Council
- Lockhart Shire Council
- Murray River Council
- Murrumbidgee Council
- Wagga Wagga Council
- Wentworth Shire Council.

Each public authority submission was reviewed and each individual issue raised by the relevant public authority was identified. These issues were then addressed and details of each response to public authority submissions are provided in Section 4.2 of this report.

3. Actions taken since public exhibition

This section summarises the key actions that have been undertaken by Transgrid since public exhibition of the EIS to address the issues raised in the submissions. This section also describes the ongoing consultation activities that have been completed with affected land holders during this period. These actions have included:

- ongoing consultation with affected land holders throughout this this period (refer to Section 3.1)
- identification of proposed refinements to the proposal to improve sections of the alignment for land holders and to reduce, where possible, previously identified impacts (refer to Section 3.2).
These refinements have been detailed in a separate Amendment Report (WSP, 2022a) for the proposal
- undertaking further assessment of the proposal's potential impacts including ongoing assessment and field validation of biodiversity and heritage environments and potential visual impacts along the alignment. These assessments included areas where access was not available during the preparation of the EIS, or where fieldwork could not be completed prior to the public exhibition period (such as the commencement of archaeological testing) (refer to Section 3.3)
- undertaking additional assessment required by a submission (such as the Aviation Impact Assessment).

The results and findings of the additional assessments and actions are summarised in this chapter with additional information provided as technical assessment reports supporting this Submissions Report and the associated Amendment Report (WSP, 2022a).

3.1. Consultation following public exhibition of the EIS

Since the lodgement of the EIS in December 2021, the following consultation activities have been undertaken with relevant stakeholders:

- ongoing land holder consultation with a number of land holders along the proposal alignment
- consultation with local businesses regarding the ongoing investigations regarding potential GPS interference
- consultation with Government agencies and local councils to discuss issues raised in their submissions including:
 - Office of Sussan Ley – Member of Parliament for Farrer (21 March 2022)
 - Murrumbidgee Council (21 March 2022)
 - Riverina Emergency Management Committee (22 March 2022)
 - Lockhart Shire Council (22 March 2022)
 - Federation Council (22 March 2022)
- onsite visual impact assessments of around 20 properties was undertaken in the last two weeks of February 2022 where a Transgrid Community Engagement Officer was also present to speak with land holders and answer any questions about the proposal.

3.2. Proposal refinements

A series of design refinements have been completed after the public exhibition of the EIS. In response to further community engagement, consideration of submissions, and ongoing design and construction methodology development, these refinements provide functional improvements to the design and alignment. They also confirm certain elements of the proposal that were highlighted as options or opportunities in the EIS (hereafter referred to as 'the EIS alignment').

The proposed design refinements and elements of the proposal include:

- a series of refinements to the proposed alignment following engagement with local land holders and adjacent properties. Key alignment refinements which have been identified include a section to the south of Lake Cullivel and a section to the south of the township of Lockhart. Other minor refinements to the alignment have also been made as part of ongoing consultation with land holders, and to further reduce potential environmental impacts. Cumulatively these changes are referred to in this report as 'the refined alignment'
- confirmation of the preferred construction compound and accommodation camp site at Lockhart and refinement of the preferred arrangement for the Cobb Highway construction compound and accommodation camp site due to identification of additional heritage constraints
- identification of a series of additional water supply points proposed to be used during construction
- changes to the construction impact area following refinement of the proposed construction methodology.

A detailed description and assessment of the proposed refinements are provided in the separate Amendment Report (WSP, 2022a) supporting this proposal.

3.3. Additional assessments undertaken post public exhibition

Following public exhibition of the EIS, a series of supplementary technical assessments and revised environmental assessments have been undertaken. These assessments have been completed due to:

- gaining access to additional areas of the proposal alignment that were not able to be visited prior to the public exhibition of the EIS allowing for additional field work to be completed
- submissions received on the EIS during public exhibition requesting additional/new assessments
- consideration of the potential impacts of the refined proposal elements.

A summary of each of the additional assessments that have been undertaken since public exhibition of the EIS are provided in Section 3.3.1 to Section 3.3.5. Further details of each of these assessments are provided in the supplementary technical assessments supporting this Submissions Report and Amendment Report (WSP, 2022a).

3.3.1. Revised Biodiversity Development Assessment Report

Since the public exhibition of the EIS, a *Revised Biodiversity Development Assessment Report* (Revised BDAR) (WSP, 2022b), has been prepared. The revised BDAR responds to submissions received on the exhibited EIS and documents the results of ongoing field survey validation completed since the EIS was prepared. A number of submissions made by government agencies and community members raised biodiversity issues.

The purpose of the Revised BDAR is to identify and assess the potential biodiversity impacts of the revised proposal following consideration of the submissions and the proposed design refinements that have been made following public exhibition of the proposal EIS. The revised BDAR considers:

- recalculation and refinement of the assessment of the proposal's potential impacts on native vegetation and threatened species based on:
 - additional/ongoing field surveys
 - proposed design refinements and elements
- a changed approach to the management of hazard/high risk trees
- refinement of the proposed mitigation and management measures to take into consideration the impacts of the revised proposal and the comments raised in submissions
- recalculation of the residual impacts that are not able to be managed through mitigation and the resultant biodiversity credits.

Detail of the revised biodiversity assessment, including further detail of the changes in impact for each specific species is provided in Supplementary technical assessment 1 – *Revised Biodiversity Development Assessment Report* (WSP, 2022b).

3.3.2. Revised Aboriginal Cultural Heritage Assessment

3.3.2.1. Overview

Since the public exhibition of the EIS, a *Revised Aboriginal Cultural Heritage Assessment Report* (Revised ACHAR) (Navin Officer, 2022), has been prepared to respond to submissions received on the exhibited EIS and to document the additional activities completed since the EIS was prepared. These activities included:

- additional field surveys to investigate areas that were not able to be accessed prior to exhibition. This survey covered around 96 kilometres and now only three per cent of the total length of the proposal (or 18 kilometres) remains to be surveyed
- a program of test excavation works within a series of identified Potential Archaeological Deposits (PADs) along the alignment of the proposal
- documenting a revised impact assessment based on refinements to the proposal design which occurred since the exhibition of the EIS.

3.3.2.2. Summary of the revised assessment

Archaeological subsurface testing

Since the preparation of the EIS and accompanying ACHAR, an archaeological subsurface testing program was undertaken in consultation with Registered Aboriginal Parties (RAPs). The aim of the works program was to ascertain the archaeological deposits within PADs that are to be directly impacted by construction of the proposal. Of the 45 PADs identified during the field survey, 26 PADs would be directly impacted by the proposal.

The archaeological subsurface testing methodology was designed to test the density (horizontal and vertical) of substantial archaeological deposits. The test excavation targeted the areas of possible highest impact (i.e. from tower foundations) in order to provide additional information for an assessment of significance and refine the impact assessment.

The program of works for the subsurface test excavation was undertaken between 17 January 2022 and 1 April 2022. The program of works involved up to five teams, each consisting of approximately seven people working across different PAD locations along the proposal alignment. Teams comprised one archaeological field director, two assistant archaeologists, one field assistant from WSP and three Aboriginal RAP representatives.

In summary, following the completion of the subsurface test excavations, eight PADs were found to not have subsurface archaeological potential. These PADs were PEC-E-PAD01, 04, 05, 06, 09, 17, 28 and 41. As a result these areas are longer considered to be PADs. There would therefore be 37 PAD sites remaining in the proposal.

The mitigation measures for Aboriginal heritage have been amended to reflect the completion of the test excavation program. The need for an archaeological subsurface testing program however would remain where proposal activities would have a direct impact in a PAD and a test excavation program has not already been completed in the area of impact.

Design refinement

Through a combination of ongoing survey, test excavation, design refinement and refinement of the construction methodology, the proposal has achieved a series of impact avoidance and minimisation opportunities which would result in impacts to some items and PADs being completely avoided or impacts minimised. For example, as part of the ongoing heritage survey and field investigations that were undertaken following public exhibition of the EIS, a new area of PAD (PEC-E-PAD45) was identified at the location of the previously proposed Cobb Highway construction compound and accommodation camp site. In order to avoid potential impacts to this PAD, a revised site arrangement for the construction compound and accommodation camp was developed, compared to the site arrangement presented in the EIS.

Overall, the Revised ACHAR identifies that the refined proposal may have a range of direct and potential direct impacts on a total of 92 Aboriginal heritage sites and PADs, which consist of sites of low to moderate to high scientific significance (refer to Section 9.6 and Table 9.1 of the Revised ACHAR). The exact nature and extent of impact would be confirmed following detailed analysis.

A full copy of the Revised ACHAR is provided as Supplementary technical assessment 2 – *Revised Aboriginal Cultural Heritage Assessment Report* (Navin Officer, 2022) which accompanies this Submissions Report (and Amendment Report).

3.3.3. Historical Heritage Impact Assessment Addendum – Hut site, Nyangay pastoral holding

As part of the preparation of the EIS, a *Historical Heritage Impact Assessment* was prepared to assess the potential historical heritage impacts of the proposal.

As part of this assessment, the historical research identified an early hut site (referred to as site PEC–E–H4). This former historic hut site was identified as being part of the early establishment of Nyangay pastoral holding. Access to the property was not available for the field survey program undertaken prior to exhibition of the EIS. To mitigate and manage potential heritage impacts during the construction and operation of the proposal, it was therefore recommended that PEC–E–H4 be subject to survey and assessment. The survey and assessment would confirm the site's current status as either standing, ruins and/or archaeological deposit and to assess its significance when access was available (included as mitigation measure NAH4 in the exhibited EIS).

Following public exhibition of the EIS, a submission was received from Heritage Council of NSW which requested that the further survey and assessment of this site be completed with the additional information submitted as part of the response to submission phase. An addendum historical heritage addendum report was prepared to fulfil this recommendation and also meet the request for the additional information required by Heritage Council of NSW.

As part of the additional assessment, a field survey of the site was undertaken on 8 March 2022. The field survey confirmed that there are no extant remains of the hut or tank that were noted on the historic plans. A small scatter of domestic debris predominantly glass and ceramics was noted nearby but outside of the proposal's disturbance area. The range of material is consistent with a domestic hut occupied from early to late nineteenth century and is likely to be a rubbish disposal area associated with the dwelling. This material was identified as being highly fragmented and entirely within an area that has been previously cleared for farming and the existing transmission line that parallels the proposal area. The site was therefore assessed as having low archaeological potential. No further archaeological investigations are required for this site, and the field survey has met the requirements of mitigation measure NH4. As such, the mitigation measure has been removed (refer to Appendix B).

Despite the low archaeological potential, the artefact scatter's location in relation to the proposal's disturbance area and the existing transmission line easement would be noted and managed (in accordance with mitigation measure NAH3). The unexpected finds protocol would be applied to the project area (in accordance with the now revised mitigation measure NAH4 (formerly NAH5)).

Further detail regarding the outcome of the additional assessment is provided in Supplementary technical assessment 3 – *Historical Heritage Impact Assessment Addendum Report – Hut site, Nyangay pastoral holding (PEC–E–H4)* (Navin Officer, 2022b).

3.3.4. Revised Visual Impact Assessment Addendum

3.3.4.1. Overview

Due to the scale of the proposal, the number of potential sensitive visual receivers and access limitations during the assessment phase due to COVID travel restrictions and some land holder access restrictions, the assessment of visual impacts undertaken as part of the EIS and presented in *Technical Paper 5: Landscape and Visual Impact Assessment* (Iris, 2021) was conducted as a desktop analysis with a conservative approach applied to the assignment of potential visual impact levels. The visual impact assessment of the proposal included in the EIS identified that the proposal was anticipated to result in a (Pre-mitigation) visual impact at 110 properties during operation of the proposal. Of these properties:

- 73 would potentially experience a moderate visual impact
- 36 would experience a high visual impact; and
- one property was predicted to experience a very high visual impact.

Since the public exhibition of the EIS, properties identified in the EIS that were identified as potentially having a high or very high potential visual impact have been subject to further investigation. These investigations included fieldwork to further analyse affected properties, confirmation of the actual expected impact level and identification of potential for mitigation of these verified visual impacts.

The methodology for the updated/revised visual impact assessment broadly consisted of two key activities being:

- identifying the receptors that were assessed in the EIS as potentially having a high or very high visual impact. This included removing receptors that were identified in the EIS as sensitive receivers, but were subsequently field-validated as not being a dwelling. The field validation assessment completed following the public exhibition of the EIS, identified a number of the sensitive receivers that have since been confirmed as sheds or other similar structure and not residential dwellings
- reviewing and revising the visual impact assessment of those receptors confirmed to be dwellings.

The method to review and revise the visual impact assessment included the following steps:

- visiting each of the properties identified as experiencing a high or very high potential visual impact (as presented in the EIS)
- assessing the views to be affected on-site
- considering from what part of the property the views towards the proposal would be obtained
- assessment of the extent of the impact
- assessment of the reasonableness of the proposal that is causing the impact.

3.3.4.2. Summary of verified potential visual impacts

A summary of the site observations and analysis undertaken for each identified dwelling is contained in Attachment A of Supplementary technical assessment 4. This includes the verified Pre-mitigation visual impact levels, potential mitigation measures (where appropriate) and potential post mitigation measure visual impact levels. The attachment includes a detailed analysis of the visual assessment and reasoning behind the verified impact levels and is accompanied by maps and photographs.

As noted above, the EIS identified 36 potential dwellings with a potential high visual impact, and one with a potential very high visual impact. Of these 37 potential dwellings, the revised assessment confirmed that twelve are not dwellings (being sheds or other structures that are not used for accommodation). These receivers were removed from this assessment as potentially impacted dwellings. Two additional dwellings were identified by the affected landholders and were added to the assessment.

Of the 27 confirmed dwellings, the field investigations verified that (prior to implementation of any proposed mitigation measures):

- no dwellings would have a very high visual impact
- three dwellings would have a high visual impact
- two dwellings would have a high–moderate visual impact
- four dwellings would have a moderate visual impact
- seven dwellings would have a low–moderate visual impact
- eight dwellings would have a low visual impact, and
- three dwellings would have a negligible visual impact.

The reduction in visual impact levels are as a result of a combination of factors including confirming the orientation of the main living areas and views from each dwelling, and consideration of the existing vegetation and / or local landform that has been confirmed as providing potential screening of each view. These levels also have the potential to be further reduced by mitigation measures as discussed below.

3.3.4.3. Mitigation measures

The EIS committed to the following in relation to visual mitigation for dwellings:

For residences where the project is predicted to have a high or very high visual impact, opportunities for screening vegetation would be investigated. Appropriate visual screening or other options would be confirmed in consultation with the affected landholder and implemented during construction. Vegetative screening would be maintained by the landholder.

The proposed mitigation measures to be considered include:

- provision of areas of screening planting on the visually–affected land holders property such as mounded garden beds with trees and shrubs, and/or additional trees on field boundaries
- minor adjustments to the location of individual towers (where this may be considered feasible and reasonable).

Where it is not possible to screen the proposed towers due to the scale of the structures, or their location on a neighbouring property, the proposed mitigation measures would aim to reduce the visible portion of the towers, which are the main source of potential visual impact. Final visual mitigation measures would be selected based on consultation with the impacted land holder and would be subject to detailed design.

With the implementation of visual mitigation measures (detailed in Supplementary technical assessment 4), these visual impact levels could potentially be reduced for some of the dwellings. Of the 27 dwellings assessed, there is the potential to reduce the visual impacts so that:

- no dwellings would have a very high visual impact
- one dwelling would have a high visual impact
- one dwelling would have a high–moderate visual impact
- seven dwellings would have a moderate visual impact
- six dwellings would have a low–moderate visual impact
- eight dwellings would have a low visual impact, and
- four dwellings would have a negligible visual impact.

Further detail regarding the outcome of the additional landscape and visual assessment is provided in Supplementary technical assessment 4 – *Revised Visual Impact Assessment Addendum* (Iris, 2022).

3.3.5. Aviation Impact Study

3.3.5.1. Overview

In response to the public exhibition of the EIS submission, Airservices Australia made a submission requesting that an aviation impact statement be completed for the proposal due to its scale of works. In order to respond to this submission, an *Aviation Impact Statement* (Aviation Projects, 2022) was prepared (refer to Supplementary technical assessment 5). The Aviation Impact Statement responds to the Airservices Australia submission and documents the outcome of the assessment, through consideration of the following:

- impacts on certified aerodrome/airport operations due to potential intrusions into the obstacle limitation surfaces (OLS) by towers or construction cranes
- impacts on certified aerodrome/airports within 30 nautical miles of the transmission line due to potential intrusions into the Procedures for Air Navigation Services – Aircraft Operations (PANS–OPS) surfaces by towers or construction cranes
- other potential impacts to (if present near or over the transmission line):
 - non–certified aerodromes and aircraft landing areas (within 30 nautical miles of the proposal)
 - designated air routes
 - flying operations of the Australian Defence force
 - any navigation aids and air traffic control surveillance systems
 - agricultural aircraft operations and other flow flying operations
- required mitigation measures or approvals/authorisations that would be required in response to any identified impacts, such as requirements for hazard marking and lighting.

3.3.5.2. Aviation Impact Statement

In summary, the Aviation Impact Statement assessed that the proposal:

- would infringe the Approach Surface (AS) of Wagga Wagga Airport's OLS during construction and operation as a result of the location and height of the proposed transmission line towers and associated construction cranes. The infringement to the AS by the proposed transmission line towers would be tolerable, to a similar extent that is consistent with the infringements by the existing transmission line towers and terrain into the AS at Wagga Wagga Airport
- is unlikely that obstacle lighting would be required for the transmission towers and is not recommended. However, this would be confirmed by CASA once it has conducted its own safety assessment. This would occur once CASA has received the AIS from the Wagga Wagga airport manager
- would not have any structures that would penetrate any Procedures for Air Navigation Services – Aircraft Operations (PANS–OPS) surfaces
- is unlikely to impact upon take-off and landing operations at the two aircraft landing areas in close proximity to the transmission line
- would not have an impact on designated air routes
- would not have an impact on the grid lowest safe altitudes
- is wholly contained within Class G airspace (a category of airspace in which an air traffic control separation service is not provided, i.e., uncontrolled airspace)
- is outside any Special Use Airspace (as published in an Aeronautical Information Publication)
- is outside the clearance zones associated with aviation navigation aids, radar systems and communication facilities
- can be compatible with aerial application flight operations when the recommended risk management process is carried out by the pilot and landowner whose property has the transmission line overhead and immediately adjacent to the proposed transmission line.

3.3.5.3. Summary of key recommendations

To address the potential impacts identified, the following key recommended actions were identified:

- the concept design of the transmission line segment that infringes the Wagga Wagga Airport OLS and the AIS should be provided to the Airport Manager to enable the Airport Manager to pass the details to CASA for assessment. Further engagement is to occur if the finalised design of the proposal alters the details supplied to the Airport Manager
- the concept design of the transmission line tower coordinates and elevations should be provided to Airservices Australia. Further notification is to occur if the finalised design of the proposal alters the details supplied to Airservices Australia
- the concept design for the transmission line tower coordinates and elevations should be provided to Department of Defence. Further notification is to occur if the finalised design of the proposal alters the details supplied to the Department of Defence
- to facilitate the flight planning of aerial application operators, details of the finalised design of the proposal, including location and height information of transmission lines should be provided to land holders so that, when asked for hazard information on their property, the land holder may provide the aerial application pilot with all relevant information. This applies to land holders who will have the proposed transmission line over their properties, and to landowners with property boundaries immediately adjacent to the proposed transmission line.

Additional mitigation measures which respond to these recommendations have been included in Appendix B of this report. Further detail regarding the outcome of the additional assessment is provided in Supplementary technical assessment 5 – *Aviation Impact Statement* (Aviation Projects, 2022).

4. Response to submissions

4.1. Response to community and organisation submissions

This section provides a summary of the issues raised in submissions received from the community and organisations, and a response to these issues. As described in Section 2.4, the issues raised by the community and organisations were summarised and grouped according to the identified key issues and sub-issues, and responses are provided according to these categories. Appendix A provides an overview of the community and organisation submissions and a reference to where the issues raised in each submission have been addressed in this chapter.

4.1.1. Planning and statutory requirements

4.1.1.1. Accuracy of EIS documentation

Submission ID number(s)

7, 45

Summary of issues raised

Two submissions raised concerns regarding the overall accuracy of the information presented in the EIS. In particular, one submission noted the lack of detail/clarity on the mapping within the EIS with respect to the proposed tower locations.

One submission also provided general comments that the EIS was misleading and made assumptions based on long-term predictions regarding the use of renewable energy as a future power generation source.

Response

The EIS was completed in accordance with all relevant environmental and planning legislation and other relevant procedures and guidelines required by government agencies.

The purpose of the EIS was to:

- support Transgrid's application to the Minister for Planning under Division 5.2 of the EP&A Act. It was prepared to address the Secretary Environmental Assessment Requirements (SEARs) for the proposal, dated 2 October 2020 and the relevant provisions of Schedule 2 of the Environmental Planning and Assessment Regulation 2000 (since replaced by Environmental Planning and Assessment Regulation 2021)
- present an assessment of the benefits and potential environmental issues identified during the planning and assessment of the proposal, considering the areas directly or indirectly affected by construction and operation of the proposal, as relevant to each technical assessment, including proposed management and mitigation measures to reduce any potential environmental impact associated with the construction and operation of the proposal, should it be approved
- provide the community, organisations and government agencies with sufficient information about, and the opportunity to provide comment on, the proposal.

The information included in the EIS was reviewed and validated by experienced professionals, and where relevant, was based on field validated data gathered throughout the preparation of the EIS (such as extensive biodiversity and heritage field surveys).

In terms of the mapping provided, both overview (single page) and detailed mapping (typically a series of maps of between five and 10 pages, depending on the information being displayed) was provided as part of the EIS. This mapping was of sufficient detail to identify the potential impacts associated with the proposal along the length of the alignment. As part of the description of the proposal, Transgrid also sought to allow for some flexibility regarding some details of the proposal, including the final transmission line tower locations to allow for further reduction of potential environmental impacts during finalisation of the proposal design.

With respect to the concern that the EIS made assumptions regarding the long-term predictions for the use of renewable energy as a future power generation source, this assumption is consistent with the current NSW Government strategic planning and policies to encourage renewable energy developments within the various Renewable Energy Zones (REZs) that have been identified across Australia, including the south western region of NSW. Further information regarding the basis of these assumptions is provided in Chapter 2 (Strategic context and need) of the EIS.

4.1.1.2. EIS process and documentation

Submission ID number(s)

10, 25, 37

Summary of issues raised

Three submissions raised concerns regarding the overall size of the EIS documentation, noting it created a barrier for the community to be able to read. One submission also noted that a Community Guide document was made available but that it did not assist in understanding the proposal.

Response

Whilst it is acknowledged that the EIS prepared for the proposal was extensive, the structure of the document was appropriate to guide readers through each component of the proposal and the environmental assessment. The detailed table of contents and structure of the EIS were sufficient to assist readers with locating information within the EIS.

Given the nature of the various impacts of the proposal across such a large alignment, the approach to the EIS document was the optimal approach to providing an appropriate level of detail for the potential environmental impacts.

The development of the Community Guide (Transgrid, 2021) was suitable to provide an overview of the proposal and a summary of its potential benefits and environmental impacts. The purpose of the Community Guide was to provide an overview of the proposal rather than detailed information. Comprehensive information about the proposal, potential impacts and mitigation measures, was provided in the main EIS and associated technical reports.

4.1.1.3. Planning approval process

Submission ID number(s)

27

Summary of issues raised

One submission requested that an inquiry into the proposal be undertaken, rather than completing the current approval process.

Response

As described, the exhibited EIS has been developed in accordance with the established planning process requirements under the NSW EP&A Act and the EPBC Act. Any requirement to undertake an inquiry to the proposal would likely be determined by the planning approval authority (DPE) or the NSW Government.

4.1.2. Proposal need and justification

4.1.2.1. Benefits of EnergyConnect

Submission ID number(s)

4, 9, 11, 12, 18, 25, 33, 34

Summary of issues raised

A number of submissions questioned the overall benefits of the proposal, including elements such as:

- the benefit of connecting the NSW and SA energy grids
- the general benefits and/or purpose of the proposal
- the realistic likelihood of the project reducing electricity bills.

Response

As described throughout the EIS, in particular Chapter 2, the proposal is considered to be a critical component in delivering long term benefits to electricity consumers in both NSW and SA, through its contribution to providing security to the National Energy Market (NEM) and leading the transition to a lower carbon emissions future. In particular, the proposal would reduce the cost of providing secure and reliable electricity transmission between NSW and SA in the near term. This is because it would allow for a greater sharing of energy resources across regions to smooth demand and supply fluctuations, reduce reliance on increasingly expensive gas generation in SA and meet overall demand and system reliability requirements at lowest cost.

EnergyConnect, inclusive of the proposal, is expected to have the following key benefits:

- delivery of net market benefits of around \$900 million over 21 years (in present value terms) including wholesale market fuel cost savings in excess of \$100 million per year as soon as it is energised (primarily from avoided expensive gas-fired generation in SA)
- provision of diverse low-cost renewable generation sources to help service NSW demand going forward, particularly as existing coal-fired generators retire
- avoidance of substantial capital costs associated with enabling greater integration of renewables in the NEM
- generation of sufficient benefits to recover the proposal capital costs within nine years of completion

- reduction to annual residential bills and small business customer bills in SA and NSW
- delivery of flow on economic benefits to the wider economy totalling over \$6 billion across SA and NSW (in present value terms)
- generation of around 1,500 jobs (including up to around 300 local/regional jobs) during construction, including specifically for the proposal around 500 jobs (including around 100 local/regional jobs)
- improvement to the security, reliability and resilience of the power network in SA and NSW
- improvement to the ability of parties to obtain hedging contracts in SA and help relieve the tight liquidity in hedging markets currently.

The proposal is also considered to be consistent with various NSW and Australian Government strategic policies including the:

- *NSW Transmission Infrastructure Strategy* (DPE, 2018)
- *Electricity Strategy and Electricity Infrastructure Roadmap* which builds on the *NSW Transmission Infrastructure Strategy* (2018)
- identification as a priority project in the Australian Energy Market Operator (AEMO) *2020 Integrated System Plan* (2020 ISP). In particular, the 2020 ISP estimates that over 26 gigawatts of new grid-scale renewables is needed to replace the approximately 15 gigawatts, or 63 per cent, of Australia's coal-fired generation that will reach the end of its technical life and so likely retire by 2040
- *State Infrastructure Strategy 2018–2038* (Infrastructure NSW, 2018)
- *NSW Climate Change Policy Framework* (NSW Office of Environment and Heritage, 2016).

Providing these connections would expand the wholesale electricity market across NSW, SA and Victoria, meaning increased reliability and security of electricity supply. This increased reliability and security would allow increased competition for supply opportunities (such as additional wind and solar developments along the proposal alignment), therefore leading to lower power bills.

Further discussion of the general and overall benefits, including its consistency with existing NSW and Australian Government strategic planning directions is provided in Chapter 2 (Strategic context and need) of the EIS.

4.1.2.2. Economic assessment and value for money

Submission ID number(s)

12, 25, 29, 34

Summary of issues raised

Three submissions specifically questioned the value for money that the proposal provides, including the expected maintenance costs for the proposal during operation.

Response

Discussion regarding investment and funding for the EnergyConnect project was provided in section 2.3 of the EIS. This section noted that consideration had been given to the proposal by both the Australian Energy Regulator (AER) (who is the regulator of the wholesale electricity and gas markets in Australia) and the Clean Energy Finance Corporation (CEFC) who invest in clean energy technologies, projects and businesses, to accelerate Australia's transition to a low emissions economy.

In summary:

- the AER, as part of the Regulatory Investment Test for Transmission (RIT-T) process (a process which aims to promote efficient transmission investment in the energy market), determined the proposal represented a credible investment option that would maximise the present value of the net economic benefit to all those who produce, consume and transport electricity
- the CEFC has committed to an investment of \$295 million to facilitate EnergyConnect.

With respect to the potential maintenance costs, these costs are generally expected to be minor as this type of infrastructure does not typically generate the need for regular ongoing component and/or material replacements. These costs would be incurred as part of Transgrid's ongoing operation and maintenance requirements.

4.1.3. Proposal alternatives

4.1.3.1. Alternative proposal alignments – general

Submission ID number(s)

20, 29, 39

Summary of issues raised

Three submissions raised general concern regarding the proposed alignment for the transmission line as presented in the EIS. Of the three submissions raising general concern one of the submissions raised specific concern regarding the location of the proposed transmission line parallel to a section of existing separate transmission line noting that this would result in an overall increase in impacts to those already occurring in these areas as a result of the existing transmission line. One of the other submissions also specifically questioned why one of the greenfield sections of the alignment of the proposal did not intend to use the existing transmission line corridor further south between Lockhart and Urana.

Response

As described in Chapter 3 of the EIS, the alignment presented in the EIS was determined based on a rigorous evaluation of both broad strategic options and ongoing refinement to identify the optimal alignment for the proposal.

As discussed in section 3.3.1 of the EIS, the overall methodology for the corridor selection process of the proposal included consideration of a range of factors and design criteria, which aimed to minimise environmental and social impacts of the proposal, and maximise the use of previously disturbed areas wherever possible. One of the key criteria in achieving this was to preference areas of existing disturbance (including opportunities to locate the new transmission line parallel to existing transmission line or utility easements, roads, tracks, fence lines and cadastral boundaries). This would also be beneficial in meeting other key design criteria including:

- enabling the new transmission line to be accessed and maintained safely (such as opportunities to access the new easement by utilising existing access points and tracks)
- providing a cost effective and value for money option (co-locating easements would have potential operational benefits for maintenance operations)
- avoiding areas of particular environmental sensitivity
- maximising distances to dwellings, inhabited areas and other sensitive land uses.

The option of using the existing transmission line corridor further south between Lockhart and Urana was considered as part of the development of the design for the proposal however, would have resulted in a longer route and increased impacts to areas containing identified constraints to the west of Urana (such as larger areas of irrigated agricultural land and the need to avoid Lake Urana). Consideration of the optimal location for the proposal to intersect with the existing transmission line (known as transmission line 99A) was discussed as part of the corridor refinement between Four Corners and Lockhart in section 3.3.3.1 and shown in Figure 3–12 (*Section 2 – Coonong Road to transmission line 99A*) of the EIS.

4.1.3.2. Alternative proposal alignments – Lake Cullivel

Submission ID number(s)

3, 7, 39

Summary of issues raised

Two submissions raised specific objection to the proposed alignment within the vicinity of Lake Cullivel. In particular, concern was raised regarding the proposed close proximity of the alignment to the southern edge of Lake Cullivel and the impacts that this alignment would have on environmental constraints, including:

- significant waterways such as Boree Creek, Brookong Creek, Lake Cullivel and associated local wetlands
- existing bird populations, including shorebirds and migratory birds protected by State and/or Commonwealth legislation
- groundwater dependant ecosystems
- existing stands of trees within the vicinity of Lake Cullivel.

The submissions requested consideration of an alternative alignment for the proposal further to the south, which would result in reduced impacts to the abovementioned environmental features. Options suggested in the submissions included constructing the proposal along the transmission line option 2a from the EIS, or an alignment parallel to the existing transmission line at Urana or along the Lockhart–Urana Road.

Additional concern was raised regarding the applicability of the methodology used for the corridor selection process that led to identifying the EIS alignment as the preferred option, noting particular concern that the EIS alignment did not meet some of the stated criteria, such as follow an existing transmission route or avoiding areas of particular environmental sensitivity.

Response

Following community feedback received during the public exhibition of the EIS, ongoing design refinement has resulted in a refined alignment for the transmission line easement within the vicinity of Lake Cullivel. The refined alignment would realign around 13 kilometres of the proposed transmission line easement between the western side of Lake Cullivel and Urana–Lockhart Road. At its greatest deviation point, the refined alignment would be around one kilometre further south when compared to the EIS alignment. Further detail regarding the Lake Cullivel alignment changes is provided in the Amendment Report for the proposal.

Concern was noted in the submissions received from the community that this section of the alignment did not align with the design criteria at this location with regards to following existing transmission lines where possible. Locating the proposal alignment next to existing transmission line infrastructure between Four Corners and Wagga Wagga was evaluated as part of the overall options assessment for the corridor design of the proposal. However, as discussed in section 3.3.2.4 of the EIS, further evaluation of this alignment identified a range of constraints on the approaches to and immediately surrounding the Darlington Point substation. In particular, a feasible alignment between Four Corners and Darlington Point was determined to be a substantial constraint, primarily due to predicted impacts to existing irrigated agricultural land and other sensitive land uses.

These high value, intensive industries presented challenges to the development of new transmission line infrastructure within the existing narrow easement corridor and where development may encroach up to easement boundaries. As such, the preferred corridor option for the alignment within this section of the proposal was identified as being a section of new, greenfield transmission line easement between Four Corners and Lockhart, as opposed to constructing the proposal within or immediately next to existing transmission line infrastructure.

4.1.4. Proposal design and operations

4.1.4.1. Dinawan 330kV substation design – General

Submission ID number(s)

49

Summary of issues raised

The submission noted that the statement in the EIS that there was no flow information available for the drainage system in the Coleambally Irrigation Area was incorrect noting that data is readily available from the Water NSW Real Time Data website.

Response

The reference to the Water NSW Real Time Data information, as advised by the Coleambally Irrigation Co-Operative in their submission is noted. Data from this source will be used to confirm and validate the current design of the proposal, and ongoing finalisation of the design for the proposal (where relevant).

4.1.4.2. Dinawan 330kV substation design – Impacts from Coleambally Irrigation levee

Submission ID number(s)

49

Summary of issues raised

The submission noted that the ongoing and detailed design of the proposed Dinawan 330kV substation should take into account the potential impacts of the nearby levee bank which currently acts as a detention basin for the Coleambally Irrigation system. The submission noted that the levee bank is only made from the nearby soil and occasionally requires repairs. The submission noted that it wasn't anticipated that there would be a major electrical substation a couple of kilometres downstream of the detention basin.

The submission noted that in the event the levee overtops/spills, there is the potential for the areas including the location of the proposed Dinawan 330kV substation to flood.

Response

The levee bank referred to in the submission is an earth embankment that appears to be associated with a water storage facility (detention basin) along the irrigation channel to the east of the proposed location of the Dinawan 330kV substation. The basin presumably allows for water to be stored during periods of high availability to regulate flows in the irrigation channel. It is unclear whether pumps are required to fill the detention basin or whether it fills naturally during periods of high water flow along the associated irrigation channel.

Transgrid's Standard Design Manual, which the Dinawan 330kV substation would be required to comply with, requires the site on which the substation would sit to be above the 100 year average recurrence interval (ARI), and for the functioning of substation to not be impeded during a 200 year ARI storm event.

The topography around the proposed substation location is very flat, likely indicating a very wide floodplain compared to the size and capacity of the detention basin. If the embankment spills/overflows due to excessive pumping, it is unlikely that the water would be of sufficient volume to significantly inundate downstream areas. If the embankment spills/overflows due to high water volumes in the irrigation channel, it is likely that there would be localised flooding in adjacent areas already, and that the additional flows would not contribute to existing floodwaters substantially. The risk to the Dinawan 330kV substation associated with a failure of the detention basin embankment is therefore considered to be low. However this would be considered as part of the flood assessment for the facility.

The final design would confirm that the bench level of the final design of the Dinawan 330kV substation is above the 100 year ARI design and that a 200 year ARI design flood would not impede substation function. Spills and overflows from the detention basin to the east of the substation location and a potential failure of the basin embankment would be taken into account. The bench level and design of the substation will be adjusted and refined to ensure compliance with Transgrid's design standards.

4.1.4.3. GPS interference

Submission ID number(s)

20, 24, 29

Summary of issues raised

Three community and organisation submissions raised concerns regarding the potential for the proposal to interfere with existing radio and GPS services in the local area including:

- impacts on differential GPS base stations and VHF, AM and/or FM frequencies and the potential for interference of these systems affecting existing farming operations/practices
- impacts on mobile phone services and/or NBN fixed wireless signals.

One submission also stated that Transgrid should consider the opportunity of incorporating additional mobile systems along the transmission line to improve coverage of mobile services in the area.

Response

As described in section 20.5.4.1 of the EIS, Transgrid's transmission lines are required to comply with Australian Standard 2344 (AS 2344), which sets out limits for electromagnetic interference from overhead powerlines and high voltage equipment.

Regarding GPS and farm machinery specifically, Transgrid has completed a series of studies to assess the potential for operation of the proposal to result in interference with relevant equipment on farms in close proximity to the proposal infrastructure, including locations around Bundure, Urana, Boree Creek and Lockhart. This study has involved consultation with local business SST Trimble in Jerilderie (SST), who are the major supplier of the VHF differential GPS (DGPS) network in the area, with several base stations located around the region.

The potential for interference from the transmission line is only likely to affect VHF receiving antennas in close proximity (within about 50 metres) to the transmission line. For properties, which are in close proximity to existing base stations, the VHF signal strength would be very high and therefore the VHF DGPS equipment would not be subject to interference from the transmission line.

Initial desktop studies have indicated that there may be localised areas of signal weakness in the SST VHF network to the north and east of Urana, where an SST receiver (such as a DGPS-enabled header) could lose signal due to interference from any source in the area. Further studies (including measurements taken on-site at relevant properties) are currently underway to determine whether additional mitigation measures are required.

If those studies identify that interference from the proposal is likely to be substantially greater than the SST VHF signal strength, Transgrid would identify and implement appropriate mitigation measures. Where relevant, mitigation measures would be developed in consultation with local businesses that specialise in this style of equipment, and may include increasing base station antenna heights in the region, increasing signal power, and/or constructing a new base station in the area.

With respect to other potential interference impacts from the proposal, it is noted that:

- mobile phone and NBN fixed wireless services operate on frequencies greater than 800MHz and would therefore not be subject to interference from the proposal
- interference to AM radio reception would only occur in close proximity to the proposed transmission line and it is unlikely there would be any interference at distances greater than 200 metres. Interference to radio reception would also only occur during rain/wet conditions. If required, interference to radio reception can be addressed with the use of high-performance, active AM antennas (e.g. Tecsun AN100 AM Loop Antenna)
- there would be no interference to FM radio reception outside of the proposed transmission line easement, as per the requirements of Australian Standard AS2344. Interference to FM radio reception within the easement (if any) is only likely to occur in areas that are far from the relevant FM transmitters, where receive strength is already low. Similar to AM radio reception, interference to FM radio reception (if any) would also only occur during rain/wet conditions.

Transgrid is actively investigating opportunities to improve mobile and digital connectivity along the proposal alignment and across the broader region. Initiatives of this nature require input from a range of third parties, and Transgrid is committed to understanding all possible solutions and methods of delivery.

4.1.4.4. Operational lifespan

Submission ID number(s)

13, 29, 39

Summary of issues raised

Three submissions stated that the EIS did not discuss the operational lifespan of proposal infrastructure and how long the infrastructure was proposed to be utilised for. One submission also noted that the EIS did not state how proposal infrastructure would be disposed of following its operational lifespan.

Response

A description of the operational elements of the proposal were discussed in section 5.4 of the EIS. The transmission line and proposed new Dinawan 330kV substation are intended to be long term assets for transmission of power and there is no current timeline for the end of the operational lifespan of this infrastructure.

In addition, section 5.4.2 of the EIS noted that the equipment for the Dinawan 330kV substation is expected to have a service life of around 50 years. Maintenance would be regularly undertaken for the different infrastructure components and plant items of this substation such as transformers. These components would be replaced/refurbished towards the end of their serviceable life, allowing the service life of the substation to be extended beyond this period if required.

4.1.4.5. Transmission line design – 330kV v 500kV

Submission ID number(s)

24, 28

Summary of issues raised

Two submissions raised concerns that the proposed operational voltage of the transmission line had changed from the initially advised 330kV to 500kV. One submission also raised concern with the subsequent increase in tower size as a result of this change.

Response

As described in section 3.2.3 of the EIS, the transmission system voltage configuration for the proposal would have a minimum operating voltage of 330kV. Initially the section from the proposed Dinawan 330kV substation east to the Wagga Wagga substation would be operated at a voltage of 330kV. To allow future network upgrades, the proposal would be built with infrastructure that is capable of being operated at 500kV. This would avoid future additional investments of approximately \$600 million to build a new connection in the future. Furthermore, this would mean that disruption to land holders and additional environmental impacts would be avoided by removing the need for construction of additional infrastructure in the future.

Constructing the proposal with the potential to increase capacity in the future allows the transmission network to be future-proofed, and provides improved investment certainty for future renewable energy developments such as the planned South West Renewable Energy Zone. It would also assist to realise the full benefits of Snowy 2.0.

4.1.4.6. Transmission line design – General

Submission ID number(s)

5, 39, 47

Summary of issues raised

Two submissions objected to the overall design of the transmission line stating that it was old, outdated, unreliable, and unsustainable technology. Concern from one of the submissions also noted that the transmission line would also be weather dependent and vulnerable to weather conditions including damage from heavy rain, lightning strike and component failures. The submissions also noted that (referring to the use of renewable energy generation such as solar farms, not the proposal) non-weather dependent sources of electricity generation did not require thousands of kilometres of new transmission infrastructure.

One submission also questioned why the proposal could not locate the transmission line underground.

One additional submission from the Australian Rail Track Corporation (ARTC) stated that the design of the transmission line, where it interacts with existing ARTC infrastructure would need to comply with ARTC and Australian Standards.

Response

The proposal has been designed to deliver the most efficient, cost-effective and reliable method for constructing and operating a high capacity electricity transmission line over such a long distance between South Australia and NSW. This form of electrical transmission is proven technology and would provide a more cost-effective option for transmission than underground cabling across the large distances that are involved with the current proposal. Traditional transmission lines are designed to be suitable for operation in a range of weather conditions, including heavy rain and from lightning strikes.

As described in section 5.4 of the EIS, the operation of the proposal would also include a broad operational maintenance regime which would include, where required, replacement of any failed components.

With respect to the comment provided by ARTC, Transgrid has consulted with ARTC throughout the development of the design of the proposal, including discussions regarding where the transmission line infrastructure of the proposal would interact with existing ARTC assets. The final design of the transmission line would be designed to comply with any relevant ARTC and Australian Standards.

4.1.4.7. Transmission line design – transmission line towers

Submission ID number(s)

24, 29, 49

Summary of issues raised

Three submissions raised various issues regarding the overall design of the proposed transmission line towers including:

- one submission that raised concern that the proposed footprint for each tower base is too large
- one submission that questioned the structural stability and designed wind loading requirements for both the proposed guyed towers and typical free-standing transmission line towers and requested details on the standards that the towers have been designed to
- one submission that noted that the transmission line towers should be in alignment with the existing towers.

Response

As described in section 5.3.2 of the EIS, a range of transmission line tower designs have been identified for inclusion as part of the final design of the proposal. Each of these towers would require a different area of impact and clearing depending on their design (e.g. whether they are guyed towers or free-standing towers). The final specification for each tower would be dependent on a range of factors such as distance between each tower, local geotechnical conditions and local environmental constraints (for example the need to avoid specific areas of biodiversity). The type and arrangement of the towers (including the final area required for each tower base) would continue to be refined and micro-sited as part of the finalisation of the proposal design with a view to further minimising environmental impacts, within the identified transmission line easement, wherever practicable.

All proposed transmission line tower styles (including both guyed and self-supporting structures) would be designed to meet Australian standard AS/NZS 7000. AS/NZS 7000 requires structures to be designed with sufficient longitudinal strength to reduce the risk of multiple structure failures following the failure of an individual structure or multiple conductors (wires). The transmission line tower would also be designed to withstand wind speeds of up to 50 metres per second (equivalent to around 180 kilometres per hour), which as per AS/NZS 1170.2 has an Annual Recurrence Interval of 5000 years. This is the highest wind speed classification applied to transmission lines within Transgrid's network.

With respect to the request to align new transmission line tower areas where an existing transmission line easement is present, this is not considered feasible given the different voltages between the existing (220kV) and proposed (330kV or 500kV) transmission lines. The different voltages result in different span lengths between the respective transmission line towers. More closely aligning the proposed transmission line towers would significantly increase the number of towers required for the proposal, which would have a flow on impact to the disturbance at ground level, both in terms of environmental impact and in terms of the amount of land required for transmission line tower installation.

4.1.5. Proposal construction

4.1.5.1. Construction program and staging

Submission ID number(s)

29, 37

Summary of issues raised

Two submissions raised concern regarding construction staging and the overall construction program of the proposal. The submissions raised concern that the sporadic nature of the construction work, while limited in periods of time for each stage, would result in large overall amounts of time where agricultural and farming lands would be impacted. Whilst there would be breaks for construction work, this would not result in breaks to the impact on their ability to farm those particular areas of land during the overall period of works.

One submission suggested that the construction program should be scheduled in blocks in consultation with the land holders to reduce the duration of impact during construction.

Response

The indicative construction program in section 6.3 of the EIS provided an overview of the entire works across the whole length of the proposal. The EIS also provided the indicative duration of construction activities at each individual transmission line tower site (referring to Figure 6-3 of the EIS). The durations between each phase of the construction program could vary and breaks between activities may be longer or shorter which may lead variations in the inactive periods of construction at an individual transmission line tower. The final timing of construction works would be determined as part of the finalisation of the construction methodology. Where specific concerns have been identified, Transgrid would work with individual land holders where possible. Arrangements to minimise impacts and opportunities to provide assistance to individual land holders would be documented in a Property Management Plan (refer to mitigation measure LP3).

4.1.6. Community and stakeholder consultation

4.1.6.1. Level of consultation undertaken

Submission ID number(s)

20, 24, 27, 28, 29

Summary of issues raised

Five submissions raised general concern regarding the level and extent of consultation that had been undertaken for EnergyConnect (NSW – Eastern section). In particular:

- one submission stated that they did not feel that Transgrid had been transparent and upfront about the impacts of construction and the ongoing impacts of the proposal, noting that the design of the proposal had changed throughout the process and that a definite design of the towers was still not available
- one submission noted that they had received a letter from Transgrid stating that their property was in the area of interest for the broader transmission corridor for the proposal but then received no further consultation in regard to where the easement may be
- one submission raised concern regarding the timing of the consultation and the ability for farmers to be able to attend consultation sessions during busy farming periods
- one submission noted concern regarding the timing of construction activities during periods such as lambing season where access to specific areas of their property need to be made off limits
- one submission noted concern about the process undertaken for land holders to sign the Access Agreements and the process for the preparation and binding nature of the proposed Property Management Plans. The submission noted the Property Management Plans needed to be valid for the life of the powerline and set out schedules for items such as ongoing maintenance, weed control, minimum timeframes for repairs and document an agreed 'no go' periods so maintenance can be scheduled outside of critical periods such as lambing.

Response

A detailed discussion of the range of community and stakeholder involvement for the proposal was provided in Chapter 7 of the EIS. A summary of this consultation is also provided in Section 3.1 of this Submissions Report.

Transgrid has undertaken an extensive range of engagement activities to provide the community and organisations information on the proposal and to gather community and other stakeholder feedback since November 2018. Key activities undertaken to date have included (but are not limited to):

- completion of more than 280 key stakeholder briefings with all relevant councils through which the proposal passes, NSW and Australian Government agencies, local MPs, NSW Aboriginal Land Councils and Aboriginal stakeholders
- facilitation of face-to-face meetings, phone calls and email correspondence with directly affected land holders, particularly during the corridor selection process to provide information about the constraints and opportunities. This included facilitated Q&A sessions with over 34 land holders and over 640 property-specific meetings with property owners prior to public exhibition of the EIS
- print advertisements in several local newspapers to advertise the community drop-in sessions and request registration of Aboriginal stakeholders to participate in the assessment of cultural heritage
- consultation with registered Aboriginal parties in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2020* (Office of Environment and Heritage, 2010)
- holding over 35 face-to-face community drop-in sessions and public events across 15 local towns both prior to and during the public exhibition of the EIS with sessions held in each of the local government areas through which the proposal would be located.

Direct engagement with the community was made difficult by travel restrictions, social distancing and other health advice requirements associated with COVID-19. To accommodate for these restrictions, Transgrid sought to proactively manage consultation so that communities, stakeholders and interested parties were given every opportunity to participate in the environmental assessment process. This included a series of facilitated on-line webinars that were held in September 2021. These webinars were open to all community members and provided a COVID-safe forum for community members to ask for more information and to share their views on the proposal.

Public consultation activities were also open to all community members, including those directly affected by the proposal as well as land holders located adjacent to the proposed transmission alignment.

Property Management Plans would continue to be developed between relevant land holders and Transgrid as part of the ongoing development of the proposal. Where feasible, these plans would accommodate any required special considerations for each individual property such as any required access restrictions such as during lambing periods.

Consultation activities would continue as the proposal progresses, including finalisation of the proposal design and throughout construction (subject to approval of the proposal).

4.1.6.2. Level of detail presented to the community

Submission ID number(s)

49

Summary of issues raised

One submission stated that the interactive EIS map did not seem to provide any reference to the local knowledge comments provided by the Coleambally Irrigation Co-operative on the initial Transgrid community consultation page.

Response

The online interactive map referred to in the submission was intended to enable stakeholders to provide local insights to be incorporated as part of the route refinement process. This site generated around 9,500 views of the online map, with around 320 comments provided on this platform.

Where relevant, the information provided was incorporated as part of the ongoing refinement of the proposal design. This included the information identified by the Coleambally Irrigation Co-operative such as indicative condition status of existing bridges, and the potential flooding issues associated with the proposed Dinawan 330kV substation site.

4.1.6.3. Requests for further consultation

Submission ID number(s)

29

Summary of issues raised

One submission noted that the EIS stated that land holders will have opportunity to have input in the finalisation of the proposal, stating that they had not been informed as to how to input to this process. The submission also noted that this process should be documented.

Response

The EIS stated that some aspects of the proposal design would continue to be refined as part of the finalisation of the proposal design. The intent of this refinement would be to reduce environmental impacts, and would be aimed at producing better environmental outcomes/performance by improving the proposal design and construction methodology. Finalisation of the design would also take into consideration where reasonable and feasible, the suggestions made in submissions received during the public exhibition period and as part of ongoing land holder consultation.

The Amendment Report and Chapter 3 of this Submissions Report document the changes that have been made to the proposal as a result of suggestions made in submissions and ongoing land holder consultation to date.

4.1.7. Biodiversity

4.1.7.1. Impact assessment approach – timing of surveys

Submission ID number(s)

7

Summary of issues raised

One submission questioned the assessment methodology undertaken to inform the *Biodiversity Development Assessment Report* (WSP, 2021) for the proposal. This submission specifically noted that the timing of the ecological studies being undertaken over a 12 month period were not sufficient, particularly in circumstances where a lot of the study area contains ephemeral wetlands/waterways.

Response

Extensive biodiversity field surveys have been, and continue to be undertaken in all areas of the construction impact area along the full length of the proposal alignment. For the biodiversity information presented in the EIS, biodiversity field surveys commenced in mid-2019 and concluded in March 2022. This survey effort included undertaking vegetation integrity plots, targeted flora and fauna surveys, fauna habitat assessments, diurnal bird surveys, fauna trapping and Anabat surveys. Field survey techniques were in general accordance with the relevant NSW and Commonwealth guidelines, including but not limited to the *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities* (Working Draft) (Department of Environment and Conservation 2004), *NSW Guide to Surveying Threatened Plants* (Office of Environment and Heritage, 2016) and *Surveying threatened plants and their habitats; NSW guide for the BAM* (Department of Planning, Industry and Environment, 2020).

A range of the surveys completed during the period of investigations also included undertaking specific seasonal surveys for a range of flora and fauna species. Targeted surveys were undertaken in areas where the targeted species were identified during the initial desktop assessment as likely to occur. This included consideration of sections of the study area, such as within the vicinity of Lake Cullivel, which contains ephemeral wetlands/waterways and provides the potential likelihood for various species to be located in this area during wet periods.

The survey effort was completed in accordance with the relevant NSW guidelines for biodiversity surveys and was sufficient to provide a good understanding of the existing biological environment.

4.1.7.2. General biodiversity impacts

Submission ID number(s)

4, 7, 8, 11, 18, 19, 22, 33, 39, 42

Summary of issues raised

A number of submissions raised objection to the proposal based on its potential to impact a range of biodiversity (to both flora and fauna) and associated environmental impacts along the proposed alignment during construction.

Some submissions also raised specific concerns regarding the potential impacts of the proposal on the native vegetation, existing river red gum trees and habitat for the wildlife such as birds, mammals, frogs and reptiles, particularly those located in the vicinity of Lake Cullivel.

Response

While it is acknowledged that the proposal would result in unavoidable impacts to a range of biodiversity features, throughout the design of the proposal (from the initial options assessment evaluation through to the design refinements identified in Chapter 3 of this report), Transgrid has sought to avoid and minimise potential impacts on biodiversity values. This has included a range of considerations including:

- minimising impacts to endangered flora species *Pilularia novae-hollandiae* (Austral Pillwort) and *Pimelea serpyllifolia subsp. serpyllifolia* (Thyme Rice-flower) through the establishment of special biodiversity protection zones. The biodiversity protection zones would minimise impacts as far as practicable to individual plants and the species' habitat
- establishing a special biodiversity protection zone for the Gums travelling stock reserve between towers 241 and 242 to minimise impacts on the critically endangered ecological community Natural Grasslands of the Murray Valley Plains
- positioning of preferred corridor to co-locate where possible. Around 407 kilometres of the 540 kilometres (around 75 per cent) route has been collocated. The alignment has been designed to run adjacent to existing infrastructure from the Buronga substation to Four Corners, and from Lockhart to the Wagga Wagga substation. Collocating the route has reduced biodiversity impacts. Design refinements such as the proposed transmission line realignment near Bundure Siding, micro-siting of tower locations, re-routing of access tracks and adoption of location specific bespoke construction phase stringing methodologies to avoid where possible any direct impacts to mapped Plains Wanderer habitat
- relocation of preferred corridor north at Gums Lane to avoid high biodiversity value areas that contain the critically endangered Box Gum Woodland
- targeting narrow crossing points of waterways and flood out areas and their associated riparian habitats such as around the Murrumbidgee River, the Coleambally irrigation channels, Yanco Creek, Columbo Creek and Lake Cullivel
- identification and focus on the use of existing access tracks to minimise additional disturbance to the transmission line easement wherever possible. This would include the use of existing farm track, alternative property access points and similar existing infrastructure
- reduction in the use of longitudinal access tracks where existing roads are located adjacent to the alignment
- changes to the categorisation of disturbance along the transmission line alignment to reflect refinements to the vegetation clearing strategy.

The ongoing commitment to avoid and minimise impacts on biodiversity values would be further achieved through the micro-siting of the towers, brake/winch sites and access tracks during the design refinement phase. Further refinement of the final construction strategy would also look to utilise methods to reduce disturbance. Examples of construction methods to reduce disturbance would include reducing centreline vegetation clearance and the use of drones to string transmission lines across sensitive environmental areas.

With respect to the concern that the proposal would impact on the existing river red gum trees in the vicinity of Lake Cullivel, as discussed in the Amendment Report supporting this proposal, ongoing refinement of the proposed easement within the vicinity of Lake Cullivel has identified a more southern alignment. This refined alignment would locate the proposal further away from these trees and the potential areas of habitat for the wildlife located in the vicinity of Lake Cullivel.

4.1.7.3. Biodiversity impacts – operation

Submission ID number(s)

11, 25

Summary of issues raised

One submission noted that weed control practices should be included which require regular ongoing recordable monitoring. The management of weeds should also be undertaken using safe methods and safe listed chemicals to ensure protection of the surrounding lands and agricultural properties.

One submission also raised objection to the proposal based on its potential to provide an opportunity for plant growth, stating that the proposal to allow continued grazing would not prevent this *[noting that it was inferred from the submission that they may have been referring to solar farm developments rather than the current transmission line proposal]*.

Response

As identified in section 24.1.3 of the EIS, a Biodiversity management sub-plan would be prepared for the proposal as part of the Construction Environmental Management Plan (CEMP). This plan would include measures for the management of weeds during construction.

Generally, Transgrid does not conduct weed management on easements during operations given that the underlying land remains private property and in most circumstances reverts to its prior land use once commissioned.

4.1.7.4. Bird strike

Submission ID number(s)

3, 7, 22, 49

Summary of issues raised

Four submissions raised objection to the proposal based on the potential that the transmission lines would lead to increased bird strikes by local birds such as the Australasian Bittern, Brolga, Australian Painted Snipe, migratory shorebirds, pelicans and a range of other waterbird species (in particular within the vicinity around Lake Cullivel), as well as bats. Concern was also noted that the proposed mitigation measures (including flappers) would not be suitable for the various nocturnal bird species that are located in the local area.

One submission suggested that any new powerlines crossing the Coleambally Irrigation channels and drains have a visibility marker to try to reduce the injuries and deaths to local birds (such as pelicans), also noting that the round rotating red and white vane ball type markers seemed to be more effective than just flat flags.

Response

Bird strikes were considered in section 9.2.2.1 of the BDAR. In particular, the assessment concentrated on the potential impacts within the greenfield section that does not currently have electrical infrastructure. Habitats for the sections of the proposal that would be located parallel to existing electrical infrastructure were assumed to already be affected by the indirect impacts associated with bird strikes. Overall, the assessment acknowledged that, while possible, the potential for indirect bird strike impacts associated with the proposal was unlikely.

The principal mitigation is through the provision of line diverters/flappers to deter collision. Transgrid have committed to this upfront mitigation within one kilometre of the major riparian zones which the proposal would cross to address uncertain biodiversity impacts relating to line strike combined with the commitment to provide direct offsets for these indirect impacts on affected species credit species (refer to mitigation measure B6).

Whilst indirect impacts are considered unlikely, a precautionary principal approach has been taken and additional impact assessment including assessment of indirect impacts on water birds and fauna strike risk assessment has been carried out (refer section 9.2 and appendix E–4 of revised BDAR). This further assessment has included calculation of additional biodiversity offsets for any potential indirect impacts to the following threatened fauna species:

- *Botaurus poiciloptilus* (Australasian Bittern)
- *Grus rubicunda* (Brolga)
- *Haliaeetus leucogaster* (White-bellied Sea-Eagle)
- *Hieraaetus morphnoides* (Little Eagle)
- *Lophochroa leadbeateri* (Major Mitchell's Cockatoo)
- *Lophoictinia isura* (Square-tailed Kite)
- *Polytelis anthopeplus monarchoides* (Regent Parrot (eastern subspecies))
- *Polytelis swainsonii* (Superb Parrot).

4.1.7.5. Impact to threatened species

Submission ID number(s)

8, 38

Summary of issues raised

Two submissions raised concern regarding the potential impacts of the proposal on the critically endangered Plains Wanderer species and its habitat.

Response

Prior to the application of design refinements and avoidance measures, the initial area of impact on Plains Wanderer habitat was calculated at 21.6 hectares. By implementing avoidance measures such as micro-siting towers, re-routing access track and adopting specific construction techniques, the area of potential impact to Plains Wanderer habitat has been reduced to around 0.37 hectares spread across the whole of the construction impact area. Additionally, as noted in section 8.1.1.1 of the EIS, the centreline in areas of key Plains Wanderer primary habitat would not be subject to vegetation clearing. Alternate methods would be adopted in these key habitat areas for the conductor stringing activities to minimise impacts to the species' habitat (including the use of drones for stringing transmission lines). In

circumstance where a tree is located within one of these areas that would exceed the vegetation clearing requirements then this tree(s) would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place) using methods that minimise potential impact to key habitat and to ensure avoidance of impact to bird individuals. This would occur under supervision of an ecologist.

Apart from the displacement of 0.37 hectares of habitat, there are no other impacts that are expected to have an adverse effect on Plains Wanderers in the wider locality (10 kilometres) or other Plains Wanderer habitats further afield. The total area of habitat for Plains Wanderer in NSW has not been quantified, but the area of habitat in the mapped Riverina distribution has been identified as having an area of around 12,676 hectares within 10 kilometres of the proposal alignment. As such, the overall impact of the proposal on the known Plains Wanderer habitat within the region is low. Any impacts to Plains Wanderer habitat would not constitute a serious and irreversible impact.

Final refinement and micro-siting of the transmission line towers, in addition to consideration of the final construction methodology in the vicinity of the Plains Wanderer habitat, would further reduce the currently identified impacts wherever possible.

4.1.7.6. Impacts to water birds/wetlands

Submission ID number(s)

3, 7, 39

Summary of issues raised

One submission questioned the assessment methodology undertaken to inform the *Biodiversity Development Assessment Report* (WSP, 2021) for the proposal, specifically noting that it appeared waterbirds and wetland values were overlooked, apart from a rudimentary consideration of the Brolga.

All three submissions also raised concern regarding the potential impacts of the proposal on wetland bird species and their habitats, in particular the wetland biodiversity values of Lake Cullivel and the lower Boree Creek and Brookong Creek floodplain. Specific species identified within the submissions included the Australian Painted Snipe, Sharp-tailed Sandpiper, Brolga and Australasian Bittern, many of which are classified as endangered.

Concern was raised that the construction of the proposal and the operational infrastructure of the towers would significantly damage nests and potentially impact the flight paths for birds, as well as the water quality of their wetland habitats.

Response

A detailed *Biodiversity Development Assessment Report* (BDAR) (WSP, 2021) was prepared to support the EIS. The impact of the proposal on waterbirds and wetland values along the alignment were considered throughout the BDAR. Species such as the Brolga were identified as a recorded threatened fauna species. Section 5.6.4.3 of the BDAR noted that a pair of Brolga were observed breeding in an ephemeral dam about 2.5 kilometres from the disturbance area on Federation Way south of the Gums travelling stock reserve. The impact on the Brolga, and other species, including raptors; Major Mitchell's Cockatoo; Regent Parrot; migratory shorebirds; waterfowl; microbats; and squirrel glider was discussed in section 8.1.2 and section 9.3 of the BDAR.

The impact on aquatic species and their habitats (including identified wetland areas) was discussed in detail in section 9.4 of the BDAR. Additionally, impacts on wetlands of national and international importance (of which none were identified within the proposal study area) was also discussed in section 9.5.5 of the BDAR.

Further, the revised BDAR provides additional information in response to submissions 3, 7 and 39, with section 9.2.2 providing further discussion and assessment of indirect impacts of waterbirds. A fauna strike risk assessment has also been prepared (refer Appendix E–4 of the revised BDAR). A precautionary approach has been adopted for potential indirect operational impacts. In consultation with BCD of DPE, additional biodiversity offsets (over and above the biodiversity offsets required by the BAM for direct impacts) have been calculated for the following at risk species:

- *Botaurus poiciloptilus* (Australasian Bittern)
- *Grus rubicunda* (Brolga)
- *Haliaeetus leucogaster* (White-bellied Sea-Eagle)
- *Hieraaetus morphnoides* (Little Eagle)
- *Lophochroa leadbeateri* (Major Mitchell's Cockatoo)
- *Lophoictinia isura* (Square-tailed Kite)
- *Polytelis anthopeplus monarchoides* (Regent Parrot (eastern subspecies))
- *Polytelis swainsonii* (Superb Parrot).

With respect to the concern that the proposal would impact on wetland bird species and their habitats, in particular the wetland biodiversity values of Lake Cullivel and the lower Boree Creek and Brookong Creek floodplain these impacts were considered throughout the BDAR. With particular reference to the species listed, detailed assessments of significance for the Australian Painted Snipe, Sharp-tailed Sandpiper and Australasian Bittern each were undertaken as part of the preparation of the BDAR and included as Appendix D–1 (of the BDAR). For each of these species, the assessments of significance generally concluded that the proposal is considered unlikely to significantly impact these species as it is unlikely to substantially modify by means of fragmentation or destroy or isolate the important habitats (including local wetland areas) that may support local populations of these bird species.

Additionally, as discussed in the Amendment Report supporting this proposal, ongoing refinement of the proposed transmission line easement within the vicinity of Lake Cullivel has identified a more southern alignment which would locate the proposal further away from any potential areas of habitat for these species in the vicinity of Lake Cullivel.

4.1.8. Aboriginal heritage

4.1.8.1. Impact assessment approach

Submission ID number(s)

7, 39, 46

Summary of issues raised

Three submissions raised concern regarding the assessment approach undertaken in relation to Aboriginal heritage. Specific items of concern included:

- the condition of the ground surface at the time of some of the surveys (in particular around Lake Cullivel) which at the time of survey had been subject to recent rain. The submission therefore questioned the accuracy of the surveys undertaken in this area
- the fact that the survey did not extend outside the area of proposed impact to look at additional areas of potential Aboriginal heritage significance (noting specific reference to the Duckpond north of the proposed alignment near Lake Cullivel)
- one submission noted that there was no mention of contact sites or Aboriginal historical heritage in either technical report, stating that the potential for contact sites should be acknowledged. The submission noted, it could be expected that Aboriginal contact sites are found in pastoral locations as Aboriginal people were the mainstay of farming, living and working in the back stations of the region
- general concern regarding the two large and several smaller sections of the proposal alignment that did not have archaeological survey conducted prior to public exhibition of the EIS.

Response

Transgrid acknowledge the importance of inclusion of the Traditional Owners of the land as part of the ongoing development of the proposal.

With respect to the comment that raised concern regarding the condition of the ground surface at the time of some of the surveys, the effectiveness of the archaeological field survey was discussed in detail in section 7.3 of the *Aboriginal Cultural Heritage Assessment* (Navin Officer, 2021a). While it is noted that visibility in some sections of the alignment, including those within the vicinity of Lake Cullivel, was not ideal, the inspections undertaken were considered acceptable to provide a visual inspection of the area of the area sufficient to allow for assessment of those areas. The inspections were suitable to provide a level of assessment that complied with appropriate Government guidelines.

With respect to the comment that raised concern regarding the survey not extending outside the proposed area of impact, the survey area that was subject to field inspection focused on the areas that would be potentially impacted by the proposal. This area was defined as an approximately 100 metre wide corridor along the length of the proposal including areas for ancillary construction elements such as break and winch sites and identified access tracks outside of the easement and proposed camp locations. The desktop assessment was undertaken to understand the Aboriginal heritage context of the area, and considered a wider area investigation.

With respect to the comment that noted that there was no mention of contact sites or Aboriginal historical heritage in the technical reports, Transgrid agree that the post contact period has potential to result in archaeological sites of importance to Aboriginal people. With respect to the proposal and assessments presented with the EIS:

- in section 6 of the *Aboriginal Cultural Heritage Assessment* (Navin, 2021a), this section is prefaced by 'Summaries of ethnohistoric texts and material evidence from the archaeological record are provided to contextualise the lives of Aboriginal peoples in the Pre- and post-contact landscapes.' Additionally, there are multiple references throughout the report to post contact historical activity that demonstrate the awareness that post contact heritage is important
- the *Historic Heritage Assessment* (Navin, 2021b) acknowledged Yanga as having pre contact, contact and post contact heritage values (refer to section 6.2 of Technical paper 3)
- for the most part, the alignment of the proposal avoids the more significant parts of the old properties. For example at Brookong, the assessment of potential impacts initially looked at this area as having potentially contact values so was designed to avoid this area
- it is likely that some of the scarred trees encountered (which are generally outside of the proposed construction zone) would date to the post contact period and may be an indication that other evidence could be found nearby (refer to section 7.2.2 of the *Revised Aboriginal Cultural Heritage Assessment* (Navin Officer, 2022) (Supplementary technical assessment 2).

Submissions raised concerns regarding sections of the alignment that did not have heritage survey conducted prior to public exhibition of the EIS. Due to land holder access restrictions, certain areas of the alignment (approximately 114 kilometres) could not be surveyed during the preparation of the *Aboriginal Cultural Heritage Assessment Report (ACHAR)* (Navin Officer, 2021a) and EIS. Since the preparation of these reports, 96 kilometres of the 114 kilometres was surveyed and the outcomes of this survey is documented in the Revised ACHAR (refer to Supplementary technical assessment 2). Only 18 kilometres remains to be surveyed (or around three per cent of the total 540 kilometre length of the proposal)

The surveys in the final 18 kilometres have not been able to be completed due to ongoing land holder restrictions. As identified in section 3.3.1 of the Revised ACHAR, when access is granted to the remaining areas where no survey had been completed, then those sections would be subject to further assessment as committed to under mitigation measure AH3.

4.1.8.2. Impacts to Aboriginal heritage items

Submission ID number(s)

7, 8, 26, 32, 38, 42

Summary of issues raised

Six submissions objected to the proposal on the basis that it would have detrimental impacts to Aboriginal heritage along the proposal alignment, in particular potential impacts to:

- a number of Aboriginal sites including seven scar trees along the proposal alignment
- a Corroboree ground located to the north of the proposal alignment at the Duckpond near Lake Cullivel which had been identified by the respondent (noting this item is not noted on any formal heritage register).

Response

The potential for direct impacts to identified scarred trees has been minimised by the proposal's design as far as practicable. Scar trees may be potentially impacted by clearing during construction. This would depend on the height of the tree, and its location in relation to Clearance Area A or Clearance Area B. These clearance areas require trees of certain heights to be removed to allow safe operation of the transmission lines. As noted in section 10.1.1.1 of the EIS, impacts may or may not be direct for the identified scarred trees depending on final assessment of their height, and the vegetation clearance height required for their position relative to the final design of proposal infrastructure.

This is reflected in mitigation measure AH5, which states:

Harm to scarred trees (including those of cultural significance) would be avoided where possible through design development and construction planning. Scarred trees must only be removed to directly facilitate construction of permanent infrastructure and/or to meet Vegetation Clearance Requirements at Maximum Line Operating Conditions (Transgrid, 2003).

If the removal of a scarred tree cannot be avoided, the tree would be subject to 3D scanning, followed by salvage of the scarred trunk. The results of this assessment would be reported on in addendum reports.

Reports would be provided to RAPs for comment and to Heritage NSW.

No direct impacts from the construction or operation of the proposal are expected to occur to the respondent-identified Corroboree ground located to the north of the proposal alignment near Lake Cullivel. In addition, as identified in Section 4.1.3.2, ongoing design refinement has resulted in a refined alignment for the transmission line easement within the vicinity of Lake Cullivel. The refined alignment would realign around 13 kilometres of the proposed transmission line easement between the western side of Lake Cullivel and Urana–Lockhart Road. At its greater deviation, the refined alignment would be around one kilometre further south when compared to the EIS alignment.

The refined alignment would also move the further away from the area identified as a Corroboree ground, further reducing the potential for any impacts to this area. Further detail regarding the Lake Cullivel alignment changes is provided in the Amendment Report for the proposal.

4.1.9. Visual and landscape

4.1.9.1. Impact assessment approach

Submission ID number(s)

29, 37

Summary of issues raised

Two submissions noted concern with the impact assessment approach and methodology used for the *Landscape Character and Visual Impact Assessment* (Iris, 2021). In particular:

- concern was raised regarding the generally desktop nature of the impact assessment and the focus of the assessment on impacts to residential properties
- one submission argued that a large amount of time is spent working away from the residence working across the whole property. The resulting impact should therefore be assessed across the whole of the property not just from the residence within the property
- objection to the identified lower ratings for visual impacts where an existing transmission line is already located adjacent to where the proposal would be located
- objection to the proposed mitigation measures to include screening, which within the Hay Plains region is not consistent with the existing landscape character.

One submission also stated that in table 13–12 of the EIS Viewpoint 16 was not listed even though it is marked on the map. This viewpoint was noted as being very close to the respondent's property entry and requested additional information on this viewpoint.

Response

The *Landscape character and visual assessment* (LCVIA) was (Iris Visual Planning and Design, 2021) undertaken in accordance with the requirements of the SEARs. This involved a detailed assessment of the likely visual impacts of all components of the proposal including the transmission lines, substations, and any other ancillary infrastructure, including the proposed construction compound and accommodation camps. The assessment was completed in accordance with *The Guidance Note for Landscape and Visual Assessment* (Australian Institute of Landscape Architects Queensland, 2018); *Guideline for Landscape Character and Visual Impact Assessment EIA–N04* (Transport for NSW, 2020) and *The Guidelines for Landscape and Visual Impact Assessment* (Landscape Institute and Institute of Environmental Management & Assessment).

The study method was outlined in section 3 of the LCVIA (Technical paper 5) and included a range of desktop analyses and field work. Detailed methodologies for each part of the assessment were included in the report. The proposal was assessed from a both a visual catchment perspective as well as from specific viewpoints at surrounding dwellings and public viewpoints. A consideration of the existing environment was also undertaken to establish the existing landscape and visual conditions of the study area.

As described in section 3.3.4 of the LVCIA, due to the scale of the proposal and number of potential sensitive receivers, the assessment was undertaken as a desktop analysis, and adopted a conservative approach to impact levels. The LCVIA noted that properties identified during the desktop assessment as having high or very high potential visual impacts would warrant further investigation during subsequent stages including engagement with land holders. The further investigations would identify the actual impact level and potential for mitigation of these impacts (as well as validate the residential status of the receiver,

noting that 12 of the 36 receivers were not residential dwellings but other structures such as sheds). This assessment has now been completed (including field validation undertaken in February 2022) and has been included as Supplementary technical assessment 4. This revised assessment identified that of the 36 high and one very high property impact rating identified in the EIS, only three properties would be considered to have a high visual impact as a result of the proposal (prior to implementing proposed mitigation measure LV5).

With respect to the concern that the impact assessment focused on residential dwelling impacts rather than considering the impacts across the whole of the property, it is acknowledged that these assessments can also be both a subjective and complex process. While it is understood that the proposal may be visible from locations across the affected and nearby rural properties, the guidance for visual impact assessment outlines approaches and tools for assessing the impact on views from dwellings. Generally, it is considered that the dwelling is a location of higher sensitivity, where views are more frequently seen and contribute to the amenity of living, rather than working, areas. The recently exhibited *Draft Large-Scale Solar Energy Guideline* (December 2021) and the *Wind Energy: Visual Assessment Bulletin* (December 2016), for example both refer to the identification of dwellings for view analysis and assessment.

With respect to the objection of providing lower ratings for visual impacts where an existing transmission line is already located, this rating is due to a combination of the factors that make up these impact ratings. The factors that are considered in determining ratings include the sensitivity of the view which takes into account the character of the existing area. This can include existing infrastructure present within the landscape. Factors also include the magnitude of the change. Where a powerline is located adjacent to an existing easement, this would typically result in a lower overall magnitude of change compared to a new greenfield alignment.

With respect to the potential visual impacts within the Hay Plains and proposed mitigation that could be applied to these areas, Transgrid would continue engaging with impacted land holders regarding impacts and mitigation. This would include identifying potential options to minimise the impacts of the proposal that would be suitable for the landscape character of the Hay Plains.

With respect to the concern raised regarding Viewpoint 16, this is a typographical error in the drafting of this table. The viewpoint current shown in Table 13–12 which states: *Viewpoint 14: View northeast from the Olympic Highway*, should state *Viewpoint 16: View northeast from the Olympic Highway*.

4.1.9.2. Visual impacts – operation

Submission ID number(s)

7, 20, 22, 24, 29

Summary of issues raised

Six submissions raised objections to the general visual impacts of the proposal noting that the infrastructure would have a detrimental impact on the existing rural landscape of the region. Specifically:

- four submissions objected to the proposal based on its potentially significant visual impacts. In particular, concerns were raised regarding the visual impacts that the proposal would have on the existing landscapes within the vicinity of Lake Cullivel, Lockhart and towards Galore Hill which were noted as local visual features

- one submission requested that the proposed alignment should be moved away from Lake Cullivel in order to minimise impacts, with reference to the changes that were made to the alignment to avoid impacts to the areas surrounding Lockhart
- one submission also raised concern regarding the increased visual impact that the change to a 500kV tower design would have
- one submission also stated that the proposal should mandate that the new towers should line up with the existing towers (where the alignment would be parallel to an existing section of transmission line).

Response

With respect to the objections to the proposal based on the potentially significant visual impacts, the assessment included an independent assessment by a suitably qualified visual impact specialist. This assessment of the potential visual impacts was completed in accordance with the SEARs and relevant guidelines. A full copy of the LCVIA was provided as Technical paper 5 to the EIS. Chapter 13 of the EIS provides a summary of the existing environment, methods and results of the LCVIA, as well as steps to be taken to mitigate potential impacts to nearby sensitive receptors and the environment.

Refined alignments for the following sections have been identified, in part, to reduce the potential visual impacts of these sections of the alignment on impacted and adjacent properties:

- a revised alignment to the south of Lake Cullivel. This alignment would move the proposed transmission line easement around 1,080 metres further to the south away from Lake Cullivel.
- a revised alignment at Lockhart which would change the angle and alignment of the transmission line as it passes to the south of the township of Lockhart, reducing visual impacts for the properties to the south of the proposal.

Further discussion of these refined alignments is provided in the Amendment Report supporting this proposal.

With respect to the concern regarding the increased visual impact that the change to a 500kV tower design would have, it is acknowledged that the proposed transmission line towers required for the 500kV would require slightly bulkier towers than the 330kV component of the proposal. The assessment for both types of towers has assumed the potential worst case (up to 65 metres for each) and so would therefore generally be expected to have similar overall impacts within the broader landscape environment. This tower design is required to allow for future-proofing of this section of the transmission line to allow for future operation between Dinawan and Wagga Wagga to occur at 500kV.

With respect to the request to align new transmission line towers areas where an existing transmission line easement is present, this is not considered feasible given the different voltages between the existing (220kV) and proposed (330kV or 500kV) transmission lines. The different voltages result in different span lengths between the respective transmission line towers. More closely aligning the proposed transmission line towers would significantly increase the number of towers required for the proposal, which would have a flow on impact to the disturbance at ground level, both in terms of environmental impact and in terms of the amount of land required for transmission line tower installation.

4.1.10. Land use and property

4.1.10.1. Compensation for property acquisition and property valuations

Submission ID number(s)

20, 24, 28 29, 37

Summary of issues raised

Five submissions raised concern regarding the compensation and property valuations process for the acquisition or easement creation requirements for the proposal. In particular, the submissions raised objections to:

- the value of the compensation to be provided against the impacts the proposal would have where a property would be directly affected by the proposal, including loss of agricultural land (and therefore future income etc) and visual and amenity impacts
- the proposal for no compensation to be provided to properties that would be located adjacent to or in close proximity to the easement and which would not be line affected by the proposal (i.e. would not be physically required to accommodate the proposal easement), but would be impacted in alternative ways such as visual impacts of the transmission line
- the overall valuation process including the rushed process for land valuations, the property valuation process and ability of land holders to seek their own independent valuations, and the lack of compensation to cover lost income or property values as a result of the proposal.

One submission also stated that the compulsory acquisition timeline for their property should be reset due to the time period between property valuations being undertaken.

Response

As discussed in section 5.5.2 of the EIS, any land or easements acquired for the proposal would be undertaken in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991* (Land Acquisition Act).

Due to the critical nature of supplying electricity across NSW, Transgrid must acquire an interest, registered on title, over the land that will host the transmission infrastructure. This interest is usually in the form of an easement, which imposes rights and obligations on both Transgrid and the land holder. Transgrid is required to negotiate the acquisition of the easement with directly affected land holders and in accordance with the *Land Acquisition Act 1991*, which amongst other things, requires Transgrid to negotiate the terms of the easement and compensation payable for that easement interest. More information on easements and the compensation process is detailed in Transgrid's *Land holder Easement Compensation Guide*. The Land Acquisition Act does not provide for compensation to adjacent land holders, on the basis that no property interest is being acquired.

Throughout the development of the proposal, Transgrid has encouraged affected property owners to engage the services of independent professional advisors including legal and property valuation advisers who are best placed to assess the compensation with regard to the relevant matters outlined in Section 55 of the Land Acquisition Act and any other matters that are relevant to the specific property holding (i.e. lost productivity). This affords the affected property owner the opportunity to obtain an independent opinion as to the value of compensation attributable to the easement being acquired. With reference to initial offers of compensation, it is Transgrid's position that this not only triggered the section 10A provisions of the Land

Acquisition Act, but were the starting point for negotiations. Transgrid will continue to negotiate the acquisition of easement interests and encourage property owners to submit a counter offer(s) on which further negotiations can be based.

With respect to the submission that stated that the compulsory acquisition timeline for their property should be reset, Transgrid is required to negotiate the acquisition of the easement with directly affected land holders and in accordance with the Land Acquisition Act. Section 10A of this Act requires Transgrid to negotiate the acquisition of easement interests for at least six months before any compulsory process can commence. In most circumstances, Transgrid has been in negotiation with affected property owners for not less than eight months and in some cases for in excess of 18 months, during which time negotiations over a range of matters have progressed. Transgrid is unaware of any reason why the current negotiation period should be restarted. Updated valuations have been completed for all properties to reflect recent changes in property values and the refinement of the proposal and it remains Transgrid's overwhelming preference to negotiate the acquisition of easement interests.

4.1.10.2. Agricultural impact assessment

Submission ID number(s)

13

Summary of issues raised

One submission also questioned the approach undertaken in the *Agricultural impact assessment* (Tremain Ivey Advisory, 2021) by only undertaking site inspections at six properties and providing a very generalist representation of all the impacted land holders for the eastern section of the proposal.

The submission also criticised that the consideration of impacts only extended to the new transmission line and not the cumulative impacts where the proposal would be located parallel to an existing transmission line, arguing that the resultant impact assessed should be doubled when considering impacts to agricultural land in these instances.

Response

As described in Section 3.1 of the *Agricultural impact assessment*, consultation was undertaken with the owners of six properties affected by the proposal. The properties were chosen to cover a range of geographical locations, proposal impacts, and types of agricultural enterprises within the agricultural study area. These properties included:

- two properties consisting of large sheep grazing properties in the Moulamein and Keri Keri district
- two properties located near Lockhart consisting of a mixed livestock and dryland cropping properties
- two properties located in The Rock – Milbrulong district consisting of a both large and small mixed livestock and dryland cropping properties.

Consultations with these land holders took the form of general discussions on the nature of the agricultural enterprises conducted on each property and specific discussions on perceived impacts of the proposal. The consultations also involved an inspection of the affected parts of the land holders' properties.

Some additional properties were also viewed to some extent from adjacent public roadways and adjacent private properties as part of the field investigations. For properties that were not inspected, a desktop assessment was completed using information such as vegetation cover, type and locations of horticultural crops, extent of cleared areas and type of cropping was gained through examination of satellite imagery and public GIS datasets. Overall, this information, when combined with information gained from the inspections of neighbouring properties and face-to-face consultations with neighbouring land holders, was considered adequate to provide a suitable basis for the assessment of potential agricultural impacts associated with the proposal.

With respect to the concern raised regarding potential cumulative impacts associated with the existing powerlines, as discussed in Section 4.1.10.3, the overall impacts to agricultural land as a result of the proposal is considered to be relatively minimal, and therefore the potential for ongoing cumulative impacts associated with the proposal would be generally minimal. Given a majority of the existing easement is also able to be used for a range of farming activities, the overall cumulative impact is also considered to be minimal.

4.1.10.3. Impact to farming activities – general

Submission ID number(s)

1, 4, 5, 6, 8, 10, 11, 14, 18, 19, 21, 23, 27, 31, 32, 34, 38, 41, 42, 43

Summary of issues raised

A number of submissions raised concern or objected to the proposal on the basis that it would detrimentally impact on agricultural land and therefore decrease the agricultural value and production of this land. Some submissions noted that the impact on agricultural land could be in the thousands of square kilometres.

[It is be noted that while some of the submissions were raising this issue against the proposal, a number of the submissions also made the assumption that this impact would be a result of the proposal either consisting of or contributing to the future enabling of solar farm development(s), not just the direct impacts of the proposed transmission line and Dinawan 330kV substation which is the subject of the current proposal.]

Response

It is acknowledged that the transmission line easement for the proposal would impact on areas of existing farmland, as outlined in section 12.3.3 of the EIS (and *Technical paper 4 – Agricultural impact assessment*), which indicated that the types of agricultural uses within this region are dominated by a mix of sheep grazing for wool and meat, cattle grazing and dryland cropping with some irrigated cropping. Additionally the EIS acknowledged that there would be some movement and activity restrictions for surrounding agricultural activities, such as ongoing cropping directly at the transmission line tower bases or potential restriction of the use of some tall farming equipment directly within the transmission line easement.

Given the small footprint of each tower at any given location along the alignment (unlike what was noted in a number of submissions which understood the proposal to consist of a large scale solar farm that would make land unavailable for agriculture), the potential impact area of the final transmission line easement would represent a very small percentage of the total area of agricultural holdings impacted by the proposal. Therefore, it was concluded that the impacts of the proposal on the overall agricultural productivity of the region would be minimal. The proposal would also not cause significant fragmentation or severance of agricultural land or result in significant disruption to agricultural operations as many farming operations would generally be able to continue within a majority of the final transmission line easement.

Section 12.5.2 of the EIS also noted that the land within an easement, and immediately next to the proposal could continue to be used for grazing during operation. However, it is acknowledged that the proposal has the potential to reduce the land available within the easement for some cropping and horticultural land uses where taller crops could grow within required clearance areas for the transmission line. These land uses comprise a small portion of the proposal area and the area of land affected would be minimised where possible through design refinement.

The current proposal has been developed in consultation with impacted land holders, including discussion regarding areas of important agricultural land which should be avoided. Where possible, the proposal has sought to take into consideration these land holder requests. To further minimise potential impacts as far as practicable, the final design and arrangement would continue be developed in consultation with existing land holders in order to minimise ongoing disruption to agricultural activities (as identified in mitigation measures LP3 and LP4). Additionally, wherever possible, the final design would be developed in order to minimise impacts to other agricultural infrastructure such as existing irrigation structures.

Further discussion regarding the overall strategic need and justification for the proposal, and how it will relate to potential facilitation of renewable energy projects in the broad south–west region (which themselves may result in impacts on additional areas of agricultural land), is provided in Section 4.1.2 and Section 4.1.23 of this Submissions Report.

4.1.10.4. Impact to farming activities – agricultural uses

Submission ID number(s)

20, 22, 25

Summary of issues raised

In addition to the general concerns relating to impacts on agricultural land (refer to Section 4.1.10.3) concern was raised in three submissions specifically regarding the potential impacts that the proposal would have on the operation of the existing farming activities.

Specific concern was raised regarding the ability to undertake aerial spray operations using crop spraying planes. The use of other farm equipment within the vicinity of the transmission line and/or transmission line easement was also noted.

Response

Section 12.5 of the EIS acknowledged that there would be some movement and activity restrictions for surrounding agricultural activities such as:

- the method and/or area for certain cropping and horticultural activities (including cultivation, crop establishment, spraying travel patterns and use of wide farming equipment) may need to be adjusted to avoid the transmission line structures and easement, which may reduce efficiency
- equipment used within the transmission line easements would be restricted to a height of 4.3 metres to minimise the risk of collision or close approach with the transmission lines, which may prevent use of certain equipment within the easement such as large grain harvesters and grain augurs
- aerial activities, such as aerial spreading/spraying of fertilisers and use of drones for mustering or monitoring crops, would not be allowed within 30 metres of the transmission lines to minimise risk of collisions.

These restrictions would be limited to the easement of the transmission line. Areas outside of the easement would not be affected by any additional restrictions. The design of the proposal has sought to provide an alignment that would minimise these potential impacts by selecting an alignment that is located adjacent to existing infrastructure features (as far as possible) such as transmission lines and roadways so as to minimise the fragmentation across broader fields.

It is acknowledged that the efficiency and effectiveness of aerial agriculture operations would have the potential to decline as a result of the proposal as current application procedures would need to be amended to compensate for the presence of the new transmission line easement. This would primarily impact affected properties in the greenfield section of the proposal between the proposed Dinawan 330kV substation and Lockhart. Mitigation measure LP4 provides for impacted land holders that utilise aerial farming operations to identify appropriate mitigation arrangements (where feasible). This could include the installation of aerial warning markers on the transmission line.

4.1.11. Hazards and risks

4.1.11.1. Bushfire impacts – operation

Submission ID number(s)

4, 8, 21, 41, 42

Summary of issues raised

Five submissions raised concern regarding the potential for the operation of the proposal to increase the risk of bushfires and the resultant risk that this would have to local communities.

Response

As noted in section 20.5 of the EIS, bushfire hazards were identified and considered as part of the impact assessment. The assessment identified a range of ignition sources which could be attributable to high voltage transmission lines and associated equipment including:

- trees or tree branches falling/touching conductors
- bird strikes
- equipment malfunction
- arc to ground and arc between conductors

- heat causing power lines to sag and connect with the ground/vegetation
- lightning strikes
- failure of power line including breakage of wires, poles, cross arms, insulators and associated equipment.

The assessment concluded that incidence of these ignition sources from high voltage transmission lines would be rare given the height of the towers and easement clearing requirements. The overall bushfire risk from the transmission lines infrastructure to the surrounding environment was considered to be moderate (primarily due to prolonged drought conditions).

At each substation site, the extent of the proposed clearance between the substation equipment and the compound fences, combined with the gravel ground cover within the site was considered to largely mitigate the risk of an ignition within the substation sites spreading to any surrounding vegetation. The bushfire risk from the operation of these substations is considered to be low to moderate.

In order to mitigate the risk of bushfire impacts to, or from, the new infrastructure as far as practicable, mitigation measure HR21 requires the proposal to be designed, operated and maintained in accordance with Transgrid's Bushfire Risk Management Plan. This includes requirements to undertake periodic fuel load reduction, management of asset protection zones and regular inspections of infrastructure.

4.1.11.2. Electric and magnetic field impacts

Submission ID number(s)

7, 8, 13, 22, 29, 31, 38, 39

Summary of issues raised

Seven submissions raised concern regarding the EMF impacts associated with the proposal on residents and livestock, citing that there is no definitive scientific evidence one way or the other as to the extent of radiation effect nor of the resultant damage or instigation of disease. One submission also questioned the limits of exposure that Transgrid were proposing (9.1kV/m) which was argued as being nearly double the International Commissions Reference Level.

One submission suggested that Transgrid provide EMF level monitoring stations at fixed locations along the alignment to estimate EMF levels and to record what levels of EMF are being emitted from the transmission line. It was argued that this information should be made available to the public.

One of the submissions recommended that to mitigate the potential impacts of EMF that the proposal should be installed as underground cabling.

One submission also stated that there was no adequate compensation proposed to communities affected by electromagnetic effects of the proposal.

Response

Section 20.2.2.3 of the EIS and Technical paper 13 discussed the potential impacts of EMF from transmission lines and the potential human health impacts they may have. As detailed in the EIS, the impact of EMF exposure on human health has been researched worldwide over decades. Leading health bodies such as the World Health Organisation, the US National Institute of Environmental and Health Sciences and the UK National Radiological Protection Board have evaluated the research to assess the likelihood of health effects associated with exposure to EMF.

In Australia, the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) has advised that:

- the scientific evidence does not establish that exposure to EMF found around the home, the office or near powerlines causes health effects
- there is no established evidence that the exposure to magnetic fields from powerlines, substations, transformers or other electrical sources, regardless of the proximity, causes any health effects.

The World Health Organisation (WHO) has also advised that *"...current evidence does not confirm the existence of any health consequence from exposure to low level electromagnetic fields."*

ARPANSA has adopted the ICNIRP guidelines for limiting exposure to EMF, published in 2010. The proposal complies with the ICNIRP guidelines.

With respect to the specific EMF exposure limits adopted for the proposal, these were presented and described in section 20.2.2.3 of the EIS and section 2.3 and 2.4 of Technical paper 13. The International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines set fundamental limits on electrical fields induced in the body by EMF. The limits which are expressed in terms of induced electric fields in the body are termed 'basic restrictions'.

Induced electric fields in the body are difficult to measure or calculate, so the guidelines also provide reference levels. Reference levels presented were in terms of the more easily measured ambient electric and magnetic fields that give rise to the induced internal electric fields. Provided field strengths are below the reference levels, the resulting induced electric fields would be within the basic restriction. If exposures exceed the reference level, this does not necessarily mean that the basic restriction is also exceeded, however, a more comprehensive analysis is required in order to verify compliance with the basic restrictions.

Transgrid has undertaken dosimetric analyses of the internal electric fields to evaluate compliance with the ICNIRP basic restrictions for electric fields. This analysis has confirmed the electric field limit of 9.1kV/m applied for the proposal meets the ICNIRP general public basic restriction for electric fields.

The magnetic field exposure limit of 2000mG determined for the proposal is the reference level from the ICNIRP Guidelines, which have been adopted by ARPANSA for limiting exposure to EMF. As detailed in section 20.5.3 of the EIS, the calculated magnetic field levels are well below the limit of 2000mG.

4.1.11.3. General hazards and risks – operation

Submission ID number(s)

22, 38, 49

Summary of issues raised

Three submissions raised general concern regarding the potential hazards associated with the proposed transmission line including:

- the risk to farmers when using machinery under high voltage lines
- the proposal would be potentially dangerous during heavy storms
- the potential for aerial agricultural pilots to strike the transmissions lines once operational.

Response

As described in Section 4.1.10.4 of this report, some restrictions on the heights of specific machinery within the new transmission line easement would apply. Where properly followed by land holders, these restrictions would minimise the potential risk to farmers when using machinery under high voltage lines.

Concern regarding the potential hazard associated with the proposal during storm events, transmission lines, including the proposal, are designed to be suitable for operation in a range of weather conditions include heavy rain and from lightning strikes.

As described in Section 4.1.10.4 of this report, some restrictions on aerial activities, such as aerial spreading/spraying of fertilisers and use of drones for mustering or monitoring crops, would apply. This includes the prohibition of these activities within 30 metres of the transmission lines to minimise risk of collisions. Where properly followed by land holders, these restrictions would minimise the potential risk to farmers when operating under or near high voltage lines. In addition, and in accordance with CASA requirements (refer to Section 4.2.2 of this report), the location/route of the proposal would be reported to Airservices Australia to ensure that the line is represented on future aeronautical charts for the benefit of pilots conducting low level operations.

4.1.12. Surface water and flooding

4.1.12.1. Impact assessment approach

Submission ID number(s)

7, 39

Summary of issues raised

Two submissions noted that the references to the location of Halliday's Cut within the EIS and its use as a reference to where the transmission line is proposed to be located is incorrect. The submissions therefore questioned the assessment approach undertaken for the surface water and flooding assessment, and therefore the accuracy of this assessment. The respondents noted that Halliday's Cut is actually a drain that runs through the bed of the Boree Creek, not part of Lake Cullivel as it is stated in the EIS.

Additionally, the respondents noted that it has historical significance and therefore should not be impacted by the proposed transmission line.

Response

The information available to identify the watercourses did not indicate that Halliday's Cut was a drain cut into the bed of Boree Creek. Information on Boree Creek and Halliday's Cut was limited and the proposal has relied upon publicly available information and information available from the NSW Government spatial data. In describing the location of impact to Halliday's Cut, the EIS used the nearby landmark of Lake Cullivel for reference because Halliday's Cut is approximately 18 kilometres in length, however the EIS did not indicate that Halliday's Cut was specifically part of Lake Cullivel but near it.

The history provided regarding the Halliday's Cut infrastructure is noted, however this structure is not a formal heritage item listed on any statutory registers. The proposal is not expected to impact on Halliday's Cut (and subsequently any heritage significance it may have).

4.1.12.2. Water quality impacts

Submission ID number(s)

7

Summary of issues raised

One submission raised concern regarding the potential effect the proposal would have on the water quality of Lake Cullivel and the wetlands, creeks and lakes associated with, or in the catchment of, this lake.

Response

Water quality impacts during construction would be most likely to occur through activities such as the removal of vegetation, stockpiling of material, establishment of main construction compounds and accommodation camps that increase impervious surfaces, and establishment of concrete batching plants. A majority of these activities are not proposed to occur within the vicinity of Lake Cullivel, with the main activities that have the potential to impact water quality in this area comprising the construction of footings and foundation works for the new transmission line towers including boring and/or excavation and use of access tracks. The areas of direct impact associated with these activities would be small, resulting in only minor risks for impacts such as sediment run-off that may affect water quality.

Additionally, section 16.5.3 of the EIS acknowledged that there would be potential for water quality impacts as a result of spills or litter generated from operation and infrequent maintenance activities along the transmission lines and at transmission line towers near waterways. However, provided correct operational procedures and safeguards are implemented, the residual likelihood of impacts would be very low.

All construction and operation impacts would be managed to ensure ground disturbance is minimised and managed and direct impacts to the waterbodies themselves and related hydrological processes are not expected to occur. This would include a water quality monitoring program that would be implemented during construction to establish baseline water quality conditions at perennial watercourses that the transmission lines would cross, and to facilitate monitoring of any changes in water quality that may be attributable to the proposal during construction (refer to mitigation measure HF4).

Furthermore, as discussed in Section 4.1.3.2, ongoing design refinement has resulted in a refined alignment for the transmission line easement within the vicinity of Lake Cullivel. The refined alignment would realign around 13 kilometres of the proposed transmission line easement between the western side of Lake Cullivel and Urana–Lockhart Road and would be up to around one kilometre further south when compared to the EIS alignment. This would further minimise the potential risk of potential impacts to the water quality of the lake during construction and operation of the proposal.

4.1.12.3. Flooding impacts

Submission ID number(s)

3, 7, 39, 49

Summary of issues raised

Four submissions raised concern regarding the information in the EIS with respect to potential flooding impacts. Areas of concern identified in the submissions predominantly related to the lack of potential flooding impacts identified in the vicinity of Lake Cullivel, the lower Boree Creek floodplain and the areas managed by the Coleambally Irrigation Co-operative.

Two of the submissions noted that in relation to the flooding depth in the study area, there was no information provided about the flooding depth in or around the Boree Creek, Brookong Creek, Lake Cullivel and associated wetlands.

Two of the submissions also questioned the references to 'watercourses' in the EIS as they did not take into account local non-perennial watercourses and depressions that fill with water following overland flood flow after a big rain.

Response

As described in section 16.3.3 of the EIS and section 3.2 of the *Hydrology and Flooding Impact Assessment* (WSP, 2021), a qualitative assessment was carried out to understand existing flood behaviour in the hydrology and flooding study area and to assess potential impacts to flooding, and flood risks to the proposal. This involved:

- a desktop review of historic flood information to understand the flood risks across the study area
- a review of the preliminary flood risk assessments for the study area completed by Beca which was carried out to quantify the flood risk for the proposal
- a qualitative assessment of potential impacts to, or from, flooding behaviour based on an understanding of the existing flooding environment, construction methodology and proposal design
- identifying mitigation and management measures to minimise flood risk to, or caused by, the proposal.

The assessment included consideration of the potential flooding impacts across the whole of the alignment. The assessment considered available desktop information, local council flood planning documents as well as specific land holder information regarding potential flood extents at Lake Cullivel (refer to section 4.4 of the *Hydrology and Flooding Impact Assessment*). Additionally, section 6.1 of the impact assessment specifically considered the historical data for Lake Cullivel and discussed that the proposal would lie within land that is subject to flooding.

As discussed in section 6.1 of the impact assessment, between six to 10 towers would be located in the flood prone area identified near Lake Cullivel. Footing connections at the base of each transmission line tower would be the only components of the tower within the floodplain. The footings would not significantly reduce floodplain storage or impede flow. Any impact of the towers on flood behaviour would be insignificant given the wide flat nature of the floodplain in the vicinity of Lake Cullivel and any minor, localised changes in flood levels and velocities would dissipate within 50 metres of the tower footing.

With respect to the comment regarding presentation of flooding depth information, this information was presented as Figure 4-8 of the *Hydrology and Flooding Impact Assessment* which included a series of maps showing potential flooding depths ranging from one to five metres; five to 10 metres; 10 to 20 metres; and greater than 30 metres. These maps included mapping of potential flood depths within the vicinity of Lake Cullivel. For clarification, it is acknowledged that the reproduction of these maps in the EIS (figure series 16–2), included the wrong map sheet for the Lake Cullivel to Wagga Wagga section (Sheet 5 of 5), however the correct map was included in Technical paper 8.

Regarding the submissions that questioned if local non-perennial watercourses and local depressions had been considered in the EIS, these were considered throughout the *Hydrology and Flooding Impact Assessment* and were typically referenced with the term overland flow paths. Consideration of these land features were discussed in both the flooding and geomorphology sections of the assessment. It is also acknowledged that watercourses as defined by NSW state legislation (including *Water Management Act 2000*) do not always include consideration of local minor overland flow paths. The finalisation of the proposal design at substations would take into account any existing overland flow paths and make allowance to maintain the conveyance of upstream catchments through these areas and to not materially worsen flood impacts downstream on property and infrastructure. This has been reflected in amendments to mitigation measure HF1 (refer to Appendix B of this report).

4.1.13. Groundwater

4.1.13.1. Impact assessment approach

Submission ID number(s)

39

Summary of issues raised

One submission raised concern that the design for the transmission line alignment presented in the EIS did not adequately take into account the mapped areas of Aquatic Groundwater Dependant Ecosystems (GDEs) and High Potential Aquatic GDEs within the vicinity of Lake Cullivel and other surrounding waterways. The submission also noted that the technical paper for groundwater impact assessment failed to adequately address this issue and the detrimental effects the proposal would have on the aquatic areas around Lake Cullivel, Boree Creek and Brookong Creek.

Response

The Groundwater Dependant Ecosystem (GDE) search was conducted by:

- reviewing the relevant water sharing plan documents and their additional appendices that list and graphically display identified high priority GDEs
- searching GDE data downloaded from the NGIS database (BOM, 2021b) which was considered and graphically presented for the groundwater study area
- searching the Department of Agriculture, Water and the Environment (2021) Protected Matters Search Tool was conducted to identify any Ramsar wetlands within 10 kilometres of the construction impact footprint.

Based on this information, section 4.7.5.2 of the technical report listed the GDEs with high potential for groundwater interaction within the groundwater study area based on the BOM, 2021b data. This included identification of Lake Cullivel and other surrounding waterways as high potential GDEs.

Overall, the proposed methodology for the construction of the proposal would require limited ground intrusion or excavation works, including in the areas around Lake Cullivel, Boree Creek and Brookong Creek. In these areas, the key intrusion below ground level would consist of piling works to provide base supports for each tower. This would be undertaken typically using a bored pile/cast with concrete in-situ methodology where it is anticipated the works would have the potential to intersect the groundwater table. This method would result in minimal water being removed from the top of the concrete, as required. The alternative methodology of using driven or screw piles would also not result in dewatering. Overall, the groundwater assessment concluded that the risk of impact to altering groundwater levels (and therefore potentially impacting any GDEs within the vicinity of the works) was low as any groundwater being removed during the piling transmission line tower foundation process would be minimal (if any). Additionally, no blasting works are proposed in this area that would have the potential to impact on any local GDEs.

Furthermore, as discussed in Section 4.1.3.2, ongoing design refinement has resulted in a refined alignment for the transmission line easement within the vicinity of Lake Cullivel. The refined alignment would realign around 13 kilometres of the proposed transmission line easement between the western side of Lake Cullivel and Urana–Lockhart Road and would be up to around one kilometre further south when compared to the EIS alignment. This would further minimise the potential risk of any potential impacts to groundwater within the vicinity of the lake during construction and operation of the proposal.

4.1.14. Soils and contamination

4.1.14.1. Contamination impact of proposal

Submission ID number(s)

6, 8, 10, 11, 14, 15, 16, 25, 27, 34

Summary of issues raised

A number of submission raised general concern regarding the potential for contamination of agricultural land and the potential clean up requirements that would be required as a result of the proposal. Some of the submissions also raised concern regarding the cost that remediation of the land at the end of the operational lifespan would incur and who would be responsible for that cost.

[It is noted that a majority of the responses raised this concern against the development of solar farms, wind farms, and other general renewable energy projects and concerns specifically relating to contamination from photovoltaic cells, rather than the current transmission proposal which is the subject of this approval].

Response

The proposal is not expected to generate any substantial contamination that would impact on existing agricultural land.

Potential contamination impacts associated with the proposal were considered in Chapter 21 of the EIS. During construction, the key potential impacts to result in contamination would predominantly include accidental leaks and spills from the storage of fuels and chemicals and refuelling and other maintenance activities undertaken on plant and equipment.

Operation of the proposal would not require any additional disturbance of the ground, and as such the potential for exposure to previously unidentified areas of contamination is considered to be negligible. It is not anticipated that the proposed towers would result in any ongoing contamination during operation. Additionally, spill containment facilities (such as bunded containers, designated fill points, and spill kits) would be used on maintenance work sites and at the proposed Dinawan and Wagga Wagga substations.

The proposal is anticipated to have a long operational lifespan therefore remediation requirements (if any) are not yet considered to be necessary. However, should any contamination incidents occur during the construction or operation of the proposal (such as an incidental spills from fuels, diesel, oils etc.), environmental spill kits would be used to remediate the area as required (as identified in existing mitigation measure SCG12). The cost of any remediation would be at the cost of Transgrid.

4.1.15. Noise and vibration

4.1.15.1. Construction noise impacts

Submission ID number(s)

29

Summary of issues raised

The submission raised concern that the noise and vehicle movements that would occur during construction would impact on livestock and would affect where they can graze, noting that it was expected that livestock would not graze within at least a kilometre of the construction area (leading to limiting the locations they can access food and water points within that distance).

Response

As described in section 6.3 of the EIS, construction works are planned to occur intermittently at each transmission line tower site with the construction occurring in stages throughout the construction program. Noise impacts at discrete sensitive receivers would only be of short-term nature and continue in a transitory manner along the length of the alignment.

Based on the indicative duration of works at the proposed structures along the transmission line corridor, it is expected that each work stage would generally be limited to less than one week. This would include periods of no activity (i.e. respite periods) between each stage of work. As such, impacts would not occur throughout the full duration of construction program. The break periods are expected to vary across the length of the alignment and would also depend on the phase of the construction at any one time. This demonstrates that the localised construction noise impact would generally be limited in their exposure time and that this reduced time would be expected to result in minimal impacts to livestock during construction.

Procedures would be developed in consultation with affected land holders to manage the potential impacts or conflicts between livestock and construction, including impacts from noise intensive works (mitigation measure LP6). This would include the management of noise intensive activities during sensitive periods within the livestock production cycle (such as lambing) and movement of stock away from potential stressors created by construction activities. The latter would need to consider appropriate access to feed and water.

4.1.15.2. Operational noise impacts

Submission ID number(s)

22, 24

Summary of issues raised

Two submissions questioned whether the proposal would be noisy and whether additional noise would be generated by wind passing through the transmission tower steel structures.

Response

As described in section 18.5 of the EIS, during operation, the transmission lines may generate some audible noise associated with accumulation of pollution and/or water droplets on the conductor surface of the transmission lines, which can result in corona discharge noise. This corona discharge noise is more prominent during wet weather (rain, mist or fog) and often sounds like a 'crackling noise'. In fair weather conditions, no sensitive receivers were identified as experiencing audible noise impacts above the relevant criteria. Of those identified as potentially being impacted during the associated weather conditions, up to 23 receivers were identified as potentially exceeding operational criteria as a result of coronal noise (Pre-mitigation) with a majority of these receivers (12) only predicted to experience a negligible significance level noise impact. The audible noise risk would generally be limited to properties within around 360 metres of the proposed transmission line. Outside of this, range, it is not expected that nearby receivers would experience any operational noise impacts from the proposal.

It is not expected that noise generated by wind passing through the transmission tower steel structures would result in substantial impacts during operation.

4.1.16. Social

4.1.16.1. Impact assessment approach

Submission ID number(s)

7

Summary of issues raised

One submission raised objection to the assessment of social impacts as presented in the EIS, noting that they disagreed with the rating of minor social impacts identified for the area within the vicinity of Lake Cullivel.

Response

The impact assessments presented were designed to provide an assessment of overall impacts to regions along the, and not focus on specific properties along the alignment.

The *Social Impact Assessment* (WSP, 2021) (Technical paper 6) was undertaken by a team of suitably qualified specialists. The method used for assessing and providing ratings of the potential social impacts of the proposal was undertaken in accordance with the *Social Impact Assessment Guideline – for State Significant Projects* (the SIA Guideline) (DPIE, 2021) which provides guidelines for the social impact assessment to identify, predict and evaluate the likely social impacts that could arise from the proposal and the response to each of the impacts. The assessment included consideration of a range of factors including potential impacts to the way of life; community; accessibility; culture; health and wellbeing and livelihoods.

The impacts identified in Chapter 14 of the EIS are the impacts anticipated prior to mitigation, which is a requirement of the SIA Guideline. Adoption of mitigation measures would result in residual social (negative) impacts being predominately low, and no greater than moderate (refer to Table 8.1 of Technical paper 6).

Key mitigations identified to reduce or enhance social impacts would revolve around the procurement policies and considered engagement with communities to enable inclusion, upskilling and support throughout the proposal stages.

Furthermore, as discussed in Section 4.1.3.2, ongoing design refinement has resulted in a refined alignment for the transmission line easement within the vicinity of Lake Cullivel. The refined alignment would realign around 13 kilometres of the proposed transmission line easement between the western side of Lake Cullivel and Urana–Lockhart Road and would be up to around one kilometre further south when compared to the EIS alignment. This would further minimise the potential risk of potential social impacts associated with activities or residences within the vicinity of the lake during construction and operation of the proposal.

4.1.16.2. Social impacts – construction

Submission ID number(s)

25

Summary of issues raised

The submission raised concern regarding the potential social impacts on local communities during construction of the proposal. It was acknowledged in the submission that while the construction phase would generate some employment, the respondent raised concern that there would be minimal local employment that benefits and that most jobs would be filled by out of area workers.

Response

Transgrid, and its nominated contractor, are committed to providing opportunities for encouraging the use of local employment for the construction of the proposal. As identified in section 15.4.1.2 of the EIS, the proposal has set a local workforce target of approximately 20 per cent (or around 100 jobs), with the remainder sourced from elsewhere in Australia or overseas (such as for specific specialist skills which are not readily available locally or within Australia).

The Local Business and Employment Strategy (mitigation measure SE3) would be prepared and implemented during construction of the proposal. This strategy would guide local opportunities during construction, and where possible, align with existing plans and strategies of regional study area LGAs, and Transgrid's Reconciliation Action Plan.

The strategy would be developed in consultation with the councils within the regional study area and would take into account current unemployment trends across the region. The strategy would include initiatives for:

- local supplier and labour procurement targets
- Aboriginal workforce and business participation
- training and upskilling programs for local labour force
- supporting the transition of the local workforce following the completion of construction.

4.1.16.3. Social impacts – operation

Submission ID number(s)

19

Summary of issues raised

The submission stated that the proposal would negatively impact the local towns and social communities along the alignment. *[It is noted that the response that raised this concern was potentially raised in relation to the respondent considering the proposal to be development of a solar farm, rather than the current transmission proposal which is the subject of this approval].*

Response

A range of social impacts, both positive and adverse, were identified in the EIS as being anticipated as a result of the proposed construction and operation of the proposal. While some (typically) temporary adverse impacts were identified, a range of potential benefits were identified for local towns and social communities along the alignment during both construction and operation including:

- during construction
 - opportunities for local and regional procurement of services and employment during construction (including opportunities with local Aboriginal communities), which has the ability to benefit the wider community. This would also include opportunities for local retail and food services in local towns in addition to procurements opportunities for elements such as materials
 - access to employment and training opportunities
 - economic benefit to land holders from easement compensation.
- during operation:
 - increased development occurring across the region and associated employment opportunities
 - opportunities for local communities to participate in the Community Partnership Program which would have the potential to improve the financial viability of local community services and facilities.

4.1.16.4. Mitigation and management

Submission ID number(s)

7

Summary of issues raised

The respondent noted that the ashes of past family members were located within an area to the north of the alignment known as the Duckpond.

Response

No impacts are expected to the north of the proposed transmission line easement at this location outside of the revised transmission line easement alignment to the south of Lake Cullivel and is not anticipated to impact on the area known as the Duckpond.

Notwithstanding, Transgrid would work with the respondent to ensure that sensitive areas (such as the area of scattered ashes) are avoided.

Furthermore, as discussed in Section 4.1.3.2, ongoing design refinement has resulted in a refined alignment for the transmission line easement within the vicinity of Lake Cullivel. The refined alignment would realign around 13 kilometres of the proposed transmission line easement between the western side of Lake Cullivel and Urana–Lockhart Road and would be up to around one kilometre further south when compared to the EIS alignment. This would further minimise the potential risk of any potential impacts of the proposal that may occur to this sensitive area.

4.1.17. Economic

4.1.17.1. Impacts to local businesses and agricultural operations

Submission ID number(s)

10, 13, 28, 29, 32

Summary of issues raised

Three submissions raised concern regarding the potential loss of income to land holders and the local economy as a result of the loss of agricultural land and the associated production values of these areas. One submission also noted that any impact to their agriculturally productive areas of land would affect their ability to continue to borrow funding from banks as working capital for their farming operations.

Two submissions also objected to the proposal, stating that it would result in a permanent and detrimental impact to their businesses. This impacts on a farm stay accommodation business within the Hay Plains region that would be adversely impacted by the change to the visual landscape.

Response

Transgrid's easement development guidelines state that land within the proposed transmission line easement can continue to be used for a wide variety of agricultural uses including grazing and cropping thereby minimising the potential loss of agricultural land and the associated production values of these areas. However, there would be a small reduction in the land available within the easement from the permanent footprint occupied by each individual transmission line tower. This is discussed further in Section 4.1.10.2 of this report.

Transgrid would seek to further minimise the areas of land affected where possible through design refinement and consultation with individual land holders regarding elements such as the micro-siting of transmission line structures in order to minimise impacts to existing agricultural operations.

With respect to the potential impact of the proposal on the farm stay accommodation business, Transgrid would seek to work with the affected business owner to identify potential options to minimise the potential impacts of the proposal as part of the ongoing finalisation of the design of the proposal.

4.1.17.2. Impact assessment method

Submission ID number(s)

25

Summary of issues raised

One respondent also noted that the economic loss to the community was not appropriately calculated in the EIS and that the lifetime employment numbers were misrepresented.

Response

The *Economic Impact Assessment* (Gillespie, 2021) (Technical paper 7) was undertaken by a suitably qualified economic impact specialist. Further details of the assessment method used to undertake the assessment was presented in section 3.2 of the *Economic Impact Assessment*.

The assessment was intended to provide an overview of the key potential impacts anticipated to occur during both construction and operation of the proposal. This assessment considered both the economic impacts to the broad region as well as the potential economic impacts for NSW as a whole.

With respect to the potential misrepresentation of the lifetime employment numbers, section 5.4 of the EIS identified that the proposal would require minimal ongoing employment requirements and that this would be primarily limited to ongoing maintenance requirements. This would typically involve less than 10 personnel at any one time. This would have minimal economic impact to local communities along the proposal.

4.1.18. Traffic and transport

4.1.18.1. Impacts during construction

Submission ID number(s)

29

Summary of issues raised

The submission questioned the traffic impact assessments statement that there would typically be a low overall increase in peak hourly traffic as a result of the proposal, specifically referencing the Booroorban–Tchelery Road that was noted in the Traffic and transport technical report as expecting to see a 300% increase in traffic during construction.

The respondent also stated that the road condition assessments to be undertaken in conjunction with councils prior to construction and at end. The assessment should include the assessment of stock grids along these roads that are owned and maintained by the adjoining land holders.

Response

During construction peaks, there would be an overall low increase in peak hourly traffic as a result of the proposal. The median total traffic increase would be 22 vehicles per hour in one direction and 90 per cent of the haulage roads would have a total traffic increase of up to 56 vehicles per hour in one direction, equating to less than one additional vehicle movement every one minute. All roads assessed would continue to operate at a Level of Service A or B during construction, which indicates good levels of operation in terms of road capacity. This result can be attributed to existing low traffic volumes and to the low levels of construction traffic on the proposed haulage routes compared to the existing spare road capacity.

It was also acknowledged that for select roads, given their existing low levels of traffic, small increases in traffic generated by construction would see a large noticeable change (percentage increase) in traffic volumes however these roads would still perform within capacity at good levels of service. This would particularly be the case for roads that have very low traffic volumes such as only one or two vehicles per hour.

This is the case for Boooroorban–Tchelery Road within the Edward River local government area which would experience a 300 per cent increase in peak hourly traffic volumes (as provided in Table 5-12 of the Traffic and transport impact assessment (WSP, 2021)). This increase is based on a very low traffic existing volume of only 10 vehicle movements per hour (VPH)/per direction during peak periods. The road would continue to operate at a Level of Service A during construction, noting that the proposed increase in overall vehicle numbers is expected to only result in:

- around 30 additional vehicle movements per hour (and per direction) during peak periods (i.e. around one additional vehicle every two minutes during peak periods). Only 10 of the 30 vehicle movements per hour (and per direction) would comprise of heavy vehicles
- around 14 additional vehicle movements per hour (and per direction) during typical construction periods, of which only four of the 14 movements (and per direction) would comprise of heavy vehicles.

Mitigation measure TA7 commits to the completion of road condition surveys for all sealed local roads within 200 metres of the proposal and/or all unsealed roads on haulage routes. The surveys would be carried out in consultation with the relevant roads authority and prior to the road being used by construction heavy vehicles. Mitigation measure TA7 also outlines the commitment to:

- a road condition monitoring and maintenance program
- post–construction road condition surveys to identify any damage attributed to the proposal
- address any damage attributed to the proposal in consultation with the relevant roads authority.

Roads damaged by the proposal would be reinstated to equivalent or better condition. Mitigation measure TA7 has been updated to confirm that impacts to stock grids would be considered as part of the post–construction road condition surveys for the proposal.

4.1.18.2. Impacts to rail corridors during construction

Submission ID number(s)

47

Summary of issues raised

ARTC noted two requirements that needed to be met for the location where the proposal would cross and potentially impact the rail corridor operated by ARTC. These requirements were noted as being:

- all safety documentation is to be submitted for working in the rail corridor
- the construction works are not to affect rail operations.

Response

Transgrid confirms that:

- all relevant safety documentation required would be submitted for works that are required to be undertaken within rail corridor operated by ARTC
- the final construction methodology for the proposal would be developed so as to minimise potential impacts to ARTC operations and the rail corridor.

Transgrid would continue to undertake ongoing consultation with ARTC regarding the specific requirements of the safety documentation and as part of the development of the final construction methodology. This is reflected in mitigation measure TA6.

4.1.18.3. Impacts to existing road infrastructure during construction

Submission ID number(s)

49

Summary of issues raised

The response raised by the Coleambally Irrigation Co-operative raised concern that the proposed use of some of the access and haulage routes would result in heavy vehicles impacting on their existing bridge and drainage/culvert assets, or significantly reduce their currently predicted operational life expectancy. It was also noted that the design loadings for some of these assets may not be to current standards required.

Coleambally Irrigation Co-operative noted that all of the original bridges on the council road network that cross the Coleambally Irrigation channels and drains are around 60 years old and only had an 80- to 100-year design life.

Response

Transgrid would look to implement a range of actions to ensure that existing road structures proposed to use during construction are suitable. These would include:

- while establishing access tracks, a suitably qualified engineer would assess the existing structures for suitability considering structure type, condition, vehicle types, loading and frequency of use
- if structures are deemed unsuitable, the following alternatives would be considered:
 - alternate routes (access via easement)
 - alternate vehicle types (smaller loads)
 - temporary works (e.g. propping, or similar) in consultation with asset owners.

The design life of the asset should not be impacted; the assessment would limit the loading and thus, as per above, would be limited to that at which it was designed for. Transgrid would continue to undertake ongoing consultation with Coleambally Irrigation regarding the specific requirements regarding these structures as part of the development of the final construction methodology. This is reflected in the new mitigation measure TA8.

4.1.19. Greenhouse gases

4.1.19.1. Proposal emissions

Submission ID number(s)

25

Summary of issues raised

The submission stated that the calculation of carbon dioxide (CO₂) emissions needed to be transparent, accounting for freight required to provide raw materials, to move components worldwide, to engage the types of mechanised apparatus required to transport and to set up on site.

Response

Transgrid is committed to achieving an Infrastructure Sustainability Council (ISC) rating of 'Excellent' or higher. In achieving the required rating, the construction contractor, SecureEnergy, may choose to address the following credits to a determined level:

- greenhouse gas emissions (scope 1 2 and 3) under the ISC Energy Credits (ENE) Credits; and
- embodied carbon in materials under the ISC Materials Credits (MAT).

The ISC Ratings Manual provides further specific on the credits mentioned above.

4.1.20. Utilities and services

4.1.20.1. Impacts to existing utilities

Submission ID number(s)

48

Summary of issues raised

The submission provided a response outlining a series of considerations that would need to be taken into account regarding potential impacts to their existing high pressure gas infrastructure that the proposed transmission line would be required to cross near Uranquinty. Items raised in the submission for consideration included:

- the need to undertaking an induced current risk assessment prior to any works traversing the pipeline easement
- identification of APAs Third Party Works Authorisation process.

Response

Transgrid confirms that as part of the design for the ongoing finalisation of the proposal, an assessment would be carried out as per the requirements of AS/NZS 4853:2012. Hazard mitigation measures for risks identified in the assessment (if any) would be developed in coordination with the affected utility. This was described in section 20.4.3 of the EIS.

Specific to the high pressure gas infrastructure at Uranquinty, construction methods and protection measures would be confirmed in consultation with APA Group (mitigation measure HR5).

4.1.21. Waste and resources

4.1.21.1. Construction waste management

Submission ID number(s)

10, 11, 25, 27, 31

Summary of issues raised

Four submissions raised concern that the proposal did not consider the potential impacts of construction waste, noting specifically that:

- there was no compensation identified for local governments who would need to accept the large quantities of waste into their landfill from the construction of the proposal
- that there was no provision for the recycling of expired components
- that the EIS did not make any provision for either progressive waste management or end of life restorative or removal processes
- there should be a provision to recycle used or replaced components due to their plastic and heavy metal makeup [*noting this comment appeared to be referring to solar farm developments, not the proposal specifically*].

Response

Section 22.3 of the EIS provided an assessment of the potential waste management and resource use impacts of the proposal during construction. This included discussion regarding each of the potential key waste streams/sources in addition to consideration of the various resources and materials required to construct the proposal (including raw materials, energy and water usage).

The handling and management of waste materials that would be generated as a result of the proposal was specifically discussed in section 22.3.2.4 of the EIS. This included the proposed waste management processes for various waste types including:

- spoil from excavated materials
- contaminated spoil or soils
- general construction waste
- liquid waste
- adhesives, lubricants, waste fuels and oils, engine coolant
- office waste including kitchen waste, paper, cardboard, plastics, glass
- green waste.

Details of the proposed waste handling and management measures for these construction waste streams was provided in Table 22-3 of the EIS. This table identified the various management principles for each of these waste streams which would typically include:

- reuse on site (such as excess spoil and topsoils, where not identified as contaminated, and vegetation mulch)
- segregation for reuse or recycling (such as green wastes, paper, cardboard, plastics, glass, ferrous, and non-ferrous containers, and where appropriate, other general construction wastes such as steel or aluminium (either from redundant infrastructure or waste from new structures))

- collection and removal to an authorised off-site disposal location (which would be, subject to any specific legislative requirements, typically the closest local council recycling/transfer centre to the section of the alignment where the waste is generated).

Waste streams that cannot be re-used on site would be transported to appropriately licensed waste disposal or transfer facilities or other facilities lawfully able to accept materials (mitigation measure WM6). Transgrid has undertaken ongoing consultation with each of the relevant local councils throughout the development of the proposal. This has included some discussion regarding the ability of local landfill sites to accommodate the proposed quantities of waste that would be generated by the construction of the proposal. Waste disposed at waste management facilities would be at costs charged by the waste management facility operator.

With respect to the concern regarding the need for progressive waste management, waste materials requiring off-site disposal or recycling would typically require regular removal (i.e. off-site disposal or recycling etc).

Further, the proposal has committed to achieving an Infrastructure Sustainability (IS) Council verified 'Design' and 'As Built' rating of Excellent (under version 1.2 of the IS rating tool). This tool requires Transgrid to consider approaches to achieve the efficient use of resources (and therefore reduction of waste generation). Transgrid have also committed to adopting construction methods or design responses to reduce material inputs and enable reduced energy and fuel inputs throughout the construction phase where practicable (refer to section 22.5 of the EIS).

The proposal is anticipated to have a long operational lifespan therefore recycling requirements of components (if any) are not yet considered to be necessary to determine.

4.1.22. Cumulative impacts

4.1.22.1. Operational cumulative impacts

Submission ID number(s)

6, 29

Summary of issues raised

One submission noted that the proposal did not consider the cumulative impacts of the proposal being located adjacent next to an existing transmission line for a large portion of the alignment and the increased impact that a second line would have on their property (in particular from a land and visual impact perspective).

One submission also noted that the conservation of biological diversity and ecological integrity should not only be considered in relation to the local area and the proposal, but should also have regard to the life cycle of wind turbines, PV solar panels and batteries when considering the proposal.

Response

An assessment of the potential cumulative impacts associated with the proposal in terms of land and visual impacts were addressed as part of the land use and agricultural and landscape and visual impact assessments and discussed in Chapter 12 and Chapter 13 respectively.

In terms of the impacts on land, including agricultural land, one of the guiding principles of the design was to place the transmission line adjacent to existing easement(s) where possible in order to minimise potential property impacts (as discussed in section 12.4 of the EIS). Where this can occur, this approach would result in a lower level of land fragmentation and would limit the extent of potential easement restrictions on the land when compared to an alignment that is located further away from the existing easement, which would result in higher cumulative impacts. Similarly, from a visual and landscape perspective, it was considered that co-locating the proposal adjacent to an existing transmission line easement would reduce potential impacts. It was concluded that the presence of the existing transmission lines and towers would increase the visual absorption capacity of any available viewpoints due to the visual compatibility of this proposal with the existing transmission infrastructure.

While it is acknowledged that the proposal would act as a catalyst for future development of future wind farms, solar farms and other renewable generation and storage opportunities, it is not possible to accurately consider the potential cumulative impacts of these projects as their specific locations, size and impacts are not yet known. The cumulative impacts of these projects would need to be considered at the time of their development, taking into account the current impacts proposed by this proposal (and as described in the EIS).

4.1.23. Other and out of scope items

4.1.23.1. General opposition to renewable energy development

1, 5, 6, 15, 16, 17, 19, 21, 23, 25, 26, 27, 30, 31, 32, 34, 35, 36, 38, 40, 41, 42, 43, 44, 45

Summary of issues raised

A number of submissions raised general objection to the ongoing development of renewable energy projects, predominantly solar and wind projects. Some of the submissions provided support for the continued use of coal and future development of nuclear power opportunities instead of renewables.

A number of submissions raised objection to renewables, in particular solar farms, due to their impacts on agricultural land and also objection to previously approved and/or operating solar farms.

Some of the submissions also noted specific objection to the proposal due to its potential to open up additional opportunities for more renewable energy developments.

Response

The proposed increase in investment towards renewable energy generation and storage opportunities (for which it is acknowledged that EnergyConnect would be a key catalyst) is consistent with the broad strategies that have been developed by both the NSW and Australian governments in response to the increasing need to transition Australia's existing energy generation to a greater mix of low-emission renewable energy sources. This transition is being driven by the need to reduce greenhouse gas emissions and meet a global commitment to achieve net-zero greenhouse gas emissions by the second half of this century.

As described in section 2.2 of the EIS, electricity is Australia's largest source of greenhouse gas emissions, accounting for around 33 per cent of Australia's total annual emissions. The existing electrical connections between the southern and eastern states and territories in Australia also delivers around 80 per cent of Australia's electricity consumption. As such, to meet Australia's emission reduction targets, the existing market needs to significantly transition from traditional energy sources to lower emission alternatives including renewable energy.

While it is acknowledged that renewable energy projects can have varying degrees of impact on existing land and property uses (including agricultural land), each project is assessed based on its merits and its overall impacts. These impacts are then considered by the relevant planning/approval authority (primarily DPE) prior to approval (or if the impacts are not considered to be appropriate, refusal).

In addition, the NSW State Government has a strategic role in developing the renewable energy zone(s) (REZs) which are proposed to be connected through projects such as EnergyConnect. The NSW Government's *Electricity Strategy and Electricity Infrastructure Roadmap* sets out the plan to deliver the state's first five REZs in the South–West (including EnergyConnect), Central–West Orana, New England, Hunter–Central Coast and Illawarra regions. The proposal is considered to be consistent with meeting this strategic direction.

4.1.23.2. Concern regarding project ownership

Submission ID number(s)

4, 15, 18, 19, 27, 32, 34

Summary of issues raised

Four submissions raised specific concern regarding the ownership of the proposal, stating that they disagreed with the proposal being owned, operated or invested in by foreign entities.

Response

The assets of the NSW high–voltage transmission network, including those proposed for EnergyConnect, are owned by the Electricity Transmission Ministerial Holding Corporation, a NSW State Government Entity. Transgrid operates and manages those assets under a 99–year lease agreement.

Foreign investment in Australian assets is a matter for the Foreign Investment Review Board (FIRB). The FIRB has assessed the suitability of Transgrid's securityholders, and conditions of approval have been provided including that:

- the operation and control of Transgrid's transmission system and telecommunications business is undertaken solely from within Australia
- electricity supply data and personal information is accessible and held solely within Australia
- 50 per cent of TransGrid's boards comprise Australian citizens and residents
- Transgrid has an independent chairperson and an independent director on the board who are Australian citizens and residents, one of whom is required for all board quorums
- senior personnel in critical positions to hold security clearances
- audited annual reporting certifying compliance with NSW's critical infrastructure licence conditions and annual reporting to FIRB, approved by the independent chairperson, certifying compliance with the safeguards imposed.

4.1.23.3. Other out of scope issues

Submission ID number(s)

6, 9, 10, 27, 29, 31

Summary of issues raised

A series of submissions also raised a number of out of scope elements not related to the proposal including:

- concern regarding the current management of the infrastructure of the existing 220kV line and the lack of compensation provided when that transmission line was constructed
- the ongoing need for nuclear energy in Australia
- concern regarding the perceived use of forced labour by some PV solar panel manufacturers
- the lack of feasible and affordable electrical storage for the existing energy grid
- concern regarding intermittent wind problems needed to support wind farms
- the impact of the heat island effect on the local community and local crops (in relation to solar farms)
- concern regarding the privatisation of the State power network.

Response

These comments do not relate directly to the proposal or its potential impacts. The comments are noted by Transgrid.

With respect to the various concerns raised regarding the approach to increase renewable energy opportunities across the region, this broad renewable energy strategy is guided by DPE.

4.2. Response to public authority submissions

This section provides responses to the issues raised in submissions provided by public authorities, including local councils and a number of NSW State government departments and agencies.

4.2.1. Airservices Australia

Airservices Australia provided a response to the public exhibition of the EIS dated 15 February 2022. Consideration of the items raised in their submission is provided in Table 4-1.

Table 4-1 Response to Airservices Australia submission

Issue/item raised	Transgrid response
Airservices Australia noted that due to the size of the project, they require an Aviation Impact Statement report to be submitted along with the application.	The EIS for the proposal was prepared based on the requirements of the Secretary's Environmental Assessment Requirements (SEARs) issued by DPE on 2 October 2020. The SEARs for the proposal did not identify the need for a specific Aviation Impact Statement. Notwithstanding, in response to this submission, an Aviation Impact Statement has been prepared. This found that the proposal: • would infringe the approach surface (AS) of Wagga Wagga Airport's OLS during construction and operation as a result of the location and height of the proposed transmission line towers and associated construction cranes. The infringement to the AS by the proposed transmission line towers would be tolerable, to a similar extent that is consistent with the infringements by the existing transmission line towers and terrain into the AS at Wagga Wagga Airport • would not have any structures that would penetrate any Procedures for Air Navigation Services – Aircraft Operations (PANS–OPS) surfaces. A more detailed summary of the findings of the Aviation Impact Statement has been provided in Section 3.3.5 of this report and in Supplementary technical assessment 5 – <i>Aviation Impact Statement</i> (Aviation Projects, 2022).

4.2.2. Civil Aviation Safety Authority

The Civil Aviation Safety Authority (CASA) provided a response to the public exhibition of the EIS dated 20 February 2022. Consideration of the items raised in their submission is provided in Table 4-2.

Table 4-2 Response to Civil Aviation Safety Authority submission

Issue/item raised	Transgrid response
CASA noted that as the EIS indicated that the proposal would be clear of the obstacle limitation surfaces of all airports along the proposed route, they DID not consider the transmission line to be a hazard to aircraft operations.	In response to the submission from Airservices Australia, an Aviation Impact Statement was completed (Supplementary technical assessment 5). This confirmed that the proposal (including temporary crane structures) would infringe on the obstacle limitation surface for the Wagga Wagga Airport. It would not infringe on any other certified airports/aerodromes within 30 nautical miles (55.56 kilometres) of the proposal. The infringement to the AS by the proposed transmission line towers would be tolerable, to a similar extent that is consistent with the infringements by the existing transmission line towers and terrain into the AS at Wagga Wagga Airport. The Aviation Impact Statement concluded that the proposal is unlikely to require obstacle lighting or marking by CASA given the distance of the towers and cranes that infringe the OLS from the inner edge of the runway threshold. However, this would be confirmed by CASA as part of its own safety assessment and response to the referral of the Aviation Impact Statement by the Wagga Wagga Airport Manager. A more detailed summary of the findings of the Aviation Impact Statement has been provided in Section 3.3.5 of this report and in Supplementary technical assessment 5 – <i>Aviation Impact Statement</i> (Aviation Projects, 2022).
CASA noted that once completed, the location/route of the proposal should be reported to Airservices Australia to ensure that the line is represented on aeronautical charts for the benefit of pilots conducting low level operations.	Once construction is complete, the final alignment of the proposal would be reported to Airservices Australia to ensure that the line is represented on future aeronautical charts.

4.2.3. Department of Planning and Environment (Biodiversity and Conservation Division)

The Department of Planning and Environment (Biodiversity and Conservation Division) provided a response to the public exhibition of the EIS dated 4 March 2022. Due to the complexity of the submission received, a more detailed response to this submission has been provided and is included as Table F-1 of Appendix F of this Submissions Report.

4.2.4. Department of Planning and Environment – Crown Lands

The Department of Planning and Environment – Crown Lands (Crown Lands) provided a response to the public exhibition of the EIS dated 11 February 2022. Consideration of the items raised in their submission is provided in Table 4-3.

Table 4-3 Response to Department of Planning and Environment – Crown Lands submission

Issue/item raised	Transgrid response
Crown Lands noted that Transgrid would need to identify all Crown land parcels that are proposed to be impacted and undertake appropriate consultation. Crown Lands noted that if the proposal requires use of these Crown land parcels and/or Crown road(s) in order to implement the proposal, the land would need to be acquired under the <i>Land Acquisition (Just Terms Compensation) Act 1991</i>.	Transgrid has identified all Crown land parcels directly or indirectly affected by the proposal. Transgrid has been meeting generally monthly with officers of the Department of Planning and Environment (Crown Lands) to review, discuss and resolve relevant matters affecting Crown land. Transgrid has accepted the Department of Planning and Environment (Crown Lands) preference that easement interests are acquired compulsorily and in accordance with the provisions of the <i>Land Acquisition (Just Terms Compensation) Act 1991</i>, to ensure any potential interest holders are provided the opportunity to submit a claim. Due to the extended timeframes required for this process, Transgrid is proposing to utilise its powers under section 45 of the <i>Electricity Supply Act 1995</i> to facilitate access for construction. Easement interests would be acquired at a later date for those Crown lands where an easement is required.
For use and access to Crown land/roads/waterways Crown Lands noted that there are a number of Crown roads within the proposal area which may provide legal access to the development but may not provide practical access. Crown Lands advised that these roads should not be relied upon for practical access to the site. Crown Lands noted that they would need to be referenced, prior to any use or occupation of any Crown roads or land, during the assessment phase and that authority to use, traverse, access or build infrastructure on Crown land would be required under the <i>Crown Land Management Act 2016</i> and/or the <i>Roads Act 1993</i>. Crown Lands recommended that Transgrid consult with Crown Lands to discuss and initiate the processes required to authorise the use of and/or access to Crown land and roads.	Transgrid does not propose to acquire easements over Crown roads but would liaise with the Department of Planning and Environment (Crown Lands) in relation to any potential impact on Crown roads. Transgrid has been meeting generally monthly with representatives of the Department of Planning and Environment (Crown Lands) to review, discuss and resolve relevant matters affecting Crown land. Transgrid would provide notice to the Department of Planning and Environment (Crown Lands) under section 45 of the <i>Electricity Supply Act 1995</i> to facilitate access for construction. Easement interests would be acquired at a later date for those Crown lands where an easement is required. Transgrid would be in further contact with the Department of Planning and Environment (Crown Lands) to discuss in detail the requirements for access and/or use of Crown lands where required.

Issue/item raised	Transgrid response
Crown Lands also noted that if the proposal would require infrastructure to be built on Crown land, roads and/or waterways, the consent of the Minister for Lands and Water must be obtained, via Crown Lands.	Transgrid is aware of the need to obtain approval from the relevant Minister for infrastructure built on Crown lands and is in consultation with the Department of Planning and Environment (Crown Lands) regarding this matter.
Crown Lands noted that any Crown road required for access to the development would need to be transferred to Council, or application made to close and purchase the roads.	Transgrid has not identified any circumstance where application to close a Crown road or to transfer a Crown road to a local council is necessary. Should this change in the future, Transgrid acknowledges this requirement.
Lineal Infrastructure traversing Crown land/roads/waterways Crown Lands noted that where lineal infrastructure (such as an electricity transmission lines) are expected to traverse Crown land, roads and/or waterways, an easement over said Crown land, roads and/or waterways is required for protection of the infrastructure. It was also noted that licences or easements must be in place before Crown land or roads can be used, traversed, accessed or infrastructure can be built.	Transgrid would, where necessary, acquire easements for the infrastructure being constructed on Crown lands. Transgrid is proposing to utilise its powers under section 45 of the <i>Electricity Supply Act 1995</i> to facilitate access for construction. Easement interests would be acquired at a later date for those Crown lands where an easement is required.
Travelling Stock Reserves/Reserves/Commons/Aboriginal Land Claims/Native Title Crown Lands noted that concurrence from either Local Land Services or holders of the Western Lands Leases would be required for sections of the Proposal where the proposal crosses Travelling Stock Reserves prior to the commencement of any works.	Transgrid is aware of the need to obtain concurrence from Local Land Services (LLS) or holders of the Western Lands Leases. Consultation with LLS (Western, Murray and Riverina) is ongoing as is direct engagement with the holders of Crown leasehold lands in the western division. Transgrid is proposing to utilise its powers under section 45 of the <i>Electricity Supply Act 1995</i> to facilitate access for construction. Prior to the commencement of works, LLS will be notified of work within TSRs during the construction phase so that lessees, stock handlers and other permit holders can be notified of any potential impacts to stock movements. This is reflected in a new mitigation measure (LP10) provided in Appendix B. Easement interests would be acquired at a later date for those Crown Lands where an easement is required.
Crown Lands noted that the proposal may pass through Crown land that is currently the subject of an undetermined Aboriginal Land Claim, which may limit how the land can be used. As such, concurrence with the NSW Aboriginal Land Council may also be required.	Transgrid is aware of the potential need for the concurrence of the NSW Aboriginal Land Council where undetermined land claims are a relevant matter.

Issue/item raised	Transgrid response
Crown Lands noted that if at any stage Crown land subject to a reserve for 'Future Public Requirements' is required for the proposal, or would be impacted in relation to operation of the proposal, a tenure may be required to authorise use of and/or access to the land.	Transgrid acknowledges that a tenure may be required to authorise use of and/or access to any land subject to a reserve for 'Future Public Requirements'.
Crown Lands noted that if the proposal impacts on a reserve under the care, control and management of a Crown Land Manager Board, Council or Organisation, Transgrid is encouraged to consult with the reserve manager regarding the use of, or access to, this Crown land and to contact the Crown Lands Department as early as possible.	Transgrid is in regular contact with the Department of Planning and Environment (Crown Lands) and would undertake any necessary consultation with these groups.
Crown Lands noted that if the proposal was to encroach onto a Crown waterway, authority to access and/or use the Crown waterway would be required.	Transgrid would obtain easements where required in order to traverse Crown waterways. Transgrid may also elect to utilise its powers under section 45 of the <i>Electricity Supply Act 1995</i> to facilitate access for construction.
Biodiversity/environmental Crown Lands noted that the proposal has identified low ongoing management and maintenance for Crown land, however long-term management and maintenance strategies were not specified for when the Crown land is no longer required for the proposal. Crown Lands requested that this be addressed by Transgrid. Crown Lands noted that there may be possible clearing and development of certain areas for storage purposes. Crown Lands requested confirmation whether additional environmental offsets were being considered for this proposed clearing under the <i>Biodiversity Conservation Act 2016</i>.	Transgrid would operate and maintain any infrastructure located within/on Crown lands in accordance with its established policies and procedures. Transgrid is not considering Crown lands for temporary or ancillary purposes. Environmental offsets to account for impacts to biodiversity will be in accordance with the <i>Biodiversity Conservation Act 2016</i> and any relevant conditions of approval issued by NSW Minister for Planning. The proposed biodiversity offsets for the proposal are discussed in section 12.4 of the Revised BDAR (Supplementary technical paper 1).

4.2.5. Department of Planning and Environment (Water)

The Department of Planning and Environment (Water) DPE (Water) (and the Natural Resources Access Regulator (NRAR)) provided a response to the public exhibition of the EIS dated 11 February 2022. Consideration of the items raised in their submission is provided in Table 4-4.

Table 4-4 Response to Department of Planning and Environment (Water) submission

Issue/item raised	Transgrid response
DPE (Water) identified a series of post approval recommendations in relation to the proposal as described below relating to surface water impacts, water take and licensing and groundwater impacts. Surface water impact recommendations It is recommended that: the geomorphic assessment should include assessment of inherent geomorphic vulnerability and management options to protect, stabilise and/or rehabilitate watercourses should impacts occur.	The location of watercourses, and the need to minimise potential impacts within them, was considered during the development of the design and construction methodology. The current tower locations have been selected to avoid direct impacts to watercourses wherever practicable, with towers located at least 50 metres from the edge of major waterways. No significant ground disturbing works are proposed that would affect the banks and bed of any major waterways. Due to the siting of construction activities outside major waterways, no geomorphological impacts to the major waterways are expected. However, it is acknowledged that transmission line towers are unlikely to be able to avoid the riparian areas of all first and second order streams. Temporary impacts to the low flow channel shape and sediment load for first and second order streams may occur where construction activities disturb geomorphic conditions. Towers may be placed within minor low flow paths (first and second order streams), which would result in changes in the position of these flow paths and movement of sediment locally within the flow path. However first and second order streams tend to be intermittent/ephemeral, and any changes in geomorphology would be minor and localised. All operational infrastructure and landforms within the transmission line would be designed and formed to minimise any potential scour and erosion risks associated with surface water runoff (mitigation measure HF6). Disturbed surfaces in flow areas would be adequately stabilised at the completion of construction. These impacts would be temporary and restricted to the construction phase. Construction disturbance in the vicinity of watercourses would generally be limited to adjacent riparian areas. Revised mitigation measures B5, B16 and B17 commit to minimising impacts in riparian areas and to riparian vegetation, further reducing the potential for geomorphic impacts within watercourses. Further, the rehabilitation of surfaces disturbed during construction in riparian areas would be completed in accordance with the Blue Book. This would be sufficient to promote ongoing ground stability around watercourses and protect watercourse geomorphology. As the proposal is unlikely to result in any substantial changes in hydrology that would create significant geomorphic risks, no further geomorphic assessment is warranted.

Issue/item raised	Transgrid response
the CEMP should be provided to DPE Water for review and include a geomorphic condition monitoring program for watercourses in proximity to any structures, works or material stockpiling. This should identify any ongoing changes to watercourses in poor or moderate geomorphic condition and detect degradation in watercourses that are classed as being in good geomorphic condition or have high geomorphic recovery potential. A procedure to identify and address any impacts that arise should also be included.	Transgrid expects that the conditions of approval would require the CEMP and associated sub-plans to be prepared in consultation with relevant stakeholders. Transgrid will prepare the required plans in accordance with the conditions of approval. See response above in relation to geomorphic risks.
Water take and licensing recommendations The proponent: must obtain relevant approvals and licences under the <i>Water Management Act 2000</i> (WM Act) before commencing any works which intercept or extract groundwater or surface water.	Under the provisions of section 5.23(1) of the EP&A Act, a water use approval pursuant to section 89 of the WM Act, a water management work approval pursuant to section 90 of the WM Act, and an activity approval (other than an aquifer interference approval) pursuant to section 91 of the WM Act do not apply to approved State significant infrastructure projects and accordingly are not required. It is not anticipated that the proposal would interfere with any aquifers as the proposal would not likely require excavation to a sufficient depth to intercept an aquifer or result in drawdown. In the event groundwater is encountered, it would be limited to discrete locations and likely from perched, non-permanent and localised groundwater. Under Schedule 4 of the Water Management (General) Regulation 2018, a take of three megalitres of groundwater in a water year during excavation works is exempt from requiring an access licence under the WM Act long as the take is not for consumption of supply. Access to water during construction, would be purchased from the existing water market (to the extent required) within the region or from local council facilities. The proposal does not seek approval to construct new extraction infrastructure from surface water sources. Any proposal to obtain water directly from groundwater aquifers and surface water bodies directly would be subject to detailed additional assessment and would not occur otherwise than in accordance with all relevant approvals and licences under the <i>Water Management Act 2000</i>.

Issue/item raised	Transgrid response
must ensure that relevant nomination of work dealing applications for Water Access Licences proposed to account for water take by the project have been completed prior to the water take occurring.	The proposal would obtain water through the use of existing, licensed water extraction infrastructure only. Water would be purchased under licensing agreements with the various water suppliers/land holders as required. Any proposal to obtain water directly from groundwater aquifers and surface water bodies directly would be subject to detailed additional assessment and would not occur otherwise than in accordance with all relevant approvals and licences under the <i>Water Management Act 2000</i>.
should be aware of the rules of the relevant water sharing plans and how they may impact the project and ability to trade or take water.	Transgrid and SecureEnergy, the construction contractor, are continuing to liaise with all water providers in relation to securing sufficient water entitlements. It is acknowledged that the proposal will need to meet the rules of the relevant Water Sharing Plan and the <i>Access Licence Dealings Principles Order</i> (2004).
should prepare a Construction and Operational Environmental Management Plan (incorporating an Erosion and Sediment Control Plan) prior to commencement of activities.	A soil and water sub plan will be prepared as part of the CEMP. This will be developed in consultation with a Certified Professional in Erosion and Sediment Control, will detail processes and measures to manage potential soil and water quality impacts, and will be implemented during construction (refer to mitigation measure HF6). During operation, the proposal would be managed through the practices, procedures and processes outlined in the EIS, this Submissions Report and/or Amendment Report (with the EIS, Submissions Report or Amendment Report taking precedence for the implementation requirements should a discrepancy be identified), within Transgrid's Environmental Management System (EMS). This includes Transgrid's Environmental Handbook which outlines the requirements for erosion and sediment control for activities that disturb soil or increase the risk of soil erosion. Transgrid will update or develop EMS procedures as required to ensure they comply with the commitments in the EIS, Submissions Report, Amendment Report and the requirements of the conditions of approval, including those related to soil and water management.
where undertaking works within waterfront land, carry these works out to meet the requirements of the <i>Guidelines for Controlled Activities on Waterfront Land</i> (NRAR 2018).	Mitigation measure HF6 requires that the soil and water sub plan is prepared in accordance with the <i>Guidelines for Controlled Activities on Waterfront Land</i> (DPI, 2012). This mitigation measure has been corrected to make reference to the 2018 NRAR guidelines.

Issue/item raised	Transgrid response
Groundwater impact recommendations The proponent should: include in the groundwater section in the soil and water sub-plan of the CEMP (in addition to management of dewatering and other construction activities) processes for managing or mitigating potential impacts on Groundwater Dependent Ecosystems (GDEs) and impacted bores. The proponent should be able to demonstrate that its operations do not impact high potential GDEs or registered bores. The sub-plan should describe the assessment of high potential GDEs or registered bores within 50 metres of a blasting site against the <i>Aquifer Interference Policy</i> (2012) minimum impact criteria and detail management, monitoring and mitigation measures proposed for these sites. This sub-plan should be provided to DPE Water for review.	As outlined in the EIS, blasting may be required during construction of transmission line towers in areas of shallow hard rock. Whether blasting is adopted as a construction technique, and where it is proposed, would be confirmed by the construction contractor during finalisation of the construction methodology. This would be based on geotechnical information and other considerations. Transgrid anticipates that the use of blasting would not be widespread across the project site and would only be proposed in certain locations based on geotechnical conditions and excavation requirements. The use of controlled blasting as an excavation technique during construction typically involves only small charge sizes. The associated blasting halo is typically minor and does not extend more than 10 metres. As such it has limited potential to impact the groundwater environment. Typically, blasting would only be proposed in elevated areas featuring bedrock in close proximity of the surface, where the potential for GDEs is low. There are no registered bores and only one high potential GDE (Sandy Creek) currently within 50 metres of a potential blast location. As such, the risk of any associated impacts to GDEs and registered bores is low. As provided in mitigation measure SCG4, further assessment would be carried out to identify any high potential GDEs and registered bores that might be affected by blasting activities. This would identify any required mitigation measures, changes to the construction methodology or engineering solutions that would be implemented to address any potential impacts. This mitigation measure has been amended to require the assessment to consider the minimum impact criteria set out in the <i>Aquifer Interference Policy</i> (2012) for any high potential GDEs and registered bores located within 50 metres of a blasting site. Overall, the risk to DGEs and registered bores is low and appropriate provisions to mitigate and manage risks to these groundwater users is covered by mitigation measure SCG4. As such amendments to the soil and water sub plan of the CEMP are not required.
record and report on the above management activities including how the high potential GDEs and registered bores within 50 metres of a blasting site have not been impacted and all dewatering volumes from the sites collectively during a water calendar year (July to June) in each groundwater source.	Mitigation measure SCG4 has been amended to commit to identifying any necessary measures to monitor blasting and mitigate any impacts on high priority GDEs and registered bores, if the desktop assessment indicates that significant impacts are likely. The measures would be implemented prior to and during the blasting (as relevant). In the event that groundwater is encountered during piling or excavations and dewatering is required, mitigation measure SCG11 requires that the contractor records the dewatering volumes and to make these records available to DPE or DPI upon request. The measure has been amended to require annual reporting (July to June) for each groundwater source.

4.2.6. Department of Primary Industries (Agriculture)

The Department of Primary Industries (Agriculture) provided a response to the public exhibition of the EIS dated 8 February 2022. Consideration of the items raised in their submission is provided in Table 4-5.

Table 4-5 Response to Department of Primary Industries (Agriculture) submission

Issue/item raised	Transgrid response
The Department of Primary Industries (Agriculture) requested that planning and development of the new section of transmission line located between Kidman Way (south of Coleambally) and Olympic Highway (Lockhart) continues to include land holder consultation, with Property Management Plans that mitigate potential impacts to agricultural production, and with the alignment based on existing property boundaries.	The preferred alignment between Four Corners to Lockhart was refined during the proposal development phase with consideration to land holder engagement, environmental constraints and opportunities to minimise impacts at a local level. This included opportunities to use existing utility easements, roads and access tracks, cleared fence lines and cadastral boundaries where appropriate. For some sections, the alignment does deviate from existing roads, property boundaries or fence lines. This has been in response to land holder preferences or due to other constraints, including biodiversity or heritage. The project team has engaged directly with potentially impacted land holders within the initial area of investigation. This included understanding land holders' preferences and/or potential solutions for the proposed alignment to best minimise potential property impacts. Engagement with directly affected land holders on proposed refinements and other property matters is continuing, with any agreements reflected in Property Management Plans. Several mitigation measures have also been identified in the EIS (LP1 to LP14) that would be implemented to avoid or minimise potential impacts on agricultural activities during construction and operation. As discussed in Section 4.1.4.3 of this report, Transgrid has completed a series of studies to assess the potential for operation of the proposal to result in interference with relevant equipment on farms in close proximity to the proposal infrastructure due to electromagnetic interference. The potential for interference from the transmission line is only likely to affect VHF receiving antennas in close proximity (within about 50 metres) to the transmission line. For properties, which are in close proximity to existing base stations, the VHF signal strength would be very high and therefore the VHF DGPS equipment would not be subject to interference from the transmission line. Initial desktop studies have indicated that there may be localised areas of signal weakness in the SST VHF network to the north and east of Urana, where an SST receiver (such as a DGPS-enabled header) could lose signal due to interference from any source in the area. Further studies (including measurements taken on-site at relevant properties) are currently underway to determine whether additional mitigation measures are required.

4.2.7. Department of Primary Industries (Fisheries)

The Department of Primary Industries (Fisheries) (DPI (Fisheries)) provided a response to the public exhibition of the EIS dated 10 February 2022. Consideration of the items raised in their submission is provided in Table 4-6.

Table 4-6 Response to Department of Primary Industries (Fisheries) submission

Issue/item raised	Transgrid response
Generally, DPI Fisheries concur with the conclusions of the aquatic ecology assessment.	Comment noted.
Waterway crossings DPI (Fisheries) noted that the design and construction of any temporary waterway crossings should be in accordance with the document <i>Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings</i> (NSW Fisheries 2003) and the <i>Policy and Guidelines for Fish Habitat Conservation and Management</i> (NSW Fisheries 2013). DPI (Fisheries) noted that proposed temporary crossings to be used during construction should be tabulated to include information such as location, strahler stream order, whether the waterway is deemed 'Key Fish Habitat', waterway class, and preferred waterway crossing type in relation to waterway class. Additionally, temporary crossings need to be removed upon completion of works.	As identified in section 6.6.2.1 of the EIS, the spanning of all watercourses would be designed and installed in accordance with relevant Department of Primary Industries (DPI) guidelines for waterway crossings including: • <i>Policy and Guidelines for Fish Friendly Waterway Crossings</i> (DPI, 2004a) • <i>Why do fish need to cross the road? Fish Passage Requirements for Waterway Crossings</i> (DPI, 2004b) • <i>Guidelines for Controlled Activities on Waterfront Land</i> (DPI, 2012a). As discussed further in this submission, this guideline would be updated to reference the 2018 NRAR publication (refer to section 4.2.5 of the Submissions Report). This would ensure that the preferred crossing design reflects the characteristics of the watercourse. The final design of the proposal would also take into account the requirements of the additional guideline identified by DPI (Fisheries) being the <i>Policy and Guidelines for Fish Habitat Conservation and Management</i> (NSW Fisheries 2013). All temporary infrastructure would be removed at the completion of construction and disturbed areas rehabilitated (unless the land holder has agreed to retain the track(s) following completion of construction). Where activities occur within vegetated riparian zones, impacts would be managed to minimise impacts to aquatic environments, and any disturbed riparian areas would be progressively stabilised and rehabilitated (refer to revised mitigation measure B17). Additionally, the proposal has been carefully designed to minimise impact to these sensitive environmental receivers through targeting narrow width crossing points of waterways and flood out areas (and their associated riparian habitats e.g. around the Murrumbidgee River, Yanco Creek and Colombo Creek).

Issue/item raised	Transgrid response
Threatened species DPI (Fisheries) noted that known and potential distributions of several threatened fish species including Murray Hardyhead, Silver Perch, Flathead Galaxias and Macquarie Perch occur in waterways across the proposal. Environmental management plans should be prepared and made available for DPI Fisheries to review for waterway crossing sites that occur in potential threatened fish species distributions.	Under the <i>Fisheries Management Act 1994</i> (FM Act), a '7-part test' was carried out to assess the likelihood of significant impact upon threatened species, populations or ecological communities listed under the FM Act. Appendix E-1 of the Revised BDAR contains detailed 7-part tests for each of the identified species, all of which conclude that due to the predicted negligible aquatic impacts associated with the proposal, a significant impact is unlikely to occur to these species. Avoiding and minimising impacts on aquatic habitats would be a priority of design finalisation and any residual indirect impacts would be subject to mitigation measures. Transmission line structures would be located around 50 from major waterways to minimise impact to riparian areas. The only likely impact to occur in an area of key fish habitat would be the removal or trimming of trees on the river banks to facilitate the construction and operation of the powerlines spanning each riparian area. All trunk bases and understorey would be retained in-situ adjoining the river banks. All potential indirect impacts associated with erosion and sedimentation impacts would be managed and monitored to minimise impacts on the riparian areas. Impacts to water quality would be temporary during construction and negligible. Each riparian area would continue to function as it currently functions. However, consideration of waterway crossings would be included in the overall construction environmental management plan which would be made available to DPI Fisheries.
Riparian buffer zones DPI Fisheries Policy advocates the use of terrestrial buffer zones as per the <i>Policy and Guidelines for Fish Habitat Conservation and Management</i> (NSW Fisheries 2013). DPI (Fisheries) noted that they anticipate that adequate riparian buffer zones would be maintained adjacent to water courses that the proposal intersects with. Where disturbance is inevitable (such as clearing/ trimming for allowance of transmission lines), environmental management plans should be prepared to minimise the extent of the disturbance.	The presence of watercourses and the need to minimise potential impacts in riparian areas was considered during the design and construction methodology development process. However, some disturbance in riparian areas was unavoidable. Several mitigation measures have been proposed in the EIS to mitigate and manage the potential impacts on riparian areas. This includes: • transmission line towers would be located and constructed to minimise impact to vegetated riparian corridors (mitigation measure B5) • shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of <i>Water Management Act 2000</i>) of defined riparian areas would be protected to the greatest extent practicable, with vegetation clearing ideally limited to the tree stratum only, with trunk bases being retained in-situ (revised mitigation measure B16)

Issue/item raised	Transgrid response
	• where activities occur within vegetated riparian zones, impacts would be managed to minimise impacts to aquatic environments, and any disturbed riparian areas would be progressively stabilised and rehabilitated (revised refer to mitigation measure B17). A biodiversity management sub-plan would also be implemented as part of the CEMP. This sub-plan would detail: • procedures to reduce the disturbance to sensitive flora and fauna • procedures to protect retained vegetation • rehabilitation strategies.
Stockpiling of felled timber It was noted that consultation with DPI Fisheries should occur regarding stockpiling of felled trees from the footprint of the development for use as snags (large woody debris) to rehabilitate and improve the habitat quality of Key Fish Habitats.	The opportunity to stockpile and supply felled trees for Key Fish Habitat rehabilitation or improvement works would be discussed with DPI Fisheries (refer to a new mitigation measure B25).

4.2.8. Environment Protection Authority

The NSW Environment Protection Authority (EPA) provided a response to the public exhibition of the EIS dated 9 February 2022. Consideration of the items raised in their submission is provided in Table 4-7.

Table 4-7 Response to NSW Environment Protection Authority submission

Issue/item raised	Transgrid response
The EPA noted that based on the information provided, the proposal would require an environment protection licence under sections 43 and 48 of the <i>Protection of the Environment Operations Act 1997</i> (POEO Act) for crushing, grinding or separating, clause 16 of Schedule 1 of the POEO Act.	Section C.1.7 of Appendix C of the EIS acknowledges that the proposed screening plant at the proposed Dinawan 330kV substation site would require an environment protection licence (EPL) as it would satisfy the threshold as a scheduled activity under clause 16, Schedule 1 of the POEO Act. Section 5.24(e) of the EP&A Act identifies approvals or authorisations that cannot be refused if they are necessary for carrying out approved SSI (or critical SSI) and are substantially consistent with the Part 5.2 approval, including the need for an EPL under Chapter 3 of the POEO Act.

Issue/item raised	Transgrid response
The EPA also noted the proposal to utilise treated effluent from the Koorringal and Narrung sewage treatment plants and the Gregadoo Waste Management Centre for dust suppression, earthworks and washdown during construction activities. The EPA noted that these three sites all currently hold environment protection licences with the EPA that do not allow the use of treated water for dust suppression or for other construction purposes. Additionally, EPA noted that consultation with Wagga Wagga City Council identified that the treated effluent from the sewage treatment plant(s) is not suitable for construction activities.	Following discussions with Wagga Wagga City Council, the proposal no longer proposes to source treated wastewater from the Koorringal and Narrung sewage treatment plants and the Gregadoo Waste Management Centre (refer to section 3.4.2.2 of the Amendment Report).

4.2.9. Fire and Rescue NSW

Fire and Rescue NSW provided a response to the public exhibition of the EIS dated 28 January 2022. Consideration of the items raised in their submission is provided in Table 4-8.

Table 4-8 Response to Fire and Rescue NSW submission

Issue/item raised	Transgrid response
Fire and Rescue NSW (FRNSW) noted that in the event of a fire or hazardous material incident, it is important that first responders have ready access to information which enables effective hazard control measures to be quickly implemented.	The comment from FRNSW is noted. Specific response to the emergency response recommendations made by FRNSW is provided in this table.
Fire and Rescue NSW noted that the following matters are recommended to be addressed: a. That a comprehensive Emergency Response Plan (ERP) is developed for each of the construction compound sites.	An ERP would be prepared for the proposal as a whole as part of the finalisation of the construction methodology. This is to ensure a consistent emergency response is applied across all work areas. This has been reflected in a new mitigation measure (HR16), which commits to preparing an Emergency Management and Risk Plan (EMRP) that relates to the construction phase of the proposal (refer to Appendix B).
b. That the ERP specifically addresses foreseeable on-site and off-site fire events and other emergency incidents.	The EMRP would address all foreseeable on-site and off-site fire events and other emergency incidents (such as fires involving electrical substations and bushfires in the immediate vicinity) or potential hazmat incidents that may occur at each individual construction compound and accommodation site. This has been reflected in the new mitigation measure (HR16) (refer to Appendix B).

Issue/item raised	Transgrid response
c. That the ERP detail the appropriate risk control measures that would need to be implemented to safely mitigate potential risks to the health and safety of firefighters and other first responders (including electrical hazards). Such measures would include the level of personal protective clothing required, the minimum level of respiratory protection required, decontamination procedures, and minimum evacuation zone distances.	The EMRP would detail the appropriate risk control measures that would need to be implemented for firefighters and other first responders (including electrical hazards) including those identified in the Fire and Rescue NSW submission. This has been reflected in the new mitigation measure (HR16) (refer to Appendix B).
d. That the ERP include any other risk control measures that may need to be implemented in a fire emergency due to unique hazards specific to the site.	Where required, the EMRP would outline any additional control measures specific to each construction compound and accommodation site. This has been reflected in the new mitigation measure (HR16) (refer to Appendix B).
e. That two copies of the ERP are stored in a prominent 'Emergency Information Cabinet' which is to be located directly adjacent to the site's main entry point/s.	Copies of the EMRP would be made available in an appropriate location for each construction compound, accommodation site and substation site. This has been reflected in the new mitigation measure (HR16) (refer to Appendix B).
f. That the proponent (referred to as Transgrid) undertakes ongoing liaison with local FRNSW zone management teams throughout the construction phases of the project.	Transgrid (and SecureEnergy as its nominated construction contractor) would undertake ongoing liaison with local FRNSW zone management teams throughout the construction phases of the proposal as required. This has been reflected in the new mitigation measure (HR16) (refer to Appendix B).

4.2.10. Heritage Council of NSW

The Heritage Council of NSW provided a response to the public exhibition of the EIS dated 17 February 2022. Consideration of the items raised in their submission is provided in Table 4-9.

Table 4-9 Response to Heritage Council of NSW submission

Issue/item raised	Transgrid response
The <i>Historic Heritage Impact Assessment</i> (Navin, 2021) recommendation regarding temporary fenced exclusion zones around the impacted sites is supported by Heritage Council of NSW and should be included as a condition of consent.	Mitigation measures NAH1 and NAH2 include the requirements for temporary exclusion fencing for specific heritage items or elements of items that would be retained in-situ. The CEMP would also include a heritage sub-plan that would further detail mitigation measures to protect and manage heritage items/sites within or adjacent to construction areas. The support of the Heritage Council of NSW is noted.

Issue/item raised	Transgrid response
Heritage Council of NSW noted that as the Nyangay Pastoral Holding hut site has been identified through desktop research only, the <i>Historic Heritage Impact Assessment</i> stated that an archaeological survey will occur when access is available to investigate the structure and identify any potential for impact. Heritage Council of NSW noted this additional information should be provided for comment during the response to submissions stage. Heritage Council of NSW also noted that design finalisation will attempt to avoid/minimise direct impacts to the item, including options for siting the tower and access track and supported this approach.	Since the public exhibition of the EIS, a field survey of the site was completed on 8 March 2022. The field survey confirmed that there are no extant remains of the hut or tank that were noted on the historic plans. A small scatter of domestic debris (predominantly glass and ceramics) was noted nearby but outside of the proposal's disturbance area. The range of material is consistent with a domestic hut occupied from early to late nineteenth century and is likely to be a rubbish disposal area associated with the dwelling. This material was identified as being highly fragmented and entirely within an area that has been previously cleared for farming and the existing transmission line that parallels the proposal area. The site was therefore assessed as having low archaeological potential and no further investigations are required. Further detail regarding the outcome of the additional assessment is provided in Supplementary technical assessment 3 – <i>Historical Heritage Impact Assessment Addendum Report – Hut site, Nyangay pastoral holding (PEC–E–H4)</i> (Navin Officer, 2022b).
The Heritage Council of NSW noted that the <i>Historic Heritage Impact Assessment</i> stated that if harm to the sheep yards on the Yanga Pastoral Station cannot be avoided, consultation with NPWS would occur, and that where requested, archival recording of the sheep yards would occur and be provided to NPWS. This approach was supported by Heritage Council of NSW who recommended that this should be included as a condition of consent.	Mitigation measure NAH1 outlines the commitment to: • avoid or minimise harm to the sheep yards on the Yanga Pastoral Station as far as practicable • consult with NPWS if impacts cannot be avoided • complete and supply an archival recording to NPWS where requested. The support of the Heritage Council of NSW on this approach is noted.
The Heritage Council of NSW noted support for the standard mitigation measures recommended in the <i>Historic Heritage Impact Assessment</i>, and recommended that these should be included as conditions of consent.	The mitigation measures and requirements for the Heritage sub-plan as outlined in <i>Historic Heritage Impact Assessment</i> is reflected in mitigation measures NAH1 – NAH7, and in the CEMP requirements in section 24.1.3 of the EIS. The support of the Heritage Council of NSW on these mitigation measures is noted
Should archaeological disturbance be required, the Heritage Council of NSW recommended that the Applicant is to nominate a suitably qualified and experienced historical archaeologist to manage the historical archaeological program. This person must fulfil the Heritage Council's <i>Excavation Criteria 2019</i> for the excavation of locally significant archaeology.	Based on the findings of the <i>Historical Heritage Impact Assessment Addendum Report – Hut site, Nyangay pastoral holding (PEC–E–H4)</i> (Navin Officer, 2022b) no archaeological disturbance to the Nyangay Pastoral Holding hut site is anticipated to be required. Further, as the requirements of mitigation measure NAH4 has been satisfied, the mitigation measure has been deleted.

Issue/item raised	Transgrid response
The Heritage Council of NSW recommended that an Archaeological Research Design and Excavation Methodology is prepared to guide the archaeological program and that it is prepared according to Heritage Council of NSW guidelines.	Based on the findings of the <i>Historical Heritage Impact Assessment Addendum Report – Hut site, Nyangay pastoral holding (PEC–E–H4)</i> (Navin Officer, 2022b) no archaeological disturbance to the Nyangay Pastoral Holding hut site is anticipated to be required and would therefore not require the preparation of an Archaeological Research Design and Excavation Methodology. Further, as the requirements of mitigation measure NAH4 has been satisfied, the mitigation measure has been deleted.
The Heritage Council of NSW recommended that a final archaeological excavation report is prepared within 12 months of the completion of archaeological excavation and that copies of the final excavation report shall be provided to the Department of Planning, Industry and Environment (DPIE), the Heritage Council of NSW and to the local Council's local studies unit.	Based on the findings of the <i>Historical Heritage Impact Assessment Addendum Report – Hut site, Nyangay pastoral holding (PEC–E–H4)</i> (Navin Officer, 2022b) no archaeological disturbance to the Nyangay Pastoral Holding hut site is anticipated to be required, and therefore would not require an archaeological excavation report. Further, as the requirements of mitigation measure NAH4 has been satisfied, the mitigation measure has been deleted.
The Heritage Council of NSW suggested that as the site contains a local heritage item, and other local items are in the vicinity, advice should be sought from the relevant local council.	Local registered heritage items within the historic heritage study area are located in the Balranald and Wagga Wagga LGAs. The assessment of the potential impacts on these items is provided in section 11.4 and section 11.5 of the EIS. This concludes that the proposal would not have an impact on these items. Submissions made by the Balranald Shire Council and Wagga Wagga City Council have not raised any matters relating to historic heritage. If impacts to local heritage items could potentially occur during construction, Transgrid would consult with Balranald Shire Council and Wagga Wagga City Council.

4.2.11. Heritage NSW (Aboriginal Cultural Heritage)

The Heritage NSW (Aboriginal Cultural Heritage) provided a response to the public exhibition of the EIS dated 14 February 2022. Consideration of the items raised in their submission is provided in Table 4-10.

Table 4-10 Response to Heritage NSW (Aboriginal Cultural Heritage) submission

Issue/item raised	Transgrid response
Heritage NSW identified a series of recommendations in relation to the proposal as described below: Heritage NSW recommended that a complete archaeological survey of the entire development footprint should be undertaken, irrespective of the approval pathway and any associated constraints. Heritage NSW recommended that the unsurveyed sections of the proposed development footprint be prioritised for survey and assessment with respect to Aboriginal cultural heritage	Since the display of the EIS, additional site investigations have carried out including: - archaeological subsurface testing program for PADs identified in the EIS - site walkover with RAPs of survey areas that were not previously surveyed due to property access constraints. Substantial effort has been undertaken since the preparation of the EIS to gain access from land holders to sites that were previously not accessible. This has enabled a substantial portion of the unsurveyed alignment to now be surveyed. However, due to some ongoing land holder restrictions, access to some sections (about 18 kilometres) of the proposal was not possible. Areas that have not been surveyed represent a small portion, about three per cent, of the total survey area (refer to Appendix 5 of Supplementary technical assessment 2 – Revised Aboriginal Cultural Heritage Assessment (Supplementary technical assessment 2)). Where site surveys have not been completed, the project team remains committed to ensuring that appropriate assessments are completed in consultation with Registered Aboriginal Parties (RAPs) before ground disturbing activities occur (refer to mitigation measure AH3). This includes: - additional assessments in accordance with the Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (2010) - completion of addendum survey reports in consultation with RAPs if Aboriginal objects or area of PAD are identified that would be impacted. Any such report would be provided to RAPs and Heritage NSW for their information prior to the commencement of ground disturbing activities in these locations - where applicable, mitigation measures AH4 to AH13 would be implemented. This includes the requirement for any extra test excavations to confirm the presence or absence and significance of subsurface archaeological deposits to inform design development and construction planning. The findings of the additional site investigations are documented in Supplementary technical assessment 2.
Heritage NSW recommended that any proposed test excavations must occur prior to any associated development works commencing.	Since the display of the EIS, an archaeological subsurface testing program for PADs has been carried out and is documented in Supplementary technical assessment 2. As outlined above, some small areas have not been surveyed and as a result site conditions in relation to potential PAD presence remains unknown. These areas would be managed in accordance with the mitigation measures as outlined in the EIS and the Supplementary technical assessment 2. Any further required archaeological subsurface testing would be completed prior to development works commencing in the area of proposed impact.

Issue/item raised	Transgrid response
Heritage NSW recommended that the established community consultation process be maintained for the throughout all stages of the proposed development.	The continued role of RAPs is recognised in several mitigation measures, including mitigation measure AH2 which provides for engagement with RAPs on: • Aboriginal heritage site surveys (AH3), including participation • test excavations activities (AH4), including participation • review of the draft addendum report/s to the ACHAR, test excavations and scar trees (AH3 – AH5), and consultation on the draft reports • provision of final addendum report/s to the ACHAR to RAPs • Aboriginal heritage exclusion zones (AH7) • the long-term conservation strategy of salvaged or collected Aboriginal objects (AH12). Further cultural information would be gathered during consultation undertaken in association with these activities.
Heritage NSW noted that the ACHAR recommended a range of mitigation measures in relation to Aboriginal Cultural Heritage. Heritage NSW concurred with the recommendations and supported the implementation of those mitigation measures throughout all stages of the proposed development.	The support of Heritage NSW on the mitigation measures detailed in the EIS is noted.

4.2.12. Murray–Darling Basin Authority

The Murray–Darling Basin Authority (MDBA) provided a response to the public exhibition of the EIS dated 11 February 2022. Consideration of the items raised in their submission is provided in Table 4-11.

Table 4-11 Response to Murray–Darling Basin Authority submission

Issue/item raised	Transgrid response
The MDBA noted the need to ensure water quality is maintained/improved and that the flow carrying capacity of the River Murray (located downstream of project areas) is not impacted as a result of the construction or operation of the proposal.	The proposal crosses several sub catchments in the Murray–Darling Basin. These sub–catchments include from west to east the Lower Darling, the Murrumbidgee and the Mid–Murray catchments. The majority of the study area is located in the Murrumbidgee catchment. The major waterway crossings as part of the proposal would include the Murrumbidgee River (at Balranald), Abercrombie Creek, Yanco Creek, the Coleambally Outfall Drain, Colombo Creek, Halliday’s Cut (at Lake Cullivel), Burkes Creek (The Rock) and several other smaller creek crossings. Transmission line towers would be located and constructed so as to minimise impacts to vegetated riparian corridors (mitigation measure B5), with towers located around 50 to 100 metres from major waterways, wherever practicable. Where removal or trimming of the tree canopy is required in a riparian area, trunk bases and understorey would be retained in–situ where feasible to minimise impacts to riparian areas (and subsequent impacts on water quality). Where there are sensitive receiving environments located along the proposal, such as the Murrumbidgee River, water quality impacts from the construction of the proposal are anticipated to be short–term and limited in extent. Additionally, the progressive nature of construction would limit the work areas and duration within which impacts may occur. Mitigation measures would also be implemented to manage potential water quality impacts, which would be detailed in the soil and water sub–plan (refer to mitigation measure HF6). This includes appropriate measures to minimise the extent of ground disturbance and to progressively rehabilitate and stabilise disturbed areas. Transgrid is also committed to ensuring that water quality is maintained throughout the construction of the proposal. In respect of this commitment, the EIS included mitigation measure HF4 which requires water quality monitoring of the Murrumbidgee River and Colombo Creek. Due to the nature of the works, the proposed mitigation measures and distance to the River Murray, the proposal would not impact the flow carrying capacity or water quality of the River Murray.

Issue/item raised	Transgrid response
The MDBA noted that the proposed transmission lines would cross waterways in a single span, with towers each side, with a low risk of impact to flow, control, use, or quality of adjacent waters. The MDBA also support that ancillary works, enabling tower construction either side of waterways, would be situated at least 50m from waterways, with appropriate sediment/erosion controls in place to minimise fouling.	Comment from the Murray–Darling Basin Authority and the support on the proposed placement of transmission line towers and ancillary works is noted.
The MDBA noted that appropriate consideration had been given to on–site stormwater capture/discharge at the proposed substations, with runoff interception/diversion managed via new infrastructure where required.	Comment from the Murray–Darling Basin Authority and the support on the proposed design is noted
The MDBA noted support for additional water quality monitoring being established to assist with mitigation/management of construction impacts, at identified watercourses, and for key water quality parameters against target values.	Comment from the Murray–Darling Basin Authority and the support on the proposed monitoring program is noted. Transgrid is committed to ensuring that water quality is maintained throughout the construction of the proposal. In respect of this commitment, the EIS included mitigation measure HF4 which requires water quality monitoring of the Murrumbidgee River and Colombo Creek at least six months prior to the commencement of ground disturbing activities within the riparian zone at each respective location and then monthly during construction until completion of rehabilitation works in the respective areas. The results of the monitoring would be reviewed to identify if additional mitigation measures are required.
The MDBA noted that any further risks to water quality including, but not limited to, sedimentation, potential contaminants and stormwater management would need to be adequately addressed via the CEMP, Soil and Water Management Plan and any other relevant operational management plans.	A soil and water sub plan would be prepared as part of the CEMP. This would include measures to manage erosion, sedimentation, salinity, acid sulfate soils and accidental spills and as well as measures to manage unexpected finds for contaminated materials (refer to section 24.1.3 of the EIS). During operation, the proposal would be managed through the practices, procedures and processes outlined in the EIS, the Amendment Report or this Submissions Report (with the EIS, Amendment Report or this Submissions Report taking precedence for the implementation requirements should a discrepancy be identified), within Transgrid’s Environmental Management System (EMS). Transgrid will update or develop EMS procedures as required to ensure they comply with the commitments in the EIS and Submissions Report and the requirements of the conditions of approval, including those related to soil and water management.

4.2.13. National Parks and Wildlife Services

The National Parks and Wildlife Services (NPWS) provided a response to the public exhibition of the EIS dated 15 February 2022. Consideration of the items raised in their submission is provided in Table 4-12.

Table 4-12 Response to National Parks and Wildlife Services submission

Issue/item raised	Transgrid response
NPWS note that the exact location of the transmission line towers and access roads in Yanga SCA was not identified in the EIS. NPWS noted that they should be provided the opportunity to review this information once the planning and design stages finalise the locations within Yanga SCA.	Transgrid has meeting generally monthly with officers of NPWS during the development of the proposal to review, discuss and resolve relevant matters affecting NPWS land. This has included: • preliminary consultation including meetings to introduce project etc and arrange preliminary investigative survey access in 2020 and early 2021 • consultation to allow Transgrid to make a formal offer of compensation to NPWS for the easement to be acquired over the park (July 2021) • generally monthly meetings with NPWS between July 2021 and March 2022 regarding the project to discuss needs for the project, and more recently access and construction. Indicative disturbance areas which show potential tower locations within the Yanga SCA is provided in Technical Paper 1 – Biodiversity Development Assessment Report and Technical Paper 2 – Aboriginal Cultural Heritage Assessment Report (and the supplementary technical assessments prepared to accompany this report and the Amendment Report). Since the public exhibition of the EIS, Transgrid has also supplied NPWS with more detailed mapping of the transmission line towers and required upgrades to access tracks within the Yanga SCA as part of the approval required to advance the Aboriginal archaeological test excavations within the Yanga SCA. Transgrid will continue to engage with NPWS as the planning and design stages progress and, to the extent possible, consider feedback from NPWS to further avoid or minimise impacts with Yanga SCA.

Issue/item raised	Transgrid response
<u>Project design refinement</u> NPWS identified three recommendations in relation to design refinement for the proposal as follows: The actual site location of towers, infrastructure and access roads within the Yanga State Conservation Area (Yanga SCA) has yet to be identified. Micro-siting and local knowledge of the Yanga SCA will assist in minimising the impacts to the conservation area. Finalisation of the proposal design (location) and construction methods for Yanga SCA should involve NPWS consultation, review and endorsement including the CEMP subplans that would include minimising impacts to values identified in the NPW or BC acts (biodiversity, heritage etc) on Yanga SCA.	As outlined above, details of the infrastructure and access roads within the Yanga SCA have been previously supplied to NPWS and are also provided in Technical Paper 1 and Technical Paper 2 of the EIS (and the supplementary technical assessments prepared to accompany this report and the Amendment Report). The type and arrangement of the towers (including the final area required for each tower base) would continue to be refined and micro-sited as part of the finalisation of the infrastructure location. This would further minimise environmental impacts, within the identified transmission line easement, wherever practicable (refer to mitigation measure B1, AH1 and NAH1). Transgrid will continue to engage with NPWS as the planning and design stages progress and, to the extent possible, consider feedback from NPWS to further avoid or minimise impacts with Yanga SCA. Further, Transgrid expects that the conditions of approval would require the CEMP and associated sub-plans to be prepared in consultation with relevant stakeholders. Transgrid will prepare the required plans in accordance with the conditions of approval.
Material and equipment storage areas should be off the Yanga SCA where possible or restricted to previously disturbed areas or areas proposed to be disturbed if within the conservation area.	There are no major construction compounds, storage or staging areas proposed within the Yanga SCA. Minor staging, storage and laydown ancillary areas would be required within the construction impact area to provide for the temporary storage of materials, plant and equipment required to construct the transmission line towers. Upon completion of works, these ancillary sites would be cleared of any temporary infrastructure and equipment, and rehabilitated as soon as feasible and reasonable and in consultation with NPWS (as the landowner) (mitigation measure LP5). As provided in mitigation measure B3, opportunities to locate such ancillary areas in areas of limited biodiversity value would be prioritised during the finalisation of the design and construction methodology.
Ancillary construction facilities such as water supply points and construction compounds should be located outside of the Yanga SCA.	The water supply points and main construction compounds would not be located in the Yanga SCA.

Issue/item raised	Transgrid response
<u>Threatened species</u> NPWS noted that the EIS did not appear to address the newly discovered Green Hood Orchid <i>Pterostylis pedina</i>, and its habitat, on YSCA. NPWS recommended that site surveys for this species are conducted during an appropriate time for the species to determine absence or presence. Works should then be planned to avoid areas which contain this threatened species.	<i>Pterostylis pedina</i> (Green Hood Orchid) is currently not a listed threatened species in NSW and as such there is no legal requirement for this species to be treated as part of the BDAR. While the species is not listed as threatened, it is understood that <i>Pterostylis pedina</i> is restricted in distribution and only known from a small number of populations in the western Riverina, including Yanga SCA. WSP have conducted multiple vegetation surveys within Yanga SCA between 2020 and 2021. Local flora experts, Dr Ian Sluiter and Geoffrey Allen were also engaged to undertake targeted threatened flora surveys over the spring 2021 season. No specimens of <i>Pterostylis pedina</i> or suitable microhabitats were observed. Information supplied by NPWS shows that a discrete population of about 248 individuals of <i>Pterostylis pedina</i> occur in the north–eastern portion of Yanga SCA. The known extent of the population is located well outside the proposal disturbance area and occurs about six kilometres to the north of the existing transmission easement. All works associated with the current proposal within Yanga SCA would not impact known areas of <i>Pterostylis pedina</i> or its habitat.
<u>PAD investigations</u> NPWS identified three recommendations in relation to PAD investigations for the proposal as follows: The results from the PAD investigations in Yanga SCA must be considered when determining the proposed tower locations and proposed new access tracks in Yanga SCA. NPWS note that despite the intent to avoid areas of PADS over 40 PADS are still going to be impacted or potentially impacted.	Since the display of the EIS, additional site investigations have carried out including archaeological subsurface testing program for three of the four PADs identified within the Yanga SCA (PAC–E–PAD06, PAC–E–PAD08 and PAC–E–PAD09). The findings of the test excavations are provided in Appendix Supplementary technical assessment 2 – <i>Revised Aboriginal Cultural Heritage Assessment</i> (Supplementary technical assessment 2). This concluded that: - PAC–E–PAD06 and PAD–E–PAD09 in the EIS are not potential archaeological deposits (PADs) - PAC–E–PAD08 is a PAD. Test excavations identified that there is a low potential for the PAD to contain substantial subsurface archaeological deposits in the areas proposed for ground disturbance. The supplementary technical assessment 2 concluded that construction at these locations would be suitable. In the event that the final tower locations move beyond the area that has been subject to test excavation during finalisation of the design, additional testing would be required (refer to revised mitigation measure AH4). As provided by mitigation measure AH1, impacts to features/items of moderate or above Aboriginal heritage significance across the proposal would be avoided or minimised as far as practicable through the development of the final design and/or construction methodology. Avoidance and minimisation of harm to features/items and Potential Archaeological Deposits (PADs) would be prioritised.

Issue/item raised	Transgrid response
	For PAC–E–PAD07, an existing access track traverses this PAD. As this stage, it is not proposed to upgrade this existing track to make it suitable for construction access. Should works be required that would result in potential direct impacts on this PAD, the mitigation measures as provided in the Supplementary technical assessment 2 would apply (such as mitigation measure AH3).
That archaeological investigation methodology that accords with the requirements of the Code of Practice for Archaeological Investigation is applied.	The methodology for the archaeological subsurface testing program has been developed to meet the methodology and requirements of the <i>Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales</i> (DECCW, 2010). A full copy of the complete methodology for the archaeological subsurface testing program has been provided to NPWS prior to the commencement of the test excavation program within the Yanga SCA.
That all planning and design of works to come is done in consultation with the Aboriginal peoples and the advice received regarding the management of Aboriginal objects is strictly adhered to.	Extensive consultation with registered Aboriginal parties for the proposal has been undertaken in accordance with the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents 2020</i> (Office of Environment and Heritage, 2010). This has included: - notification of the proposal to engage RAPs - opportunities to comment of the methodologies for the initial field investigations and the currently proposed test excavations - participation in field surveys undertaken to date (including relevant representatives from Balranald LALC which is of relevance to the Yanga SCA) - opportunities to comment on the draft <i>Aboriginal Cultural Heritage Assessment Report</i> (ACHAR) with some comment received including agreement with the method and some comment on the proposed consultation to be undertaken during the studies - opportunities for Aboriginal representatives to provide comment on the subsurface test excavation methodology (both via email and post). No comments were received - notification of the test excavation program carried out for the proposal to NSW Heritage in December 2021 (in accordance with the requirements of the Code of Practice) - during November and December 2021 a series of online meetings were held with LALCs regarding the ACHAR and subsurface test excavations, including a meeting with Balranald LALC on 29 November 2021. No specific feedback was supplied at this time - provision of opportunity for Aboriginal representatives to participate in the overall program of test excavation works for the proposal - participation in the archaeological subsurface testing program over January to April 2022, including representatives from six Aboriginal organisations (refer to section 5.6 of Supplementary assessment report 2)

Issue/item raised	Transgrid response
	opportunities to comment on the Revised ACHAR (with the 28 day review period concluding in May 2022), which was amended to document the findings of the archaeological subsurface testing program. Overall, the additional consultation did not raise any substantial concerns from the RAP members, with a majority of the representatives that provided feedback generally supporting the recommendations/ mitigation measures proposed for the project. Some concern was however raised regarding the ongoing potential for the project to cause harm to Aboriginal Ancestral places of significance. Further detail regarding the additional consultation and feedback received from RAPs as part of the refined proposal is provided in Section 5.7 of the Revised Aboriginal Cultural Heritage Assessment Report (refer to supplementary technical assessment 2). Consultation on the long term management of the objects will continue through the planning approval process and in preparation for construction. As the project is quite large, an overall consensus may not be reached so it is envisaged that provisions would be put in place for individual sites as required. All RAPs have supported a longer consultation approach to determine long term management of items of Aboriginal heritage significance. This understanding comes from verbal communication at the RAP consultation meetings undertaken in December 2021. Mitigation measure AH12 reflects this approach.
<u>Access</u> NPWS noted that they require at least 2 days notification prior to access within Yanga SCA and at least 2 weeks prior to works commencing to ensure there are no operational conflicts or current incidents/issues.	Property management plans would be developed for affected properties in consultation with the relevant land holders, including NPWS. These agreements would outline the agreed notification and communication protocols that would be implemented prior to and during construction.
<u>Easement</u> NPWS noted that the proposal may also require approval for granting of an easement to Transgrid for a transmission line for areas of land reserved under the <i>National Parks and Wildlife Act 1974</i> (NP&W Act). NPWS recommended continued and early engagement with the NPWS area and the NPWS licencing teams regarding the requirement for a new easement.	In accordance with the established process for acquiring easements on lands reserved under the National Parks and Wildlife Act 1974 (NP&W Act), Transgrid will continue its direct engagement with the NPWS area and licencing teams regarding the acquisition of a new easement. Transgrid and NPWS will continue negotiations for a construction licence to cover the interim period.

Issue/item raised	Transgrid response
<u>Visual impact</u> NPWS noted that the visual impacts for the Yanga SCA have not been addressed and that further consideration of the visual impacts of the proposal on the Yanga SCA is required.	The presence of important historical, cultural and environmental landscape features within the study area were considered when determining the visual sensitivity of the landscape. Views on a tourist route or within designated open space areas or reserves were considered to typically have increased visual sensitivity due to the greater number of likely viewers and the greater emphasis that users of these spaces have on landscape appreciation. This included the grouping of conservation areas at Yanga (including the Yanga SCA). The Yanga SCA is located within the Murrumbidgee River plain rural landscape character area. The assessment of this landscape area is provided in section 5.1.2 of the EIS Technical paper 5 – <i>Landscape Character and Visual Impact Assessment</i> (Iris, 2021). This assessment concluded that there would be a moderate magnitude of change to the landscape, resulting in moderate–low landscape impact given there would be a limited change to the vegetation cover and landform within this landscape area, and due to the capacity for the vast landscape to adsorb large scale infrastructure. Viewpoints selected for a visual impact assessment reflect views from publicly accessible locations (such as road corridors) that have been identified as having increased sensitivity or where people are likely to congregate. A viewpoint assessment was not carried out as all facilities associated with the Yanga SCA and other nearby conservation lands are located several kilometres to the north of the alignment (including the Willows campground, Yanga Lake Picnic Area and Yanga Homestead). The Willows Campground within the Yanga SCA is the closest facility to the proposed alignment and is over four kilometres to the north of the alignment. Due to this distance, there would not be a visual impact.
<u>Clarification sought on options considered</u> NPWS questioned whether a specific options assessment for the section of the proposal through the Yanga SCA was considered and if Yanga SCA could have been avoided all together with a minor realignment in the area.	The preferred corridor in this section of the proposal was selected as it followed the existing transmission easement, which is located in the southern section of the Yanga SCA. As discussed in section 3.3.1 of the EIS, the overall methodology for the corridor selection process included consideration of a range of factors and design criteria, which were identified to minimise environmental and social impacts and maximise the use of previously disturbed areas wherever possible. One of the key criteria in achieving this was to preference areas of existing disturbance (including opportunities to locate the new transmission line parallel to existing transmission line or utility easements, roads, tracks, fence lines and cadastral boundaries). It was considered that this would also be beneficial to meeting other key criteria including: • enabling the new transmission line to be accessed and maintained safely (such as opportunities to access the new easement by utilising existing access points) • provided a cost effective and best value for money option (co-locating easements would have potential operational benefits for maintenance operations)

Issue/item raised	Transgrid response
	• avoiding areas of particular environmental sensitivity • maximising distances to dwellings, inhabited areas and other sensitive land uses. To avoid the Yanga SCA, the corridor would need to pass through agricultural properties to the south. This would have resulted in: • increased impacts to property as a new easement would need to be created • increased visual and social impacts given the location of several homesteads to the south • increased landscape impacts due to the presence of two separate transmission lines and easements in reasonable proximity.
NPWS also identified a range of additional recommended conditions of approval that are usually applied to works on National Parks estates.	Transgrid anticipates that DPE will consider the recommended conditions of approval identified by NPWS and would include any relevant conditions as part of the final set of conditions of approval for the proposal. However it is noted that: • a property management plan would be developed for works within the Yanga SCA in consultation with NPWS as the relevant land holder. This property management plan would outline the agreed notification and communication protocols that would be implemented prior to and during construction. • dewatering would be managed in accordance with the soil and water management sub-plan of the CEMP • mitigation measures LP7, LP8 and LP9 provides for disease, pest and/or weed management, including consultation with the land holder. Detailed biosecurity controls would be documented in the CEMP, noting that the construction contractor would need to meet the obligations under the <i>Biosecurity Act 2015</i> • revised mitigation measures B9 and B11 provide for the delineation of biodiversity exclusion zones • mitigation measure LP5 requires that disturbed areas would be stabilised and appropriately rehabilitated (i.e. back to Pre-impacted condition) as soon as feasible and reasonable following the completion of construction in consultation with NPWS as the relevant land holder • mitigation measure WM6 provides for the removal of waste generated by construction • mitigation measure HR9, new mitigation measure HR16 (Emergency Response Plan) and the bushfire risk management sub-plan of the CEMP would provide for management of bushfire risks during construction.

4.2.14. NSW Department of Regional NSW – Mining, Exploration & Geoscience – Geological Survey of NSW

The NSW Department of Regional NSW – Mining, Exploration & Geoscience (MEG–GSNSW) provided a response to the public exhibition of the EIS dated 10 February 2022. Consideration of the items raised in their submission is provided in Table 4-13.

Table 4-13 Response to NSW Department of Regional NSW – Mining, Exploration & Geoscience submission

Issue/item raised	Transgrid response
MEG–GSNSW noted that they were satisfied that exploration and mining title holders would be adequately consulted.	The comment from MEG–GSNSW is noted.
MEG–GSNSW also noted that several exploration and assessment lease applications are pending which may be impacted by the proposal. MEG–GSNSW committed to notifying Transgrid and title applicants to ensure appropriate consultation takes place.	The commitment to notify Transgrid of the outcome of the pending exploration and assessment lease applications is noted.

4.2.15. Rural Fire Service

The Rural Fire Service (RFS) provided a response to the public exhibition of the EIS dated 15 February 2022. Consideration of the items raised in their submission is provided in Table 4-14.

Table 4-14 Response to Rural Fire Service submission

Issue/item raised	Transgrid response
With respect to mitigation measure BF–1 the Emergency Plan should be prepared for each Local Emergency Management Committee LEMC area which the project traverses.	The measure referenced as BF–1 in Technical paper 12 – Bushfire Impact Assessment (Technical paper 12) is provided in section 20.6.1 of the EIS as a bushfire risk management sub-plan. These requirements have been incorporated into a new mitigation measure that requires the preparation of an Emergency Management and Response Plan (mitigation measure HR16). This plan would address the management of bushfire risk during construction and responses in the event of a bushfire event. The plan would be prepared in consultation with the District Office of the NSW Rural Fire Service.
With respect to mitigation measure BF–2, the APZs should be maintained at a height of 100mm or less all year round.	Transgrid notes that all accommodation camps and construction compounds are proposed in areas that have been previously disturbed or cropped. These areas are best categorised as grasslands for the purposes of defining bushfire risk. <i>Planning for Bushfire Protection 2019 (Appendix A4.1.1 & A4.1.2)</i> states that for an Inner and Outer Asset Protection Zone (APZ) grass should be kept mown – as a guide to no more than 100 millimetres in height. This requirement can be achieved inside the accommodation camps and construction compounds. The Technical paper 12 – Bushfire Impact Assessment (Technical paper 12) provides for the establishment and management of an additional minimum 50 metre wide APZ to the hazard perimeter of the accommodation camps and construction compounds unless an alternate fire protection approach that achieves the same level of bushfire risk management is identified by a suitably qualified specialist.

Issue/item raised	Transgrid response
	The additional APZ located outside the accommodation camps and construction compounds would be regularly maintained to a maximum grass height of up to 150 millimetres, during the prescribed Bushfire Danger Period when the grassland fuels exceed 70 per cent cured. Fuels that exceed 70 per cent moisture content increase the fire behaviour and there the bushfire risk. This management prescription reduces the overall fuel hazard to a manageable height and maintains the biodiversity integrity of the vegetation while removing the hazard when the vegetation reaches a dryness level, beyond which the bushfire risk increases. The management of the grasslands to this prescription provides a better bushfire protection outcome, greater than required by the NSW Rural Fire Services <i>Planning for Bushfire Protection 2019</i>. Mitigation measure HR2 (referred to as BF–2 in the technical paper) has been amended to improve the clarity of this requirement so that the vegetation would be maintained at a maximum height of up to 150 millimetres.
With respect to BF–4, water supply should be clearly specified, and have minimum amounts dedicated (i.e. 20,000L) for firefighting at each camp/major construction area as part of a Fire Management Plan for each camp site. In particular: • contractors and fire wardens should have access to, and the ability to, operate and transport water across the site as needed (water carts etc) • adequate firefighting fittings for NSW vehicles (storz fittings 65mm) • Static Water Supply (SWS) for firefighting purposes should be accessible via access roads for Cat 1 tankers, and provide 65mm storz outlet, located at all camps and key construction areas.	Transgrid notes these recommendations. The final configuration and specification of firefighting infrastructure (including water volumes) at the accommodation camp sites would be informed by the final occupancy density and site layout of each site (mitigation measure HR4). Further, the infrastructure would be documented in the Emergency Management and Response Plan (mitigation measure HR16) and subject to certification by a qualified bushfire consultant that regulatory requirements have been satisfied (mitigation measure HR8).
With respect to mitigation measure BF–6, provision should allow for of all–weather access for a Cat 1 tanker to all camps and key construction areas, including points of SWS.	Mitigation measure HR4 (referred to as BF–4 in Technical paper 12) requires the provision of all–weather access to the static water supply tanks at all construction compounds and accommodation camps. This access would have a minimum width of four metres.

Issue/item raised	Transgrid response
With respect to mitigation measure BF–7, it is recommended to amend the existing mitigation wording to include a requirement for the certification as compliant, for all the mitigation measures contained within the Bushfire Impact Assessment.	The certification process referred to in mitigation measure HR8 (referred to as BF–7 in Technical paper 12) relates to relevant regulatory requirements, not the commitments in the EIS. It is appropriate that the certification by suitably qualified bushfire consultant addresses the relevant regulatory requirements only. However, the mitigation measures are commitments that would be complied with during delivery of the proposal. Compliance with the bushfire-related mitigation measures would be confirmed during compliance auditing.
With respect to mitigation measure BF–8, it is recommended that the mitigation measure also provide for a suitable firefighting unit such as a trailer or vehicle with minimum 600L water supply and firefighting pump and equipment be made available.	Transgrid notes this recommendation. The final configuration and specification of firefighting infrastructure (including water volumes) would be documented in the Emergency Management and Response Plan (mitigation measure HR16), which would be prepared in consultation with the District Office of the NSW Rural Fire Service.
With respect to mitigation measure BF–11 the NSW RFS recommended that vegetation management works should achieve the standards of an Asset Protection Zone (APZ) around all assets that avoids potential flame contact, and mitigates radiant heat (providing for reduced ignition and heat damage and a safer environment for fire fighters to operate). As such, all structures (transmission lines, substations, camps, ancillary works etc) should be designed with materials that withstand the applicable radiant heat level (kW/sqm) and any flame contact from surrounding vegetation. The above referenced vegetation management standards in the Bushfire Impact Assessment do not demonstrate this is being achieved. In particular, the proposed revegetation height within the inner maintenance zone of up to 4 to 10 metres, may result in substantial flame contact and radiant heat impacting the assets.	Main construction compounds and accommodation camps The 50 m wide APZ at the main construction compound and accommodation camps sites detailed in the Bushfire Technical Report exceed the Asset Protection Zone requirements for grassland vegetation – pursuant to Table A1.12.6 of <i>Planning for Bushfire Protection 2019</i>. Table A1.12.6 of <i>Planning for Bushfire Protection 2019</i> also identifies that the provision of a 50 m wide APZ for low hazard grassland, shrubs and crop vegetation on level land lower the level of radiant heat to less than 12.5 kW/m² (BAL 12.5). This reduces ignition risk and heat damage, and provides a safer environment for the occupants and fire-fighters compared to the minimum 10 metre APZ. The 50 metre wide Asset Protection Zone reduces the level of radiant heat on the assets to BAL 12.5 – providing for reduced ignition and heat damage and a safer environment for the occupants and fire-fighters. As provided by mitigation measure HR3 (referred to BF–3 in the technical paper), buildings within the main construction compound and accommodation camp sites would be constructed to comply with Section 3 and 5 of A.S. 3959 – 2018 – BAL 12.5. The vegetation within the 50 metre APZ would be regularly maintained to a maximum grass height of up to 150 millimetres, during the prescribed Bushfire Danger Period when the grassland fuels exceed 70 per cent cured. This management prescription reduces the overall fuel hazard to a manageable height and maintains the biodiversity integrity of the vegetation whilst removing the hazard when the vegetation reaches a dryness level, beyond which the bushfire risk increases.

Issue/item raised	Transgrid response
The NSW RFS recommended this is further investigated, and that the approval authority be satisfied that the proposal provides a suitable level of bush fire protection.	Substations Transgrid design standards require the following to be implemented at substations at risk of bushfire damage: • a cleared area of at least 4 metres wide around the outside of the substation site for vehicle access • a clearance of at least 20 metres from any substation buildings to any bushfire fuel load • a clearance of 23 metres to fuel loads to the main transformers. These standards address the bushfire risk to the substation buildings and equipment. Transmission line The <i>Planning for Bushfire Protection 2019</i> does not specify any APZ requirement for transmission line infrastructure. Along the transmission line, vegetation within the easement would be maintained at different heights to achieve certain biodiversity outcomes: • to up to four metres in height from the centreline out to 20 metres (330kV) and out to 30 metres (500kV) (the inner maintenance zone) • up to 10 metres in height from 20 to 30 metres from the centreline (330kV) and 30 to 40 metres from the centreline (500kV) (the outer maintenance zone). Further: • Transgrid also require a minimum distance to the ground for the maximum conductor sag (mid-span) (being nine metres for the 330kV section and 11 metres for the 500kV section). This would achieve a clearance of five metres (330kV) or seven metres (500kV) between maintained vegetation and the conductors at the mid-span. • The base of each tower would be cleared of vegetation (up to 56 metres wide for 330kV towers, and up to 60 metres wide for 500kV towers). The alignment generally traverses low hazard vegetation (grasses, shrubs and crops). Given the clearance between the low hazard vegetation and conductors, flame contact would not occur and radiant heat is unlikely to be a significant risk to the transmission line infrastructure in these locations. In areas where woodland vegetation occurs, there is the potential for direct flame contact with the conductors at mid span given the proposed separation distances. Flame contact with the lowest conductors would have a short duration (not sustained impact) with likely uneven contact with the conductors due to the structure of the flame. The duration of direct flame contact at any point along the mid span of the conductor is likely to not exceed more than 10 to 15 minutes. The failure of the conductors due to short duration flame contact and radiant heat is not expected.

Issue/item raised	Transgrid response
	Transgrid has considered the potential risk to the conductors and consider failure of such conductors during a bushfire event to be an extremely rare occurrence and would not be expected based on the ground conditions along the corridor. After any event, the infrastructure would be inspected and any damaged infrastructure replaced as required The area surrounding the transmission line towers would also be managed to minimise the fuel hazard and reduce the likelihood of flame contact. The maintenance regime for the proposal has been developed to achieve the right balance between operational and biodiversity outcomes along the transmission line corridor. The approach, which has been developed in consultation with the BCD division of DPE, is considered to deliver an appropriate social and environmental outcome.

4.2.16. Transport for NSW

The Transport for NSW provided a response to the public exhibition of the EIS dated 17 February 2022. Consideration of the items raised in their submission is provided in Table 4-15.

Table 4-15 Response to Transport for NSW submission

Issue/item raised	Transgrid response
Transport for NSW emphasised the need to minimise the impact of development on the existing public road and rail network and maintain the level of safety, efficiency and maintenance along the road network.	<u>Impacts to the road network</u> Given the regional setting of the proposal, the majority of roads to be used for construction traffic are lowly trafficked. Roads within the Wagga Wagga Local Government Area (LGA) support more traffic, associated with the larger urban area. All roads to be used for construction traffic operate within capacity and at good levels of service. The addition of increased traffic during construction would have only minor impacts. The levels of service would continue to perform at a Level of Service A or B. This is due to the already low traffic volumes and the low construction traffic anticipated on each haulage road, together with spare road capacity. The proposal overall would not adversely affect the road capacity performance of any haulage routes. For select roads in more remote areas, given their existing low levels of traffic, small increases in traffic generated by construction would see a large percentage increase in traffic volumes. However these roads would still perform within capacity at good levels of service. The unchanged road efficiency would unlikely result in increased vehicle overtaking, sudden speed reductions, or lane changing and hence would unlikely increase crashes. However, it is acknowledged that increased use of local roads may have an impact on road condition (and therefore safety) if not properly managed. To address road condition impacts due to construction activities, and to make roads suitable for construction haulage, a number of mitigation measures have been identified including:

Issue/item raised	Transgrid response
	• further consultation with roads authorities to identify measures or upgrade works that are required to address potential road safety issues (mitigation measure TA4) • a Driver Code of Conduct to define acceptable driver behaviour for proposal personnel to promote road safety and the minimise impacts on local roads and the community (mitigation measure TA5) • completion of road condition surveys prior to the use of local roads in consultation with the roads authority, implementation of a road condition monitoring and maintenance program, and post–construction condition surveys (and completion of any rectification works) (mitigation measure TA7). During the operation of the proposal, traffic would be limited and generated primarily by maintenance activities. Roads would continue to operate within capacity at good levels of service with negligible change to the performance. Refinements to some mitigation measures have been identified in response to matters identified in the TfNSW submission and are provided in Appendix B. <u>Impacts to rail safety</u> Impacts to rail lines would be limited and would only occur during scheduled rail maintenance periods (such as rail possessions) or scheduled so works do not impact passenger or freight services (for example, between scheduled train services where sufficient gaps occur to safely conduct construction works). As such, the proposal would not impact passenger or freight rail services. Mitigation measure TA6 details further consultation that would be carried out with rail operators where construction works in active rail corridors are required. All works in active rail corridors would occur in accordance with the requirements of the rail operator(s).
Transport for NSW noted that access driveways to the classified road network shall be kept to a minimum and any access tracks to the road network that are not required for operational purposes should be required to be removed at the completion of the construction phase for road safety reasons to remove unnecessary conflict points along the network.	Access driveways to the classified road network have been kept to a minimum as far as possible. The approach to access points has been to preferentially use existing public and private access points and tracks. This involves utilising existing infrastructure and minimising impacts such as the need for additional vegetation clearing. Further discussion on the design of these access points, and the removal of access points that are not required for operation is discussed further below in this table.

Issue/item raised	Transgrid response
Transport for NSW noted that TA15 should be altered to read as <i>“All required temporary access tracks shall be located and constructed in accordance with Austroads Guide to Road Design. Proposed access tracks to the road network shall be constructed only where there are no practical existing access driveways and in consultation with the relevant land holder. All new access tracks not required for operational access shall be removed at the completion of the construction phase of the project within that locality”</i>.	<u>Design of temporary access tracks</u> Connections between temporary access tracks and the public road network would be located, designed and constructed in accordance with the Austroads guidelines. This is provided in mitigation measure TA4 commits. Mitigation measures TA2 and TA10 commit to seeking road occupancy licences for all road works and lane occupancies. The relevant roads authority would have the opportunity to review the location and design of site access points from the public road network through the road occupancy licence application process. Temporary access tracks are typically associated with private land, rather than public road reserves. Temporary access tracks within private land would be designed and constructed in accordance with <i>Managing Urban Stormwater: Soils and construction – Volume 2C Unsealed Roads</i> (DECC, 2008). <u>Access track connections to the road network</u> The need for new access tracks across private land and associated connections to the existing road network would depend on factors such as the location of the works, the proposed usage of the track, the suitability and condition of any existing access tracks and/or connections to the public road network. Access tracks would be developed in consultation with the affected land holder. The suitability of existing access tracks and access points would be further considered when confirming access for construction. The use of existing access points would be given preference in order to minimise impacts on private properties, to benefit the construction program and reduce cost. Where existing access points are not practical, new access points would be created. Examples of where existing access points may not be practical include constructability, stakeholder requirements or environmental constraints. New mitigation measure TA16 has been proposed to respond to this submission from Transport for NSW, and states: <i>Existing connections to the public road network would be considered for use when access to construction locations across private land is required. Existing site access points would be used for construction access where feasible and reasonable, in consultation with the relevant land holder.</i> <i>Consultation with the relevant roads authority would occur for all new site access points.</i> The relevant roads authority would have the opportunity to review the location and design of site access points from the public road network through the road occupancy licence application process. <u>Removal of construction access tracks not required for operations</u> Section 6.6.3.2 of the EIS identifies that temporary access tracks would be rehabilitated where these tracks are not required for operational activities or where a land holder has requested the access track to remain. This is further committed to through:

Issue/item raised	Transgrid response
	• updated mitigation measure TA18 (previously TA15 in the EIS), which provides for the retention of access tracks (and access points) where these are required for operational reasons and where agreed with the land holder • mitigation measure LP5, which provides for rehabilitating all disturbed areas as soon as feasible and reasonable following the completion of construction and in consultation with the relevant land holder. The commitment to close and rehabilitate temporary access points that are not required for operational reasons is detailed in mitigation measure TA17: <i>Temporary access points within the road reserve that are not required for operational reasons would be removed and restored in consultation with the relevant roads authority following the completion of construction.</i>
Transport for NSW noted that as a minimum driveways to the classified road network for the construction compounds, workers camps and substations shall be designed and located in accordance with the Austroads Guide to Road Design for the posted speed limit with a minimum width to accommodate 2 way movement of the largest vehicles likely to access that driveway and be sealed for at least 10 metres from the edge of seal of the carriageway. Transport for NSW also noted that any gates to these sites shall be located a minimum of 40 metres from the edge of seal of the carriageway of the road. The intersection treatments and driveways for these temporary sites shall be removed when these become redundant.	Access driveways to the classified road network have been kept to a minimum as far as possible. The revised access strategy for the proposal following exhibition of the EIS has sought to preferentially use existing public and private access points and tracks in order to utilise existing infrastructure and minimise impacts such as the need for additional vegetation clearing. Mitigation measure TA4 currently notes that: <i>Any road upgrade works to facilitate construction of the proposal would be designed in accordance with Austroads guidelines as relevant.</i> This would include (among other elements identified in the design guide) driveway accesses required for the construction and operation of the proposal. TfNSW, as the relevant roads authority, would have the opportunity to review the location and design of site access points from the public road network through the road occupancy licence application process.

Issue/item raised	Transgrid response
Transport for NSW noted that a Works Authorisation Deed (WAD) is required for the delivery of new driveways where an intersection treatment (e.g. Basic Right Turn (BAR)/Basic Left Turn (BAL)) is required on the classified “state” road network. Transport for NSW noted that they require that the Traffic Management Plans (TMP) required for the construction of the driveway access and intersection treatment be retained and implemented for the duration of the occupation of the accommodation and construction compound sites.	The requirements of TfNSW are noted. Mitigation measures TA1, TA2 and TA15 outline the requirements of the traffic and transport management sub-plan (including required approvals from the relevant roads authority) and the implementation of traffic controls at each proposed site access/egress point (as required). As provided by mitigation measure TA15, any identified issues during construction would be rectified. As provided in mitigation measure TA1 and TA2, the traffic and transport management sub-plan and traffic management plans would be implemented for the duration of construction. The need for a WAD is acknowledged. It is expected that this requirement would be associated with any consent issued by TfNSW in accordance with Section 138 of the <i>Roads Act 1993</i>.
Transport for NSW noted that a section 138 approval is required from the relevant road authority (Council) for works within the road reserve including driveway works and the stringing of lines across the road reserve. For classified roads concurrence is required from Transport for NSW before the approval can be granted. Transport for NSW also noted that any works that occupy part of a travel lane or disrupt traffic flow on a classified Road will also require Road Occupancy Licence.	The requirement for Road Occupancy Licence(s) is noted. This requirement is addressed by existing mitigation measure TA10 which (as refined) states: <i>Road Occupancy Licence(s) would be sought for all temporary lane closures (as required by the relevant roads authority). Associated activities within the road reserve would occur in accordance with the relevant licences. Any road closures with significant impact, such as short-term full road closure and long-term temporary lane/road closures would be assessed on a case-by-case basis, and approval sought from the relevant road authority.</i> Transgrid is not required to obtain a section 138 approval for works that impact on unclassified roads by reason of clause 5 of Schedule 2 of the <i>Roads Act 1993</i>, noting that under section 5.24 of the EP&A Act, to the extent that a section 138 approval is required, this approval cannot be refused and must be generally consistent with any SSI approval. Regardless, Transgrid will engage with the relevant Councils for works within the road reserve and for stringing lines across the road reserve. Transgrid will consult with Transport for NSW for works on classified roads.

Issue/item raised	Transgrid response
Transport for NSW noted that they are the rail authority of the Country Rail Network (CRN) across NSW and the Transport Asset Holding Entity (TAHE) is a State – owned corporation that holds rail property assets and rail infrastructure, including the CRN. They identified that UGL Regional Linx (UGLRL) has been appointed by Transport for NSW to manage the CRN and will be responsible for reviewing and providing advice regarding potential impacts to the CRN. Any works that requires access to any part of the rail land within the Country Rail Network is prohibited unless it is permitted to do so in advance. The Proponent is required to consult UGLRL's Third Party Works team in order to access the CRN and to obtain written confirmation and satisfy requirements by UGLRL on behalf of Transport for NSW.	Impacts to rail lines would be limited and would only occur during scheduled rail maintenance periods (such as rail possessions) or scheduled to not impact passenger or freight services (for example, between scheduled train services where sufficient gaps occur to safely conduct construction works). As such, the proposal would not impact passenger or freight rail services. Transport for NSW's advice on its delegation to UGLRL as the rail operator for the CRN is noted. UGLRL would be consulted in relation to timing and construction methods for rail crossings of the Country Rail Network. This is reflected in mitigation measure TA5 which requires further consultation with the rail authority/operator, obtaining any required authorisations and to conduct work in accordance with the identified requirements.
Transport for NSW noted that the submitted documentation failed to provide details of swept paths of the OSOM vehicles, any potential pinch points or height limitations along the routes or any required specific mitigation measures. It was requested that more detailed information be provided to allow for an informed assessment of the potential impacts of the haulage of the components on the road network. Transport for NSW also noted that when the preferred haulage route is selected a full and independent risk analysis and inspection of the route may be required to be prepared and supplied for comment. Additionally, further analysis and reporting to assess possible damage to, and repair of the route will be required on a regular basis.	The logistics associated with the transportation of materials for the proposal would continue to be refined as part of the ongoing development of the construction methodology and ongoing discussion with material suppliers and equipment suppliers. As identified in the EIS this may require multiple haulage routes from different port(s) depending on the requirements of the nominated material and equipment suppliers. As discussed in section 5.1.3 of Technical paper 11 – Traffic and transport impact assessment, OSOM vehicles would only travel to the Dinawan substation site from the potential ports of origin (Newcastle, Port Kembla, Melbourne or Adelaide). As provided in mitigation measure TA3, the construction contractor would be required to apply for any necessary heavy vehicle access permits. The application would be supported by a Vehicle Movement Plan. The desktop survey report that assesses the proposed haulage routes to the Dinawan substation site is provided in Appendix E of this Submissions Report. The OSOM vehicles would travel along OSOM-approved roads (within NSW) to access the Dinawan substation site via Kidman Way. At this stage, it is not expected that OSOM deliveries would be required to the Wagga Wagga substation. In the event that the Wagga Wagga substation site requires a delivery requiring an OSOM load carrying vehicle, the appropriate approvals would be sought at that point in time.

Issue/item raised	Transgrid response
	Once determined, full risk analysis and inspection of the finalised haulage routes would be undertaken to ensure the suitability of the route(s), with the objective of not requiring road or bridge widening or strengthening. The inspection would include a baseline assessment of the condition of the routes against which any possible damage could be considered. The requirement for inspections would be included as part of the traffic and transport sub-plan for the proposal CEMP.
Transport for NSW recommended that a plan shall be prepared in consultation with the relevant road authorities to outline measures to manage the movement of workers to the project site to address fatigue related issues. The plan should provide initiatives to reduce traffic commuting to the development site such as facilitating shuttle bus services. The plan is to include regular consultation with Council, Transport for NSW and NSW Police to address commuter traffic and commuter traffic related incidents on public roads.	As committed to in mitigation measure TA14, the construction contractor would develop a Fatigue Management Plan to address driver fatigue during construction. Mitigation measure TA5 has been amended to provide a clearer link to the Driver Code of Conduct to the Fatigue Management Plan. Further, the construction contractor would also consider reasonable and feasible opportunities for shuttle buses, car-pooling and ride sharing when planning construction. These proposed options would be included in the traffic and transport management sub-plan. The construction contractor would prepare the traffic and transport management sub-plan in accordance with the local councils and TfNSW, as committed to in mitigation measure TA1.
Any Traffic Management Plan shall be prepared in consultation with the relevant road authorities (Council and Transport for NSW) to outline measures to manage traffic associated with the construction and operation of the development including the movement of plant and components to the site. The Traffic Management Plan for the movement of oversize plant to the site shall involve the transport contractor. The plan shall focus on the management of traffic generated by the development, the potential impacts, the measures to be implemented, and the procedures to monitor and ensure compliance.	As outlined in Table 24-1 of the EIS, a traffic and transport sub-plan would be prepared as part of the overall Construction Environmental Management Plan (CEMP) for the proposal (mitigation measure TA1). As noted in Table 24-1 of the EIS, the sub-plan will be prepared in consultation with the transport contractor, relevant local councils and Transport for NSW along the length of the proposal. It will identify the key management and response strategies to potential delays and disruptions that may arise due to the proposal. It will include (as a minimum): • measures to manage oversize and overmass vehicle movements during construction, which will consider activities of adjoining land uses and safety of the public, such as entering urban areas from rural highways • measures to minimise disruption to pedestrians, cyclists and motorists • management of safe vehicle access/egress from construction compounds and other construction work areas • management of long-distance travel through driver fatigue management measures • measures to ensure safe access to existing properties during construction, or provision of suitable alternatives.

Issue/item raised	Transgrid response
	The preparation of the sub-plan would also consider any requirement to consult with Transport for NSW (such as with respect of impacts to classified roads) and would take into account the items as outlined in Transport for NSWs' submission.

4.2.17. WaterNSW

WaterNSW provided a response to the public exhibition of the EIS dated 4 February 2022. Consideration of the items raised in their submission is provided in Table 4-16.

Table 4-16 Response to WaterNSW submission

Issue/item raised	Transgrid response
WaterNSW has reviewed the EIS and determined that the proposal should not impact on their land or assets, being water quality monitoring devices. It is considered that the mitigation measures outlined within the EIS will manage the project impacts adequately, including impacts to soil and water.	The position of WaterNSW is noted. The proposal does not impact surface water quality monitoring devices operated by WaterNSW. The proposal does not directly impact any land owned by WaterNSW. Further assessment would be carried out to confirm that no registered bores would be affected by blasting activities (mitigation measure SCG4). This would identify any required mitigation measures, changes to the construction methodology or engineering solutions that would be implemented to address any potential impacts. This mitigation measure has been amended in response to submissions to include the consideration of the minimum impact criteria set out in the <i>Aquifer Interference Policy</i> (2012) for any registered bores located within 50 metres of a blasting site. Transgrid would consult with WaterNSW in the event that they operate any bore identified in this assessment.
If during the implementation of the project interaction with any WaterNSW asset is encountered, WaterNSW requests that the proponent contact WaterNSW to discuss any potential impact, and mitigation measures.	If during the implementation of the project interaction with any WaterNSW asset is encountered, Transgrid and/or its nominated contractor would contact WaterNSW to discuss any potential impact (and agree any mitigation measures, if required).

4.2.18. Balranald Shire Council

The Balranald Shire Council provided a response to the public exhibition of the EIS (un-dated through the DPE consultation portal). Consideration of the items raised in their submission is provided in Table 4-17.

Table 4-17 Response to Balranald Shire Council submission

Issue/item raised	Transgrid response
Balranald Shire Council noted they look forward to engaging with Transgrid on the development of the Traffic & Transport sub-plan noting that they see the road condition surveys as critical in ensuring that the local roads and resourcing are not impaired due to the proposal.	The position of Balranald Shire Council is noted. This is reflected in mitigation measure TA1 (traffic and transport management sub-plan) and the mitigation measure TA7 (road condition surveys).

Issue/item raised	Transgrid response
Balranald Shire Council raised that an element that they did not consider to be addressed in the EIS was that of sourcing construction materials for road/track construction works, hardstand areas and road/track maintenance/restoration works, noting that these types of construction materials are not locally abundant. Council considered the awareness of proposed material sourcing important so that impacts on future Council maintenance and construction programs, as well as potential for on farm uses, are minimised.	The majority of the materials required for construction would be sourced from areas outside the region (such as steel and conductor cables), and concrete batching plants have been proposed to supply concrete for construction work at the substation sites and transmission line towers. Balranald Shire Council would be consulted regarding locally sourced material for road/track maintenance and/or restoration works, however, the proposal would seek to minimise the use of locally sourced materials to minimise impact on local supply.
Balranald Shire Council noted that the EIS states waste materials are to be separated to permit appropriate disposal and recycling, noting the need for the proposal to commit to this during the construction period.	Mitigation measure WM5 commits to the segregation of waste streams to avoid cross-contamination of materials and to maximise reuse and recycling opportunities. Opportunities would also be investigated and implemented to reduce waste generation and to re-use or recycle construction and demolition waste where practicable (refer to mitigation measures WM1 to WM3).
Balranald Shire Council noted that it was their position that the existing accommodation site is utilised for the requirements of the proposal so as to minimise environmental impacts of establishing a new site and create better potential to maximise local benefit.	The position of Balranald Shire Council is noted. Both options for the accommodation site remain in the proposal and would be subject to further discussions with the land holders.
Balranald Shire Council noted they would like to have an improved understanding of potential telecommunication impacts than has been provided by 20.4.3 [of the EIS], noting they are keen to ensure there are no reductions to existing coverage due to the proposal. Additionally, Balranald Shire Council noted that should mobile communications infrastructure be installed to support the proposal, permanency should be considered so as to create long lasting community benefit.	Mobile phone and NBN fixed wireless services operate on frequencies greater than 800MHz and would not be subject to interference from the proposal. Further discussion on interface with VHF frequencies is provided in Section 4.1.4.3 of this report. Transgrid is actively investigating opportunities to improve mobile and digital connectivity along the proposal alignment and across the broader region. Initiatives of this nature require input from a range of third parties, and Transgrid is committed to understanding all possible solutions and methods of delivery.

Issue/item raised	Transgrid response
Balranald Shire Council welcomed the commitments for consultation with affected land holders so as to ensure mutually agreed processes and impact mitigation measures are implemented with regards to agricultural land impacts.	The support of Balranald Shire Council for the commitments made in the EIS is noted. Engagement with directly affected land holders is continuing, including the completion of Property Management Plans.

4.2.19. Hay Shire Council

The Hay Shire Council provided a response to the public exhibition of the EIS dated 18 February 2022. Hay Shire Council advised they had reviewed the EIS and have no comment to make in relation to it.

4.2.20. Federation Council

The Federation Council provided a response to the public exhibition of the EIS (un-dated through the DPE consultation portal). Consideration of the items raised in their submission is provided in Table 4-18.

Table 4-18 Response to Federation Council submission

Issue/item raised	Transgrid response
<u>Impact on road infrastructure</u> Federation Council officers raised a series of concerns regarding the likely impacts of the proposal and some of the assumptions that have been made or detail regarding potential traffic and transport impacts. These items included: - no detail on the source location of the construction materials which would impact on the haulage routes through the affected LGAs - objection to a number of the road being utilised as primary haulage routes without significant upgrade, most notably Back Berrigan Road - The need for further consultation regarding the secondary haulage as a number of the roads identified will require significant upgrades to permit heavy vehicles usage over the construction period	<u>Construction materials</u> The majority of construction materials for the substation and transmission line towers would be sourced from outside the Federation Council LGA, and transported from ports in NSW, Victoria or South Australia via the nominated haulage routes documented in the EIS. Concrete batching plants (to be located at the Balranald, Cobb Highway, Dinawan 330kV substation and Lockhart sites construction compounds as described in section 6.7.1 of the EIS) have been proposed to supply concrete for construction work at the substation sites and transmission line towers. Federation Council would be consulted regarding locally sourced material for road/track maintenance and/or restoration works, however, the proposal would seek to minimise the use of locally sourced materials to minimise impact on local supply. <u>Haulage routes</u> Some errors were identified in the allocation of primary, secondary and water haulage routes in Table 6-8 of the EIS and within Technical paper 11 – Traffic and transport (refer to section 2.5.3 of the Amendment Report). These corrections have been discussed with Federation Council. Within the Federation LGA, roads that would carry higher volumes of construction vehicles are typically sealed regional or State roads (e.g. Federation Way). Sealed and unsealed local roads within the LGA would generally carry lower volumes of construction vehicles. Local roads would typically be used intermittently or for a portion of the total construction period. Construction traffic volumes, and in most cases, construction vehicle volumes would be low (ranging from three vehicles to 22 vehicles per hour in each direction during the construction peak). This includes Back Berrigan Road, which had been identified as a primary access road in error. As provided in Table 5–12 of Technical paper 11 this road would be used intermittently with around three construction vehicles movements per hour in one direction.

Issue/item raised	Transgrid response
details regarding required road closures including the proposed timing or specific roads that will be impacted. It was requested that no road be closed during the peak harvest period of October to December.	Where feasible, construction vehicle movements would be undertaken within the construction impact area to minimise impacts on the public road network. However, access to the transmission line work area would still be required via local roads. The routes have been developed to minimise impacts on local roads as far as possible, while providing the most direct route to the road network and meeting specific road requirements (such as specified routes for heavy vehicles). The preliminary haulage routes would be reviewed during finalisation of the construction methodology. As provided by mitigation measure TA4, further consultation would be carried out with Federation Council as the relevant roads authority on the proposed routes and any required road upgrades to address any potential road safety issues. <u>Road closures</u> Any road closures during construction would be short-term in nature and would be associated with reduced road/lane capacity or speed restrictions, or where detours may be required temporarily when stringing of the transmission line occurs over a road. Road Occupancy Licence(s) would be sought for all temporary lane closures (as required) with the relevant roads authority prior to construction (mitigation measure TA10).
<u>Potable water supply</u> Federation Council raised concerns for residents in Boree Creek and Urana and the ability for the water authority (Riverina Water) to provide potable water to the proposal and the two villages, especially during peak periods of demand, i.e. over summer months. Council requested assurance that there will be adequate potable water supply throughout the construction period for the residents and businesses.	Around 120 megalitres of the estimated 1.1 gigalitres of water required over the 18-month construction period would need to be potable water, which would be used in concrete batching activities at main construction compounds and for accommodation camps (noting that no accommodation camps or main construction compounds would be located within the Federation local government area). Wastewater treatment facilities have also been provided at the proposed Cobb Highway, Dinawan and Lockhart accommodation camp sites to minimise demand on non-potable water supply in the region. The majority of non-potable water demand for the proposal is required for dust suppression purposes (728 megalitres). All water supplied to the proposal would be obtained from existing regulated sources and purchased from the existing water market within the region or from local council facilities. The water supply sources detailed in the EIS have been identified in consultation with suppliers in the region. Discussions are continuing with a number of water suppliers to secure the required volume of water (potable and non-potable) for the proposal from existing facilities. The volumes available for supply to the proposal would be confirmed during ongoing negotiations with each water supplier. The water supplier would be responsible for managing its existing obligations and any agreed obligations to supply water to the proposal. As outlined in section 6.9.2 of the EIS, consultation with water suppliers may identify other water sources that may be used for construction. This may include additional sources of potable water from areas such as Coleambally Irrigation or private water licence holders.

Issue/item raised	Transgrid response
<u>Waste management</u> Federation Council requested that a Waste Management Strategy and Plan be prepared for the overall proposal and all potential streams of waste, including the proposed locations for disposal, i.e. nearest licenced landfill or unlicensed landfill in order to determine the potential impact on Council landfills.	Mitigation measure WM5 commits to the segregation of waste streams to avoid cross-contamination of materials and to maximise reuse and recycling opportunities. Opportunities would also be investigated and implemented to reduce waste generation and to re-use or recycle construction and demolition waste where practicable (refer to mitigation measures WM1 to WM3). Potential impacts to waste and resource use would be managed throughout each phase of the proposal. This includes the adoption of construction methods or design responses to reduce material inputs and enable reduced energy and fuel inputs throughout the construction phase where practicable. This is further reflected in mitigation measures WM1, WM2 and WM3. All waste removed from the proposal would be transported to appropriately licensed waste disposal or transfer facilities or other facilities lawfully able to accept materials (WM6). The construction contractor would identify appropriate waste facilities and consult with the operators of those facilities to confirm the proposed approach to waste management, including capacity. A waste management sub-plan would be prepared in consultation with Federation Council that would set out waste management strategies for the proposal in accordance with the waste management hierarchy of avoid, minimise, re-use and dispose (refer to section 24.1.3 of the EIS). The plan would include but is not limited to: • targets for the recovery, recycling and re-use of construction waste • procedures for the assessment, classification, management and disposal of waste • waste tracking and compliance management.
<u>Construction compound and accommodation camp site</u> Federation Council noted there was no information regarding the decommissioning of the construction compound and accommodation camp sites. Additional information was requested to ensure that affected sites can be developed in the future.	As outlined in section 6.6.3 of the EIS, the following would occur at the completion of construction where main construction compounds and/or accommodation camps are established by the proposal: • all temporary site buildings and temporary environmental controls would be removed • site restoration to make good any disturbance caused by the proposal, including restoration of any natural drainage in areas where temporary facilities were provided • rectification of any fences, gates etc which may have been damaged during construction. As provided in mitigation measure LP5, disturbed areas would be stabilised and appropriately rehabilitated (i.e. back to Pre-impacted conditions) as soon as feasible and reasonable following the completion of construction at each location. This would be carried out in consultation with the relevant landowner. For construction compounds, all restoration works are expected to be completed by March 2025 (approximately six months beyond the commissioning phase for the proposal). Further, the proposal does not include a main construction compound and/or accommodation camp within the Federation Council local government area.

4.2.21. Lockhart Shire Council

The Lockhart Shire Council provided a response to the public exhibition of the EIS dated 2 February 2022. Consideration of the item raised in their submission is provided in Table 4-19.

Table 4-19 Response to Lockhart Shire Council submission

Issue/item raised	Transgrid response
Lockhart Shire Council noted the undertaking expressed in mitigation measure TA7 that all sealed local roads (within the vicinity of 200 m of the proposal) and/or all unsealed roads on haulage routes would be reinstated to equivalent or better condition. Lockhart Shire Council noted that this should be done within a reasonable timeframe following completion of construction in view of the district's prominence as a significant grain growing area and the reliance on the local road network by local produces for transporting grain.	Mitigation measure TA7 has been amended to ensure that any such work is completed within three months of construction use concluding or as otherwise agreed with the relevant roads authority.

4.2.22. Murray River Council

The Murray River Council provided a response to the public exhibition of the EIS (un-dated through the DPE consultation portal). Consideration of the items raised in their submission is provided in Table 4-20.

Table 4-20 Response to Murray River Council submission

Issue/item raised	Transgrid response
Council has no objection to the subject proposal	Comment from Murray River Council is noted.
Murray River Council did however request that a dilapidation report be completed prior to works commencing, noting that this report may be called upon if damage to Council assets requires rectification.	Mitigation measure TA7 commits to the completion of road condition surveys for all sealed local roads within 200 metres of the proposal and/or all unsealed roads on haulage routes. The surveys would be carried out in consultation with the relevant roads authority and prior to the road being used by construction heavy vehicles. Mitigation measure TA7 also outlines the commitment to: • a road condition monitoring and maintenance program • post-construction road condition surveys to identify any damage attributed to the proposal • address any damage attributed to the proposal in consultation with the relevant roads authority. Roads damaged by the proposal would be reinstated to equivalent or better condition.

4.2.23. Murrumbidgee Council

The Murrumbidgee Council provided a response to the public exhibition of the EIS (un-dated through the DPE consultation portal). Consideration of their submission is provided in Table 4-21.

Table 4-21 Response to Murrumbidgee Council submission

Issue/item raised	Transgrid response
Murrumbidgee Council noted that they had no objection to the proposal and believed that the proposal has significant social and economic benefit to the State and the local region.	Comment and support from Murrumbidgee Council is noted.

4.2.24. Wagga Wagga City Council

The Wagga Wagga City Council provided a response to the public exhibition of the EIS dated 25 February 2022. Consideration of the items raised in their submission is provided in Table 4-22.

Table 4-22 Response to Wagga Wagga City Council submission

Issue/item raised	Transgrid response
Wagga Wagga City Council requested that any approval should require that the final details of the design and layout of the Wagga Wagga construction compound is provided for approval before the establishment of the compound. This includes • final access location and design details of intersection works within the Ashfords Road • setout of temporary structures, temporary site buildings, storage areas and vehicular movement areas • appropriate buffers and protection measures for existing drainage lines and vegetation on the site. (<i>Note: parts of the site are subject to major overland flow flooding</i>) • dust, sediment and erosion control measures • stormwater management • on site waste management including sewage waste • establishment of appropriate security fencing and buffer setbacks to boundaries including Ashfords Road.	<u>Traffic and access</u> Details of the temporary site access point is provided in Table 5-8 of Technical Paper 11 – Traffic and Transport Assessment. As identified in this assessment, a Basic Right Turn (BAR) and the Basic Left Turn (BAL) treatment is proposed at this location. The nominated access point is located approximately 270 metres to the north of the Ashfords Road and Boiling Down Road intersection. The access point to the Wagga Wagga main construction compound would be designed in accordance with Austroads guidelines and measures would be implemented in consultation with Wagga Wagga City Council to manage any potential road safety issues (mitigation measure TA4). Further, road conditions and traffic controls implemented at each proposed access/egress point would be monitored during construction (mitigation measure TA15). Any identified issues would be rectified. <u>Compound layout</u> The construction contractor would be responsible for the final site layout arrangements. The EIS has assessed potential impacts within the compound site to provide flexibility to the final configuration and does not require approval from Wagga Wagga City Council. <u>Environmental controls at the main construction compound</u> Detailed construction planning would consider flood risk at construction sites and any required measures to minimise flood risks (mitigation measure HF2). This would include confirming site layouts to minimise or avoid the obstruction of overland flow paths and to limit the extent of flow diversion required.

Issue/item raised	Transgrid response
	Vegetation within the main construction compound site would be retained where possible (mitigation measure LV1) with retained vegetation protected (mitigation measure LV4). A soil and water sub-plan would be implemented to manage soil and water quality impacts across the proposal, including the Wagga Wagga construction compound (mitigation measure HF6). Security fencing would be provided along the perimeter of the construction compound, which would be contained within the leased property and outside the road reserve. Waste generated on site, including waste from ablution facilities, would be managed in accordance with the waste management plan. On-site sewage treatment is not proposed at this main construction compound.
Wagga Wagga City Council noted the importance of Lake Albert to the community due to its recreational and environmental values and identified the need to protect water quality within the Lake Albert catchment. In doing so, Wagga Wagga City Council highlighted the need to manage stormwater, sediment and erosion and effluent at the construction compound, as well as to need to protect waterways and vegetation within the catchment.	The values of Lake Albert and the need to protect water quality within the catchment are acknowledged. During construction, mitigation measures to manage impacts on soil and water would be detailed in a soil and water sub-plan to the CEMP (mitigation measure HF6). This would cover all stages of construction activities, including the establishment, operation and closure of the main construction compound as well as works in the Wagga Wagga substation upgrade site.
Wagga Wagga City Council raised concern with the continued safe operation of Ashfords Road due to the regular movement of plant, equipment and construction vehicles between the Wagga Wagga substation upgrade site and the Wagga Wagga construction compound site. In doing so, Council suggested an alternative arrangement to the Wagga Wagga construction compound consisting of: • a smaller compound on the western side of Ashfords Road so vehicles and plant do not need to cross the road • a compound that caters for the transmission line upgrade that is located closer the alignment and to the primary supply routes (such as the Olympic Highway south of Uranquinty). This would minimise haulage impacts on roads (and intersections) such as Boiling Down Road, Ashfords Road and Gregadoo Road.	Key factors in identifying the location of main construction compounds for the proposal is provided in section 3.5 of the EIS. A main construction compound was identified at this location due to its proximity to the substation upgrade site and land availability as well as proximity to Wagga Wagga for services and long term workforce accommodation. The assessment of construction traffic has not identified any network performance impacts to warrant the relocation of some compound operations to Uranquinty or elsewhere. Traffic movements to/from the substation site and the main construction compound would be managed to minimise disruption to the road network. Any heavy vehicle movements between the substation and main construction compound would be limited as heavy vehicles would generally deliver materials straight to the substation site. Required controls would be outlined in the traffic and management sub-plan of the CEMP, which would be prepared in consultation with Wagga Wagga City Council as the relevant roads authority (mitigation measure TA1). Further, as stated earlier in this section, road conditions and traffic controls implemented at each proposed access/egress point would be monitored during construction (mitigation measure TA15). Any identified issues would be rectified.

Issue/item raised	Transgrid response
Alternatively, Wagga Wagga City Council requested that specific management controls are in place to manage construction movements across Ashfords Road so that continued operation is not impacted, including public access to the Gregadoo Waste Management Facility.	
Wagga Wagga City Council requested that any approval includes a requirement for the compound site to be rehabilitated to its original status within a reasonable time frame following the completion of works.	Removal of construction compounds and associated closure works would extend around six months beyond the commissioning phase, with estimated completion in March 2025.
Wagga Wagga City Council queried if the Wagga Wagga substation upgrade site would require a temporary access point during construction. If an access is required, Wagga Wagga City Council identified the need for any such access point to consider matters raised elsewhere in its submission.	Access to the substation upgrade site would be via the existing access to the Wagga Wagga substation. The access point would be monitored during construction, and if required maintenance works would be carried out to ensure the access remains in a suitable condition. Temporary access to the transmission line towers near the Ashfords Road and Boiling Down Road intersection would be required. These accesses would be via Boiling Down Road.
Wagga Wagga City Council noted that it is uncertain where the existing stormwater system at the Wagga Wagga substation site discharges to and requested that any new stormwater infrastructure does not impact the discharge point or any adjacent infrastructure through an increase in discharge rates or volume.	Transgrid would consult with Wagga Wagga City Council concerning the additional volumes and discharge rates during detailed design of the substation upgrade.
Wagga Wagga City Council identified that new or upgraded temporary access points would require an approval from Wagga Wagga City Council under Section 138 of the Roads Act 1993. This may also require the preparation of Temporary Traffic Management Plans for the works.	Transgrid is not required to obtain a section 138 approval for works that impact on unclassified roads by reason of clause 5 of Schedule 2 of the <i>Roads Act 1993</i>, noting that under section 5.24 of the EP&A Act, to the extent that a section 138 approval is required, this approval cannot be refused and must be generally consistent with any SSI approval. Notwithstanding, a number of commitments have been made to consult and obtain necessary authorisations from Wagga Wagga City Council as the relevant roads authority. This includes Road Occupancy Licence(s) (mitigation measure TA10) and the preparation of the traffic and transport management sub-plan of the CEMP (mitigation measure TA1). Wagga Wagga City Council would also have the opportunity to review the location and design of site access points from the public road network through the road occupancy licence application process.

Issue/item raised	Transgrid response
Wagga Wagga City Council requested that any approval includes a requirement for the temporary access points be removed at the completion of construction with the road reserve or any impacted Council infrastructure rehabilitated or reinstated.	Conditions of approval are a matter for consideration by DPE. Notwithstanding, to make the commitment to close and rehabilitate temporary access points that are not required for operational reasons, a new mitigation measure has been proposed (mitigation measure TA17). This measure states: <i>Temporary access points within the road reserve that are not required for operational reasons would be removed and restored in consultation with the relevant roads authority following the completion of construction.</i>
Wagga Wagga City Council requested that a dilapidation assessment of all roads (and related infrastructure) nominated as a haulage and construction routes is completed prior to construction in consultation with Council. Appropriate mechanisms are required for the proponent to complete dilapidation assessments following the completion of construction and to rectify any damage attributed to the proposal.	Mitigation measure TA7 commits to the completion of road condition surveys for all sealed local roads within 200 metres of the proposal and/or all unsealed roads on haulage routes. The surveys would be carried out in consultation with the relevant roads authority and prior to the road being used by construction heavy vehicles. Mitigation measure TA7 also outlines the commitment to: • a road condition monitoring and maintenance program • post-construction road condition surveys to identify any damage attributed to the proposal • address any damage attributed to the proposal in consultation with the relevant roads authority. Roads damaged by the proposal would be reinstated to equivalent or better condition.
The dilapidation assessment should also inform Wagga Wagga City Council on the: • suitability of the current condition of haulage roads and intersections to cater for the anticipated traffic • requirements for any upgrades where deemed necessary to cater for the proposal. Council expressed that this would be particularly important for unsealed roads such as Rowan Road and Boiling Down Road which would experience substantial increases in traffic due to construction traffic and are potentially unsuitable in their current condition. Council identified the need for any approval to allow for this assessment to occur in consultation with Council and for any required upgrades to be completed, with reference to a recent solar farm approval.	The nominated haulage routes have been developed to minimise impacts on local roads as far as possible, while providing the most direct route to the road network and meeting specific road requirements (such as specified routes for heavy vehicles). The preliminary haulage routes would be reviewed during finalisation of the proposal design. As provided by mitigation measure TA4, further consultation would be carried out with Wagga Wagga City Council as the relevant roads authority on the proposed routes and any required road upgrades to address any potential road safety issues.

4.2.25. Wentworth Shire Council

The Wentworth Shire Council provided a response to the public exhibition of the EIS dated 8 February 2022. Wentworth Shire Council advised they had reviewed the EIS and have no comment to make in relation to it.

5. Conclusion

This section provides a synthesis of the findings of the Submissions Report and in conjunction with the Amendment Report concludes the environmental impact assessment process.

5.1. Overview

The EIS included a comprehensive assessment of the potential environmental impacts associated with the proposal and, where appropriate, proposed mitigation measures to address these potential impacts. Consultation was undertaken with the community and key stakeholders throughout the environmental impact assessment process, to allow early identification of key issues and addressing of those issues, where possible. The EIS concluded that with the implementation of the proposed mitigation measures the potential environmental impacts of the proposal would be adequately managed.

The EIS was placed on public exhibition for a period of 28 days, commencing 19 January 2022 and concluding on 15 February 2022. A total of 75 submissions were received, comprising 44 submissions from individual community members, five submissions from organisations, 17 submissions from public authorities and nine submissions from local councils.

5.2. Summary of issues raised

The top four issues raised by community members and organisations were related to:

- out of scope items including general opposition to renewable energy development and concern regarding proposal ownership
- land use and property issues including the need for compensation for property acquisition and property valuations and impacts to farming activities and general agricultural land uses
- hazards and risks issues including bushfire impacts during operation and impacts from electric and magnetic fields
- a range of biodiversity issues including impacts from bird strikes, impacts to threatened species, impacts to water birds/wetlands and the approach undertaken for the impact assessment.

Key issues raised by public authorities included, but were not limited to:

- aviation impacts, including the potential for the proposal to interfere with the existing obstacle limitation surface for Wagga Wagga airport
- biodiversity impacts, including the level of consideration of potential impacts for prescribed and serious and irreversible (SAII) impacts, the level of detail regarding measures to mitigate, monitor, and manage impacts, the overall consideration of residual impacts and the resulting credit requirement and other specific impacts such as the level of discussion direct impacts on native vegetation and threatened species habitats
- Aboriginal and non-Aboriginal heritage issues, in particular the need for further assessment of potential impacts (through activities such as test excavations) and identification of recommendations for guiding these investigations
- potential impacts on national parks from the proposal, in particular impacts to the Yanga State Conservation Area from perspectives such as heritage, visual and landscape and route selection

- comments from both the Rural Fire Service and Fire and Rescue NSW regarding the need for appropriate management plans and mitigation measures to maintain a safe environment during construction and environment
- impacts to local and regional roads, including identification of access points and the need for management and monitoring through activities such as conducting dilapidation surveys.

Sections 4.1 and 4.2 of this Submissions Report provides responses to the issues raised in submissions for both the community/organisations and public authorities/local councils respectively.

5.3. Concluding statement

The proposal, which is an essential component of EnergyConnect, would build on the approved EnergyConnect (NSW – Western Section) to further enhance the energy transmission link between the SA, NSW and Victorian transmission networks.

The proposal was described in the EIS, which was placed on public exhibition to provide the community, organisations and public authorities with an opportunity to respond to the proposal. All submissions received by DPE regarding the proposal have been reviewed, considered and responded to in this report.

To avoid, minimise or manage the potential impacts identified by the EIS and submissions, Appendix B of this report lists the revised mitigation measures that would be implemented during construction and operation of the proposal. This includes implementing the CEMP(s) and community and stakeholder engagement plan during main construction works and Transgrid's environmental management system during operation. With the implementation of the proposed revised mitigation measures, the potential environmental impacts of the proposal would be adequately managed. This would also ensure compliance with relevant legislation and any conditions of approval.

A series of design refinements have also been identified for the proposal which are identified and assessed in the Amendment Report for the proposal, including amendments which respond to submissions received during exhibition.

5.4. Next steps

The EIS, this Submissions Report, the Amendment Report and the supplementary technical assessments will be reviewed by DPE, on behalf of the Minister for Planning. Once DPE has completed their assessment, a draft assessment report will be prepared for the Secretary of DPE, which may include recommended conditions of approval. A final assessment report will then be provided to the Minister for Planning, who will determine the proposal.

A copy of this Submissions Report will be published on DPE's website following submission of the report to DPE for assessment. Following assessment, the Minister for Planning's determination will also be published on DPE's website, as well as any conditions of approval (should the proposal be approved).

Given the status of the proposal as a controlled action, following determination of the proposal by DPE (assuming the proposal is approved), the proposal would then be assessed using the bilateral assessment process by the Australian Department of Agriculture, Water and the Environment (DAWE) for the required Commonwealth approval.

6. References

AEMO, 2020. *2020 Integrated System Plan*

Australian Institute of Landscape Architects Queensland, 2018. *The Guidance Note for Landscape and Visual Assessment*

Aviation Projects, 2022. *Aviation Impact Assessment*

Department of Environment and Conservation 2004. *Threatened Biodiversity Survey and Assessment: Guidelines for Developments and Activities (Working Draft)*

Department of Planning, Industry and Environment, 2020. *Surveying threatened plants and their habitats; NSW guide for the BAM*

Department Primary Industries, 2012. *Aquifer Interference Policy*

DPE, 2018. *NSW Transmission Infrastructure Strategy*

DPIE, 2021. *Social Impact Assessment Guideline – for State Significant Projects (the SIA Guideline)*

DPIE, 2021. *State significant infrastructure guidelines – preparing a submissions report*

Gillespie, 2021. *Economic Impact Assessment*

Infrastructure NSW, 2018. *State Infrastructure Strategy 2018–2038*

Iris, 2021. *Landscape Character and Visual Impact Assessment*

Iris, 2022. *Revised visual impact assessment addendum*

Landscape Institute and Institute of Environmental Management & Assessment. *The Guidelines for Landscape and Visual Impact Assessment*

Navin Officer, 2021a. *Aboriginal Cultural Heritage Assessment Report*

Navin Officer, 2022a. *Revised Aboriginal Cultural Heritage Assessment*

Navin Officer, 2022b. *Historical Heritage Impact Assessment Addendum Report – Hut site, Nyangay pastoral holding (PEC–E–H4)*

NSW Government, 2018. *NSW Transmission Infrastructure Strategy*

NSW Office of Environment and Heritage, 2016. *NSW Climate Change Policy Framework*

Office of Environment and Heritage, 2010. *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2020*

Office of Environment and Heritage, 2016. *NSW Guide to Surveying Threatened Plants*

Transgrid, 2021. *Community guide to the EIS for EnergyConnect (NSW – Eastern Section)*

Transport for NSW, 2020. *Guideline for Landscape Character and Visual Impact Assessment EIA–N04*

Tremain Ivey Advisory, 2021. *Agricultural impact assessment*

WSP, 2021. *Biodiversity Development Assessment Report*

WSP, 2021. *Hydrology and Flooding Impact Assessment*

WSP, 2021. *Social Impact Assessment*

WSP, 2022b. Revised Biodiversity Development Assessment Report.

Appendix A Overview of community submissions

Table A-1 Summary of community submissions and sections where addressed

Sub #	Respondent	Key issues raised	Section(s) where issues are addressed
1	Community member	Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
2	Community member	Support for the proposal	Support for the proposal (section 2.1)
3	Community member	Proposal alternatives	Alternative proposal alignments – Lake Cullivel (section 4.1.3.2)
		Biodiversity	Bird strike (section 4.1.7.4)
		Biodiversity	Impacts to water birds/wetlands (section 4.1.7.6)
		Surface water and flooding	Flooding impacts (section 4.1.12.3)
4	Community member	Proposal need and justification	Benefits of EnergyConnect (section 4.1.2.1)
		Biodiversity	General biodiversity impacts (section 4.1.7.2)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Hazards and risk	Bushfire impacts – operation (section 4.1.11.3)
		Other and out of scope items	Concern regarding project ownership (section 4.1.23.1)
5	Community member	Proposal design and operations	Transmission line design – General (section 4.1.4.1)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
6	Community member	Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Soils and contamination	Contamination impact of proposal (section 4.1.14.1)
		Cumulative impacts	Operational cumulative impacts (section 4.1.22.1)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
		Other and out of scope items	Other out of scope issues (section 4.1.23.3)
7	Community member	Planning and statutory requirements	Accuracy of EIS documentation (section 4.1.1.1)

Sub #	Respondent	Key issues raised	Section(s) where issues are addressed
		Proposal alternatives	Alternative proposal alignments – Lake Cullivel (section 4.1.3.2)
		Biodiversity	Impact assessment approach – timing of surveys (section 4.1.7.1)
		Biodiversity	General biodiversity impacts (section 4.1.7.2)
		Biodiversity	Bird strike (section 4.1.7.4)
		Biodiversity	Impacts to water birds/wetlands (section 4.1.7.6)
		Aboriginal heritage	Impact assessment approach (section 4.1.8.1)
		Aboriginal heritage	Impacts to Aboriginal heritage items (section 4.1.8.2)
		Visual and landscape	Visual impacts – operation (section 4.1.9.2)
		Hazards and risk	Electric and magnetic field impacts (section 4.1.11.2)
		Surface water and flooding	Impact assessment approach (section 4.1.12.1)
		Surface water and flooding	Water quality impacts (section 4.1.12.2)
		Surface water and flooding	Flooding impacts (section 4.1.12.3)
		Social	Impact assessment approach (section 4.1.16.1)
		Social	Mitigation and management (section 4.1.16.4)
8	Community member	Biodiversity	General biodiversity impacts (section 4.1.7.2)
		Biodiversity	Impact to threatened species (section 4.1.7.5)
		Aboriginal heritage	Impacts to Aboriginal heritage items (section 4.1.8.2)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Hazards and risk	Bushfire impacts – operation (section 4.1.11.3)
		Hazards and risk	Electric and magnetic field impacts (section 4.1.11.2)
		Soils and contamination	Contamination impact of proposal (section 4.1.14.1)
9	Community member	Proposal need and justification	Benefits of EnergyConnect (section 4.1.2.1)
		Other and out of scope items	Other out of scope issues (section 4.1.23.3)

Sub #	Respondent	Key issues raised	Section(s) where issues are addressed
10	Community member	Planning and statutory requirements	EIS process and documentation (section 4.1.1.2)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Soils and contamination	Contamination impact of proposal (section 4.1.14.1)
		Economic	Impacts to local businesses and agricultural operations (section 4.1.17.1)
		Waste and resources	Construction waste management (section 4.1.21.1)
		Other and out of scope items	Other out of scope issues (section 4.1.23.3)
11	Community member	Proposal need and justification	Benefits of EnergyConnect (section 4.1.2.1)
		Biodiversity	General biodiversity impacts (section 4.1.7.2)
		Biodiversity	Biodiversity impacts – operation (section 4.1.7.3)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Soils and contamination	Contamination impact of proposal (section 4.1.14.1)
		Waste and resources	Construction waste management (section 4.1.21.1)
12	Community member	Proposal need and justification	Benefits of EnergyConnect (section 4.1.2.1)
		Proposal need and justification	Economic assessment and value for money (section 4.1.2.2)
13	Community member	Proposal design and operations	Operational lifespan (section 4.1.4.4)
		Land use and property	Agricultural impact assessment (section 4.1.10.2)
		Hazards and risk	Electric and magnetic field impacts (section 4.1.11.2)
		Economic	Impacts to local businesses and agricultural operations (section 4.1.17.1)
14	Community member	Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Soils and contamination	Contamination impact of proposal (section 4.1.14.1)
15	Community member	Soils and contamination	Contamination impact of proposal (section 4.1.14.1)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)

Sub #	Respondent	Key issues raised	Section(s) where issues are addressed
		Other and out of scope items	Concern regarding project ownership (section 4.1.23.1)
16	Community member	Soils and contamination	Contamination impact of proposal (section 4.1.14.1)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
17	Community member	Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
18	Community member	Proposal need and justification	Benefits of EnergyConnect (section 4.1.2.1)
		Biodiversity	General biodiversity impacts (section 4.1.7.2)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Other and out of scope items	Concern regarding project ownership (section 4.1.23.1)
19	Community member	Biodiversity	General biodiversity impacts (section 4.1.7.2)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Social	Social impacts – operation (section 4.1.16.3)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
		Other and out of scope items	Concern regarding project ownership (section 4.1.23.1)
20	Community member	Proposal alternatives	Alternative proposal alignments – general (section 4.1.3.1)
		Proposal design and operations	GPS interference (section 4.1.4.3)
		Proposal construction	Level of consultation undertaken (section 4.1.6.1)
		Visual and landscape	Visual impacts – operation (section 4.1.9.2)
		Land use and property	Compensation for property acquisition and property valuations (section 4.1.10.1)
		Land use and property	Impact to farming activities – agricultural uses (section 4.1.10.4)
21	Community member	Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Hazards and risk	Bushfire impacts – operation (section 4.1.11.3)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)

Sub #	Respondent	Key issues raised	Section(s) where issues are addressed
22	Community member	Biodiversity	General biodiversity impacts (section 4.1.7.2)
		Biodiversity	Bird strike (section 4.1.7.4)
		Visual and landscape	Visual impacts – operation (section 4.1.9.2)
		Land use and property	Impact to farming activities – agricultural uses (section 4.1.10.4)
		Hazards and risk	Electric and magnetic field impacts (section 4.1.11.2)
		Hazards and risk	General hazards and risks – operation (section 4.1.11.3)
		Noise and vibration	Operational noise impacts (section 4.1.15.2)
23	Community member	Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
24	Community member	Proposal design and operations	GPS interference (section 4.1.4.3)
		Proposal design and operations	Transmission line design – 330kV v 500kV (section 4.1.4.5)
		Proposal design and operations	Transmission line design – Towers (section 4.1.4.7)
		Proposal construction	Level of consultation undertaken (section 4.1.6.1)
		Visual and landscape	Visual impacts – operation (section 4.1.9.2)
		Land use and property	Compensation for property acquisition and property valuations (section 4.1.10.1)
		Noise and vibration	Operational noise impacts (section 4.1.15.2)
25	Community member	Planning and statutory requirements	EIS process and documentation (section 4.1.1.2)
		Proposal need and justification	Benefits of EnergyConnect (section 4.1.2.1)
		Proposal need and justification	Economic assessment and value for money (section 4.1.2.2)
		Biodiversity	Biodiversity impacts – operation (section 4.1.7.3)
		Land use and property	Impact to farming activities – agricultural uses (section 4.1.10.4)
		Soils and contamination	Contamination impact of proposal (section 4.1.14.1)
		Social	Social impacts – construction (section 4.1.16.2)

Sub #	Respondent	Key issues raised	Section(s) where issues are addressed
		Economic	Impact assessment method (section 4.1.17.2)
		Greenhouse gases	Greenhouse gas emissions – general (section 4.1.19.1)
		Waste and resources	Construction waste management (section 4.1.21.1)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
26	Community member	Aboriginal heritage	Impacts to Aboriginal heritage items (section 4.1.8.2)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
27	Community member	Planning and statutory requirements	Planning approval process (section 4.1.1.3)
		Proposal construction	Level of consultation undertaken (section 4.1.6.1)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Soils and contamination	Contamination impact of proposal (section 4.1.14.1)
		Waste and resources	Construction waste management (section 4.1.21.1)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
		Other and out of scope items	Concern regarding project ownership (section 4.1.23.1)
		Other and out of scope items	Other out of scope issues (section 4.1.23.3)
28	Community member	Proposal design and operations	Transmission line design – 330kV v 500kV (section 4.1.4.5)
		Proposal construction	Level of consultation undertaken (section 4.1.6.1)
		Land use and property	Compensation for property acquisition and property valuations (section 4.1.10.1)
		Economic	Impacts to local businesses and agricultural operations (section 4.1.17.1)
29	Community member	Proposal need and justification	Economic assessment and value for money (section 4.1.2.2)
		Proposal alternatives	Alternative proposal alignments – general (section 4.1.3.1)
		Proposal design and operations	GPS interference (section 4.1.4.3)

Sub #	Respondent	Key issues raised	Section(s) where issues are addressed
		Proposal design and operations	Operational lifespan (section 4.1.4.4)
		Proposal design and operations	Transmission line design – Towers (section 4.1.4.7)
		Proposal construction	Construction program and staging (section 4.1.5.1)
		Community and stakeholder engagement	Level of consultation undertaken (section 4.1.6.1)
		Community and stakeholder engagement	Requests for further consultation (section 4.1.6.3)
		Visual and landscape	Impact assessment approach (section 4.1.9.1)
		Visual and landscape	Visual impacts – operation (section 4.1.9.2)
		Land use and property	Compensation for property acquisition and property valuations (section 4.1.10.1)
		Hazards and risk	Electric and magnetic field impacts (section 4.1.11.2)
		Noise and vibration	Construction noise impacts (section 4.1.15.1)
		Economic	Impacts to local businesses and agricultural operations (section 4.1.17.1)
		Traffic and transport	Impacts during construction (section 4.1.18.1)
		Cumulative impacts	Operational cumulative impacts (section 4.1.22.1)
		Other and out of scope items	Other out of scope issues (section 4.1.23.3)
30	Community member	Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
31	Community member	Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Hazards and risk	Electric and magnetic field impacts (section 4.1.11.2)
		Waste and resources	Construction waste management (section 4.1.21.1)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
		Other and out of scope items	Other out of scope issues (section 4.1.23.3)
32	Community member	Aboriginal heritage	Impacts to Aboriginal heritage items (section 4.1.8.12)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Economic	Impacts to local businesses and agricultural operations (section 4.1.17.1)

Sub #	Respondent	Key issues raised	Section(s) where issues are addressed
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
		Other and out of scope items	Concern regarding project ownership (section 4.1.23.1)
33	Community member	Proposal need and justification	Benefits of EnergyConnect (section 4.1.2.1)
		Biodiversity	General biodiversity impacts (section 4.1.7.2)
34	Community member	Proposal need and justification	Benefits of EnergyConnect (section 4.1.2.1)
		Proposal need and justification	Economic assessment and value for money (section 4.1.2.2)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Soils and contamination	Contamination impact of proposal (section 4.1.14.1)
		Other	General opposition to renewable energy development (section 4.1.23.1)
		Other	Concern regarding project ownership (section 4.1.23.1)
35	Community member	Other and out of scope items	Other and out of scope items (section 4.1.23.3)
36	Community member	Other and out of scope items	Other and out of scope items (section 4.1.23.3)
37	Community member	Planning and statutory requirements	EIS process and documentation (section 4.1.1.2)
		Proposal construction	Construction program and staging (section 4.1.5.1)
		Visual and landscape	Impact assessment approach (section 4.1.9.1)
		Land use and property	Compensation for property acquisition and property valuations (section 4.1.10.1)
38	Community member	Biodiversity	Impact to threatened species (section 4.1.7.5)
		Aboriginal heritage	Impacts to Aboriginal heritage items (section 4.1.8.2)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Hazards and risk	Electric and magnetic field impacts (section 4.1.11.2)
		Hazards and risk	General hazards and risks – operation (section 4.1.11.3)

Sub #	Respondent	Key issues raised	Section(s) where issues are addressed
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
39	Community member	Proposal alternatives	Alternative proposal alignments – general (section 4.1.3.1)
		Proposal alternatives	Alternative proposal alignments – Lake Cullivel (section 4.1.3.2)
		Proposal design and operations	Operational lifespan (section 4.1.4.4)
		Proposal design and operations	Transmission line design – General (section 4.1.4.1)
		Biodiversity	General biodiversity impacts (section 4.1.7.2)
		Biodiversity	Impacts to water birds/wetlands (section 4.1.7.6)
		Aboriginal heritage	Impact assessment approach (section 4.1.8.1)
		Hazards and risk	Electric and magnetic field impacts (section 4.1.11.2)
		Surface water and flooding	Impact assessment approach (section 4.1.12.1)
		Surface water and flooding	Flooding impacts (section 4.1.12.3)
		Groundwater	Impact assessment approach (section 4.1.13.1)
40	Community member	Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
41	Community member	Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Hazards and risk	Bushfire impacts – operation (section 4.1.11.3)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
42	Community member	Biodiversity	General biodiversity impacts (section 4.1.7.2)
		Aboriginal heritage	Impacts to Aboriginal heritage items (section 4.1.8.2)
		Land use and property	Impact to farming activities – general (section 4.1.10.3)
		Hazards and risk	Bushfire impacts – operation (section 4.1.11.3)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
43	Community member	Land use and property	Impact to farming activities – general (section 4.1.10.3)

Sub #	Respondent	Key issues raised	Section(s) where issues are addressed
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
44	Community member	Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
45	Save our surroundings	Planning and statutory requirements	Accuracy of EIS documentation (section 4.1.1.1)
		Other and out of scope items	General opposition to renewable energy development (section 4.1.23.1)
46	Wakool Indigenous Corporation	Aboriginal heritage	Impact assessment approach (section 4.1.8.1)
47	Australian Rail Track Corporation	Proposal design and operations	Transmission line design – General (section 4.1.4.1)
		Traffic and transport	Impacts to rail corridors during construction (section 4.1.18.2)
48	APA Group	Utilities and services	Impacts to existing utilities (section 4.1.20.1)
49	Coleambally Irrigation	Proposal design and operations	Dinawan 330kV substation design – General (section 4.1.4.1)
		Proposal design and operations	Dinawan 330kV substation design – Impacts from Coleambally Irrigation levee (section 4.1.4.2)
		Proposal design and operations	Transmission line design – Towers (section 4.1.4.7)
		Community and stakeholder consultation	Level of detail presented to the community (section 4.1.6.2)
		Biodiversity	Bird strike (section 4.1.7.4)
		Hazards and risk	General hazards and risks – operation (section 4.1.11.3)
		Surface water and flooding	Flooding impacts (section 4.1.12.3)
		Traffic and transport	Impacts to existing road infrastructure during construction (section 4.1.18.1)

Appendix B Revised mitigation measures

B.1 Approach to environmental management

B.1.1 Overall approach

The approach to environmental management for the proposal would be consistent with:

- the environmental management system (EMS) of the construction contractor and Transgrid during construction and operation respectively
- proposal design – measures to avoid and minimise impacts that have been incorporated into the corridor selection and proposal design
- construction and operational environmental management, as described in the following sections. This would be consistent with Transgrid's *HSE Handbook* (Transgrid, 2020) as relevant, which provides the minimum environmental controls for all construction and maintenance works on the Transgrid network
- mitigation measures – the measures are identified as an outcome of this environmental impact assessment.

B.1.2 Design and construction methodology refinement and uncertainties resolution

As outlined in Chapter 5 (Proposal infrastructure and operation) and Chapter 6 (Proposal construction), the proposal study area and indicative construction impact area have been developed to avoid and minimise environmental impacts wherever possible, while providing some flexibility during finalisation of the design and construction methodology. Aspects of the proposal that may be subject to further refinement include:

- the final transmission line component locations, including the specific location, height and type of transmission line towers, location of some access tracks and associated allocations of the subset disturbance area A, A (centreline) and B categories
- final locations and layouts of the main construction compound and accommodation camp sites – including selection of the final site where location options have been provided at Balranald and Lockhart
- final arrangement of the Dinawan 330kV substation facility within the identified parcel of land
- water supply points and other ancillary construction facilities
- construction methods and staging.

Refinements to optimise the design outcomes and construction method would be carried out, where possible, to:

- further avoid or minimise environmental impacts. This includes approaches to avoid or minimise native vegetation clearing, impacts to areas of biodiversity value, and ground disturbance within areas of moderate to high Aboriginal archaeological potential
- respond to community concerns raised during the exhibition of the EIS
- limit impacts on the community during construction and/or operation
- limit the duration of construction
- improve the operation of the proposal.

Generally refinements would be developed and planned to keep disturbance within areas that have been already subject to heritage survey and ecological assessment. Some refinements might however require changes that could disturb locations outside surveyed or assessed areas. In such circumstances additional heritage survey and ecological assessment would occur as required before confirming the change.

These circumstances would include:

- where impacts to a newly identified environmental constraint of very high significance cannot be avoided by simple refinements (i.e. with movement contained in the current surveyed and assessed areas). In relation to environmental constraints of very high significance this would be defined as:
 - Aboriginal heritage:
 - > burial sites
 - > sites of such significance that the narrative and or understanding of Aboriginal heritage occupation in the region would be substantially changed or enhanced based on its identification and/or its potential for future research
 - Biodiversity:
 - > significant unexpected finds of SAIL species and/or populations not previously recorded as part of the BDAR for the EIS
- where an additional access track, water supply point or other construction ancillary facility (i.e. brake and winch site) is identified as being required which:
 - does not substantially adversely impact on environmental matters in addition to those presented the EIS
 - any associated landholder is supportive of the required use.

The final design would be reviewed for consistency with the approved proposal. If proposal impacts are not consistent with the approval from the Minister for Planning, approval would be sought from the Minister for any such modifications in accordance with the requirements of Division 5.2 of the EP&A Act.

B.1.3 Construction environmental management approach

The proposed approach to environmental management outlined here is indicative. It is based on the current design and construction methodology, and the types of conditions of approval typically granted in relation to CSSI projects. Depending on the specific conditions of approval, a different approach might be required.

B.1.3.1 Community and stakeholder engagement

A Community and Stakeholder Engagement Management Plan (CSEMP) would be prepared prior to commencement of construction works. The CSEMP would be developed in consultation with the relevant stakeholders. The CSEMP would detail the approach to communication between Transgrid, the construction contractor, the community, community groups, other stakeholders and government authorities.

The CSEMP would:

- identify people, organisations and government authorities to be consulted during the construction works
- set out procedures and mechanisms for the regular distribution of accessible information to keep the community and stakeholders informed of the proposal
- set out the procedures and mechanisms for consulting with relevant councils and government authorities including procedures for nil responses
- describe the method for advertising the telephone line and email address for enquiries relating to the proposal

- set out procedures and mechanisms for response to enquiries and feedback
- include a complaints management system which outlines parameters for recording information on all complaints received during the main construction work
- set out procedures and mechanisms to resolve any issues and disputes that might arise in relation to environmental and stakeholder management associated with the proposal.

B.1.3.2 Enabling works

Enabling works are activities proposed early in the overall construction program for the proposal to facilitate the commencement of substantial construction works and collect information required to finalise aspects of the design and construction methodology. Typical and expected enabling works are described in Section 6.6.1. The construction contractor would confirm the proposed scope and timing of enabling works following confirmation of the conditions of approval for the proposal.

The conditions of approval for CSSI projects typically allow construction staging and require that separate CEMPs are prepared, or existing CEMPs updated as required, to cover each proposed stage. Transgrid anticipates that construction would be staged (refer to Section 6.4), with certain enabling works scheduled to occur ahead of and separate to main construction works. The construction contractor would confirm the approach to construction staging and prepare the required environmental management documentation for each stage in accordance with the conditions of approval.

Minor/low impact enabling works

The conditions of approval for CSSI projects typically require that all construction activities occur in accordance with an approved CEMP. Typical conditions of approval, however, often exclude certain Pre-construction minor works and activities with low potential for environmental and community impacts (minor/low impact activities) from the definition of construction. When this occurs, the minor/low impact activities can occur prior to approval of a CEMP.

Proposed minor/low impact activities for the proposal include:

- investigations (including geotechnical, contamination and other testing/sampling, surveying and the placement of survey pegs/marks)
- installation of fencing, gates, barricades, exclusion zones and other access controls
- installation of environmental controls, mitigation measures and monitoring equipment
- adjustments to roads required to facilitate safe ingress/egress at construction compounds, accommodation camps and laydown areas
- archaeological test excavations carried out in accordance with a test excavation methodology developed in consultation with the relevant Registered Aboriginal Parties in accordance with *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (OEH, 2010) and in accordance with *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010), and any associated salvage
- clearing of vegetation to establish construction compounds, accommodation camps, laydown areas and excavated material sites, and to facilitate other minor/low impact activities
- upgrading existing and creating new access tracks
- excavations and surface preparation required to establish construction compounds, accommodation camps and laydown areas
- establishing excavated material sites
- installation/erection of camp, office and associated welfare facilities

- installation of temporary site sheds, amenities facilities and storage containers to support other minor/low impact activities proposed prior to approval of a relevant CEMP
- batch plant mobilisation, set up and commissioning
- receiving construction plant and equipment on site and materials at laydown areas
- establishing connections at water supply points
- installation of utility service connections to construction locations and ancillary facilities
- protection, adjustment and relocation of utility assets in the vicinity of construction locations, construction compounds and camps, and other ancillary facilities
- other investigations that meet the definition of exempt development provided in *State Environmental Planning Policy (Infrastructure) 2007*.

To be minor/low impact, the activities must:

- not generate noise levels at any noise sensitive receiver above relevant noise management levels developed in accordance with *Interim Construction Noise Guideline* (DECC, 2009) except in circumstances where a prior agreement has been reached with affected sensitive receiver(s) and
- not result in substantial adverse dust impacts at any residences in the vicinity and
- not affect threatened flora species, vegetation that is part of a threatened ecological communities or is critical habitat for a threatened fauna species (other than associated with the implementation of mitigation measures for biodiversity) and
- not involve excavations in PADs (other than the test excavations and salvage referred to above) prior to the completion of required archaeological test excavations at that location and
- not cause soil disturbance within 40 metres of a watercourse (excluding the installation of sediment and erosion controls in accordance with *Managing Urban Stormwater – Soils and Construction*, Volume 1 (Landcom 2004) and Volumes 2A and 2C (DECCW 2008) (commonly referred to as the ‘Blue Book’)) and
- be carried out (where required) in accordance with Road Occupancy Licences granted by the relevant roads authority.

The conditions of approval might allow other Pre-construction minor works.

Minor/low impact activities would still be subject to the relevant mitigation measures and other environmental commitments in the EIS. The contractor would prepare Environmental Work Method Statements (EWMSs) or similar environmental management documents for minor/low impact activities. The environmental management documents would include all mitigation measures and environmental commitments relevant to the activities. The minor/low impact activities would be carried out in accordance with the relevant environmental management documents.

Activities not described above or that are not excluded from the definition of construction or otherwise provided for in the conditions of approval would occur in accordance with an approved CEMP.

Other enabling works

Other enabling works that are construction by definition in the conditions of approval would be covered by a CEMP or CEMPs. Any CEMP(s) prepared for enabling works would guide the approach to environmental management during the works and would consider and address all relevant mitigation measures from the EIS and the conditions of approval that are relevant to the works.

The contractor would confirm the approach to and scope of enabling works and associated timings.

B.1.3.3 Main construction works

Main construction works would occur in accordance with an approved CEMP prepared in accordance with the conditions of approval. Where the construction contractor proposes to construct the proposal in stages, a CEMP would be prepared for each stage or an existing CEMP updated to cover each upcoming stage.

Each CEMP would include:

- a description of the construction contractor's environmental policy and objectives for construction
- a description of the activities to be undertaken during construction
- reference to all relevant statutory and other obligations, including consents, licences, approvals and voluntary agreements required
- environmental targets and measurable performance indicators which compliance would be monitored against
- roles and responsibilities for all personnel and contractors to be employed on site with regards to the planning, implementation, maintenance and monitoring of environmental controls
- specific mitigation measures and controls that would be applied to avoid and minimise environmental impacts
- required sub-plans (as detailed later in this section), which clearly set out the objectives of the sub-plan, relevant conditions of approval and mitigation measures
- processes for managing non-compliance (including corrective and preventative actions)
- procedures for complaints handling and ongoing communication with the community
- inspection, monitoring and auditing requirements, including procedures for regular environmental inspections and monitoring, auditing and review of the performance of environmental controls, and compliance tracking and reporting
- incident and contingency management requirements
- details of environmental records
- induction and training requirements for all personnel and contractors.

The CEMP would be adaptive, establishing a continuous cycle of monitoring, assessment, investigation and corrective actions. This process would be used to continuously evaluate and monitor the effectiveness of the environmental management measures proposed in this EIS and identify the corrective actions to be carried out should such measures be identified as being ineffective. The latest version of the approved CEMP (as annotated from time to time), would be available for all personnel and on request for inspection/audit personnel.

A program of independent audits would be developed as part of the CEMP and implemented by the construction contractor. The program would monitor and report on compliance with the EIS, Submissions Report, Amendment Report, relevant conditions of approval, and licences and permits applicable to the proposal.

Outline of sub-plans

Table B-1 outlines the sub-plans that would be contained within the CEMP. Sub-plans may be replaced by a procedure where appropriate (i.e. when considering the scale and scope of the works), or merged with another sub-plan to streamline the CEMP. The conditions of approval for the proposal may require different and/or additional matters to be addressed in the CEMP or sub-plans.

Table B-1 Outline of CEMP sub-plans

Sub-plan	Purpose and requirement
Biodiversity	The sub-plan would set out measures to minimise and manage impacts on biodiversity. It would include (as a minimum): • measures to minimise impacts to biodiversity, including measures to reduce disturbance to sensitive flora and fauna • procedures for clearing of vegetation, including Pre-clearing inspections and procedures for the relocation of fauna • procedures for the demarcation and protection of retained vegetation, including vegetation adjacent to construction areas • weed management • rehabilitation strategies including progressive rehabilitation, and measures for the management and maintenance of rehabilitated areas (including duration) • protocols for unexpected EECs or threatened flora and fauna during construction, including stop work procedures • monitoring requirements and compliance management.
Heritage	The sub-plan would set out the measures to manage any impacts on historic and Aboriginal heritage items/sites. It would include (as a minimum): • appropriate heritage mitigation measures, including identification, protection and/or management of heritage items/sites within or adjacent to construction areas (including additional investigations, recordings, or measures to protect items/sites that would not be directly impacted in the vicinity of construction works) • procedures for unexpected finds, including procedures for dealing with human remains • compliance management • induction requirements for construction personnel.
Noise and vibration	The sub-plan would identify procedures and measures that would be implemented to mitigate and manage construction noise and vibration impacts at sensitive receivers. It would include but is not limited to: • examine feasible and reasonable noise mitigation where management levels are exceeded • examine feasible and reasonable noise measures to manage traffic noise impacts on public roads where exceedances above 2 dB are identified • develop associated noise and vibration monitoring programs, as required • develop proactive and reactive strategies for dealing with any noise complaints • outline community consultation measures including notification requirements • include an out of hours works protocol.

Sub-plan	Purpose and requirement
Air quality	The sub-plan would include measures to minimise dust and other emissions during construction. It would include (as a minimum): • measures to minimise the potential for dust emissions, including dust suppression • air quality monitoring requirements and compliance management. This includes monitoring of meteorological conditions in order to implement appropriate responses to changing weather conditions, and regular visual inspections.
Soil and water	The sub-plan would set out measures to mitigate and manage impacts on soil and water, including water quality and potential contaminated soils. It would include (as a minimum): • measures to minimise impacts to soil and water, and to maintain water quality of surrounding surface watercourses. This includes details of erosion and sediment controls, diversion of runoff around disturbed areas and stockpiles, salinity and acid sulfate soils control measures, as well as minimising areas of disturbance and progressive rehabilitation of disturbed areas • stockpile management procedures, including procedures to segregate wastes and contaminated soil • materials tracking and record keeping • unexpected finds protocols for contaminated materials (e.g. soils, building materials and water) and acid sulfate soils • storage of chemicals and other hazardous materials • spill management procedures • measures to minimise water use during construction • a flood emergency management procedure which would provide a series of activities that need to take place should a flood event occur. These activities would focus on the flood emergency and then during the recovery period to assist with starting work again as soon as possible after the flood event.
Traffic and transport	The sub-plan would be prepared in consultation with relevant local councils and Transport for NSW to identify the key management and response strategies to potential transport network disruptions that may arise due to the proposal. It would include (as a minimum): • measures to minimise disruption to pedestrians, cyclists and motorists • management of safe vehicle access/egress from construction compounds and other construction work areas • measures to manage oversize and overmass vehicle movements during construction, which would consider activities of adjoining land uses and safety of the public, such as entering urban areas from rural highways • management of long-distance travel through driver fatigue management measures • measures to provide safe access to existing properties during construction, or provision of suitable alternatives.
Waste management	The sub-plan would set out waste management strategies that would be implemented in accordance with the waste management hierarchy of avoid, minimise, re-use and dispose. The plan would include but is not limited to: • targets for the recovery, recycling and re-use of construction waste • procedures for the assessment, classification, management and disposal of waste • waste tracking and compliance management.

B.1.4 Operational environmental management approach

The operation of the proposal would be managed through the practices, procedures and processes outlined in this EIS (with this document taking precedence for the implementation requirements should a discrepancy be identified), within Transgrid's EMS, Environmental Assessment Framework (EAF), environmental checklists, as well as its *HSE Handbook* and *Complaints Handling Policy* (Transgrid, November 2019).

Details of the environmental constraints identified as part of this EIS, that are relevant to the ongoing operation and maintenance of the asset, would be included in the appropriate Transgrid Geographical Information Systems (GIS). Due diligence environmental checks, including review of environmental information generated from GIS where relevant, would be undertaken with required protection measures identified and confirmed before any maintenance works are carried out.

B.1.5 Summary of mitigation measures

A summary of the measures proposed to mitigate and manage the potential impacts of the proposal is provided in Table B-2. These measures may be revised in response to submissions raised during public exhibition of the EIS or any design changes made following exhibition.

If the proposal is approved, the proposal would be undertaken in accordance with the conditions of approval and the final list of mitigation measures. In the event of any inconsistencies between the mitigation measures presented in Appendix B and the associated Technical papers, the measures presented in Appendix B would take precedence.

Table B-2 Summary of proposed mitigation measures

Reference	Mitigation measures	Timing	Application location(s)
Biodiversity			
B1	Impacts to matters of biodiversity conservation significance would be avoided to the greatest extent practicable during finalisation of the design and construction methodology for the proposal. Micro-siting of the transmission line infrastructure and associated construction working areas and other areas of disturbance would occur to avoid impacts wherever practicable. Site features with the highest biodiversity conservation significance, in particular, threatened species recorded and their habitat would be given the highest priority. Spatial data (species polygons for species credit species) and buffered threatened species locations would be provided to the design and construction teams and considered in detailed construction planning. Associated mapping would be included on sensitive area plans and provided to the construction workforce.	Pre-construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
B2	If refinements to the proposal design and construction methodology or additional field surveys result in increased changed impacts to biodiversity which are not included in this BDAR, these would be assessed in accordance with the requirements of the BAM by an accredited assessor.	Pre-construction and construction	All locations
B3	Opportunities to locate site offices, compounds and ancillary facilities in areas of limited biodiversity value (e.g. cleared land or areas of native vegetation with vegetation integrity scores of less than 17 in accordance with the NSW Government Biodiversity Assessment Method Operational Manual) would be prioritised during finalisation of the design and construction methodology.	Pre-construction	All locations
B4	Existing tracks and clearings would be used, where possible, to limit the construction of new tracks. Where this is not possible, the design would seek to minimise impacts to native vegetation, including cut and fill, as a priority.	Pre-construction and construction	Transmission line corridor
B5	Transmission line towers structures would be located and constructed to minimise impact to vegetated riparian corridors.	Pre-construction	Transmission line within the riparian corridor as defined by “Guidelines for riparian corridors on waterfront land” (DPI – Office of Water, July 2012) of Murrumbidgee River
B6	Conductor line-marking techniques would be implemented during design refinement to minimise bird strike. Use of bird diverters, most likely consisting of the “flapper” variety, would be implemented. Positioning and exact diverter model would be finalised during design refinement <u>and would be developed as part of a Connectivity Strategy.</u> but At minimum these would be used within one kilometre of wetland/riverine habitats to reduce impacts on aerial fauna species from collision and allow safer passage within these areas.	Pre-construction and construction	Transmission line – within one kilometre of wetland/riverine habitats (<u>refer to Key Waterbodies list in Section 3.1.3</u>) (i.e. Murrumbidgee River)

Reference	Mitigation measures	Timing	Application location(s)
B7	A series of 20-metre-wide connectivity corridors would be established near tower locations that occur in woodland vegetation. These would occur at strategic locations that would be developed as part of a Connectivity Strategy under the Biodiversity Management Plan, targeting the following locations (wherever practicable): • key riparian crossings • areas of the alignment joining proposed biodiversity stewardship sites and or conservation reserve estate; and • areas of existing dense mallee/belah. These connectivity corridors would involve native vegetation retention up to the 10 metre or 20 metre (for 330kV and 500kV lines, respectively) wide temporary construction centreline clearing zone to better facilitate woodland connectivity. Vegetation heights to be retained would be determined in accordance with vegetation clearing requirements at each location. Any biodiversity credit liabilities to related to retained vegetation such as the connectivity corridors would be considered in final BAM calculations (refer to mitigation measure B2 and Section 12.4 of the Biodiversity offset strategy). In addition to these measures, installation of under-transmission glider poles in five locations (refer to Figure 9.6 of the Revised BDAR) will be implemented to assist Squirrel Glider movement at important locations for this species.	Pre-construction	All locations and for Squirrel Glider at (at locations as identified in the Revised BDAR)
B8	Nest boxes would be provided to provide alternative roosting and/or nesting habitat for threatened fauna displaced during clearing in accordance with a Supplementary Hollow and Nest Strategy. The strategy would include the following requirements: • survey of tree hollows and nests within the proposed clearing extents • identify the size, type, number and location of nest boxes required based on the results of the ecological surveys and active hollow resources in adjacent areas • appropriately sized nest boxes would be installed within the vicinity of hollow-bearing trees (subject to landowner agreement and suitable existing trees being present) no more than two weeks prior to clearing of the tree • nest boxes would also include the re-use of existing hollows salvaged prior to or during clearing where practicable; and • measures to address and manage nests (such as raptor nests) prior to clearing.	Pre-construction and construction	All locations where hollow bearing trees are being removed

Reference	Mitigation measures	Timing	Application location(s)
B9	Pre-clearing surveys would be completed prior to clearing at each location by a suitability qualified ecologist. The proposed clearing extents would be marked out on site prior to the pre-clearing surveys. During the surveys, the ecologist would: • survey the proposed clearing extent • identify any fauna that would require relocation prior to clearing • confirm the location and mark out the extents of any biodiversity exclusion zones • confirm that hollow-bearing trees within and adjacent to the clearing extents are prominently marked/tagged, and • confirm that nest boxes are in place (where required) in suitable locations adjacent to areas to be cleared, or suitable locations for installation have been identified; <u>and</u> • <u>survey and confirm the presence of raptor nests within and adjacent to the clearing extents.</u>	Pre-construction at relevant sites	All locations
B10	The results of the pre-clearing surveys would be used to update and confirm the accuracy of sensitive area maps.	Pre-construction	All locations
B11	Biodiversity exclusion zones for retained vegetation would be confirmed by a suitably qualified ecologist and identified as 'No disturbance' zones prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone. 'No disturbance' zones would consider: • identified Plains-wanderer habitat • identified threatened flora populations; and • PCTs in disturbance area B that are not of a growth form height that would ever require management. Biodiversity exclusion zones would be physically marked and demarcated, and included on sensitive area maps, prior to clearing.	Pre-construction	All locations
B12	In circumstances where a tree that would exceed the vegetation clearing requirements is identified within one of the biodiversity conservation zones relating to the Plains-wanderer habitat areas then this tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place) using methods that minimise potential impact to key habitat and to ensure avoidance of impact to bird individuals. This would occur under supervision of an ecologist.	Construction and operation	All areas of key Plains Wanderer primary habitat

Reference	Mitigation measures	Timing	Application location(s)
B13 B12	A Plains-wanderer specific protocol would be developed to ensure that all project staff are aware of the sensitivities around this critically endangered species and to ensure that all specific requirements in relation to protection, avoidance, management and observation of individual Plains-wanderers are considered, in association with BCD staff. This protocol will be implemented during all proposal activities in Plains-wanderer habitat.	Pre-construction	All locations
B14 B13	All relevant project personnel, including relevant sub-contractors would be trained on biodiversity management protocols and the requirements for the project, through inductions, toolbox talks and targeted training, and provided with sensitive area maps (showing clearing boundaries and exclusion zones) and updates as required.	Construction	All locations
B15 B14	The predicted clearing of native vegetation by the proposal would be monitored against the recorded clearing. A revised BAM–C calculation on the project's final project disturbance post construction would be completed and any additional credit liability identified would be met as part of the biodiversity offset requirements within the biodiversity offset package.	Construction	All locations
B16 B15	Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of <i>Water Management Act 2000</i>) of defined riparian areas would be protected to the greatest extent practicable, with vegetation clearing ideally limited to the tree stratum only, with trunk bases being retained in-situ.	Construction	Transmission line within the riparian corridor as defined by "Guidelines for riparian corridors on waterfront land" (DPI – Office of Water, July 2012)
B17 B16	Activities within vegetated riparian zones would be managed to minimise impacts to aquatic environments. Riparian areas subject to disturbance would be progressively stabilised and rehabilitated.	Construction	Transmission line within the riparian corridor as defined by "Guidelines for riparian corridors on waterfront land"
B18 B17	A species unexpected finds protocol would be implemented if threatened ecological communities, flora and fauna species, not identified assessed in the biodiversity assessment, are identified in the disturbance area.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
B19 B18	Clearing of any hollow bearing trees within the mapped PCT 8 and PCT 11 vegetation at the crossing point of the Murrumbidgee River would be undertaken outside of the period between September and December to avoid key breeding periods of the Regent Parrot.	Construction	Murrumbidgee River
B20 B19	Features of high biodiversity conservation significance within the operational easement, including biodiversity exclusions zones identified during construction and retained habitat for threatened species, would be recorded in Transgrid's GIS. The GIS information will be reviewed during the planning of all maintenance or other future activities that could cause disturbance.	Operation	All locations
B21 B20	Develop and implement guidelines and procedures for operation and maintenance of the proposal that address the following: • vegetation clearing and maintenance commitments in the BDAR and EIS • avoiding access and disturbance in biodiversity exclusion zones identified during the construction • avoiding access and disturbance in areas of high biodiversity conservation significance; and • avoiding maintenance of vegetation that does not need to be maintained during operation. Provide training to relevant Transgrid operational personnel and vegetation maintenance contractors regarding the operational and maintenance guidelines and procedures.	Operation	All locations
B22	Special biodiversity protection zone – <i>Pimelea serpyllifolia</i> subsp. <i>serpyllifolia</i> (Thyme Rice-flower). Between towers 660-663 a bespoke construction methodology would be employed which would avoid impacts to known individuals of <i>Pimelea serpyllifolia</i> subsp. <i>serpyllifolia</i> (Thyme Rice-flower) and minimise impact as far as practicable to the species' habitat. This methodology would include at a minimum: • pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all <i>Pimelea serpyllifolia</i> subsp. <i>serpyllifolia</i> (Thyme Rice-flower) individuals • pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone • during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone • access being prioritised from existing tracks	Construction	Between towers 660–663

Reference	Mitigation measures	Timing	Application location(s)
	clearing restricted to the identified tower 660–663 worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 660–663 worksite locations alternative line installation techniques which do not require clearing of disturbance area A (centreline). The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1.		
B23	Special biodiversity protection zone – <i>Pilularia novae-hollandiae</i> (Austral Pillwort) Between towers 161–162 a bespoke construction methodology would be employed which would avoid impacts to known individuals of <i>Pilularia novae-hollandiae</i> (Austral Pillwort) individuals and minimise impact as far as practicable to the species habitat. This methodology would include at a minimum: pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all <i>Pilularia novae-hollandiae</i> (Austral Pillwort) individuals pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone access being prioritised from existing tracks clearing restricted to the identified tower 161 and 162 worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 161 and 162 worksite locations alternative line installation techniques which do not require clearing of disturbance area A (centreline). The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1.	Construction	Between towers 161–162

Reference	Mitigation measures	Timing	Application location(s)
B24	Special biodiversity protection zone – Natural Grasslands of the Murray Valley Plains. Between towers 241–242 a bespoke construction methodology would be employed which would minimise impacts as far as practical to the mapped Natural Grasslands of the Murray Valley Plains – Critically Endangered TEC located between the tower 241 and 242 location worksites. This methodology would include at a minimum: • pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone • during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone. • access being prioritised from existing tracks • clearing being restricted to the identified tower 241 and 242 worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 241 and 242 worksite locations • alternative line installation techniques which do not require clearing of disturbance area A (centreline). The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1.	Construction	Between towers 241–242
B25	The opportunity to stockpile and supply felled trees for Key Fish Habitat rehabilitation or improvement works would be discussed with DPI Fisheries.	Construction	Strahler stream orders 4 and above as identified in Section 3.1.2.

Reference	Mitigation measures	Timing	Application location(s)
B26	Special biodiversity protection zone – Property Vegetation Plan (PVP) on holding identified by Transgrid as H114 (location of towers 243–249). Between towers 243–249 a bespoke construction methodology would be employed which would minimise impacts as far as practical to the mapped PVP located between the tower 243 and 249 location worksites. This methodology would include at a minimum: pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone access being prioritised from existing tracks clearing being restricted to the identified tower 243–249 worksite locations and short new perpendicular access track sections. These would provide access between the existing access track along the proposal alignment and the tower 243–249 locations alternative line installation techniques which do not require clearing of disturbance area A (centreline). The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1.	Construction	Between towers 243-249
Aboriginal heritage			
AH1	The finalisation of the proposal design and construction methodology, and associated final disturbance areas, would be developed to avoid harm to features/items of moderate or above Aboriginal heritage significance as far as practical. The objective is to further reduce potential impacts through tower location and design refinement and construction methodology. Avoidance and minimisation of harm to features/items and Potential Archaeological Deposits (PADs) are to be prioritised.	Pre-construction impacts	All locations

Reference	Mitigation measures	Timing	Application location(s)
AH2	Aboriginal stakeholder consultation would be carried out in accordance with the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (DECCW, 2010a). Engagement with Registered Aboriginal Parties (RAPs) would consist of the following: • Aboriginal heritage site surveys (AH3) – review of proposed methodologies and involvement in the survey activities in the field (for ground or vegetation disturbance outside of previously surveyed areas) • test excavation activities (AH4) – review of proposed methodologies and involvement in the test excavation activities in the field • review of the draft addendum report/s to the ACHAR (relating to surveys (AH3), test excavations (AH4) and scar trees (AH5)), and consultation on the draft reports • provision of final addendum report/s to the ACHAR to RAPs (AH3, AH4, AH5) • involvement in establishment of Aboriginal heritage exclusion zones prior to construction commencing at each location (AH7). Further cultural information would be gathered during consultation undertaken in association with these activities.	Pre-construction impacts	All locations

Reference	Mitigation measures	Timing	Application location(s)
AH3	Additional assessment would occur in accordance with the <i>Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW</i> (2010) for areas where ground disturbing activities and/or where hazard / high risk tree removal are required in locations outside of the previously surveyed heritage survey area. Where required, additional heritage surveys would be carried out with the RAPs prior to ground disturbing activities occurring in any such areas. If no Aboriginal objects are found or if Aboriginal objects are found and they would not be impacted, then a letter report would be prepared by an archaeologist that documents the findings and gives clearance to proceed. Where Aboriginal objects, scarred trees or area of PAD are located and would be impacted, a draft survey addendum report/s to the ACHAR would be prepared for the survey areas. The report(s) would: • detail findings of the survey activities • detail where test excavation is required in accordance with AH4 • outline any additional mitigation strategies beyond those required by AH4 to A13 AH14 • be presented to the RAPs for comment. Final reports would be provided to RAPs and to Heritage NSW for their information prior to the commencement of ground disturbing activities in these locations.	Pre-construction impacts	All locations (outside of the previously surveyed heritage survey area) and in identified areas of hazard / high risk tree removal
AH4	An archaeological subsurface test excavation program would be carried out in parts of any PADs where project activities would have direct impact and a test excavation program has not already been completed in the area of impact. Direct impacts include grading of tracks and construction areas, excavation for tower construction and tree removal that includes the root ball. Should the finalisation of the project design and construction methodology identify activities that would result in direct impacts are required in PADs PEC-E-PAD07, PEC-E-PAD12, PEC-E-PAD14, PEC-E-PAD16, PEC-E-PAD33 and PEC-E-PAD43, archaeological subsurface test excavation would need to occur before there is any direct impact within the relevant PAD. The purpose of the test excavations would be to determine the presence or absence and significance of intact subsurface archaeological deposits to inform design development and construction planning and/or requirements for salvage activities.	Pre-construction impact in the PAD	PAD areas PEC-E-PAD01 PEC-E-PAD02 PEC-E-PAD03 PEC-E-PAD04 PEC-E-PAD05 PEC-E-PAD06 PEC-E-PAD08 PEC-E-PAD09 PEC-E-PAD17 PEC-E-PAD18 PEC-E-PAD19 PEC-E-PAD20 PEC-E-PAD21 PEC-E-PAD22 PEC-E-PAD23 PEC-E-PAD24 PEC-E-PAD25

Reference	Mitigation measures	Timing	Application location(s)
	<u>Test excavations works would be carried out in accordance with a methodology that is presented to and consulted on with the RAPs.</u> <u>Test excavation addendum report/s to the ACHAR would be prepared to detail the findings of the test excavation activities.</u> A test excavation program would be carried out in the parts of any PADs where direct impact is likely. The purpose of the test excavations would be to determine the presence or absence and significance of subsurface archaeological deposits to inform design development and construction planning. Test excavations works would be carried out in accordance with a methodology that is presented to and consulted on with the RAPs. Test excavation addendum report/s to the ACHAR which would detail findings of the test excavation activities.		PEC-E-PAD26 PEC-E-PAD27 PEC-E-PAD29 PEC-E-PAD35 PEC-E-PAD40
AH5	Harm to scarred trees (including those of cultural significance) would be avoided where possible through design development and construction planning. Scarred trees must only be removed to directly facilitate construction of permanent infrastructure and/or to meet <i>Vegetation Clearance Requirements at Maximum Line Operating Conditions</i> (Transgrid, 2003). If the removal of a scarred tree cannot be avoided, the tree would be subject to 3D scanning, followed by salvage of the scarred trunk. The results of this assessment would be reported on in addendum reports. Reports would be provided to RAPs for comment and to Heritage NSW.	Pre-construction impacts	PEC-E-03 PEC-E-42 PEC-E-77 PEC-E-76 PEC-E-17 PEC-E-48 PEC-E-49 Boiling Down Road 1 (AHIMS #56-1-0001) D-B#22; Boooroorban (AHIMS #48-5-0022) (confirmation required may already be destroyed)

Reference	Mitigation measures	Timing	Application location(s)
AH6	All portions of artefact scatters and isolated finds that are to be directly impacted would require surface collection and salvage prior to construction commencement in those areas. Hearths would be the subject of photographic recording and samples taken of hearth material prior to disturbance. Additionally, based on the outcomes of the test excavations, <u>the parts of PADs with confirmed intact subsurface archaeological deposits that would be harmed by project activities</u> would be subject to <u>surface salvage excavation collection or salvage</u> prior to <u>those the commencement of ground-disturbing activities commencing within the PAD. Items of archaeological significance would be managed in accordance with measures set out in AH12.</u> The activities would be documented in a salvage report.	Pre-construction impacts	All artefact scatters, hearths and PADs PADs requiring salvage excavations: PEC-E-PAD03 PEC-E-PAD18 PEC-E-PAD22 PEC-E-PAD40
AH7	Aboriginal heritage exclusion zones would be established to protect sites, including: - known features/items of significance that have been identified to remain in-situ throughout construction (and not subject AH6) - scarred trees that are to remain in-situ - any portions of PADs that become a known site following subsurface testing and which are identified for no impact. Suitable controls would be identified in the Heritage Management sub-plan, which may include temporary site fencing and sediment control. Aboriginal heritage zones would be demarcated by a suitably qualified archaeologist in consultation with the RAPs prior to the commencement of construction at each location. PADs in locations where vegetation clearing is required but there would be no ground disturbance would be managed through construction methodologies and would not be delineated as exclusion zones. These methodologies would be developed in the Heritage Management sub-plan.	Pre-construction impacts	All sites confirmed with the final construction impact area and disturbance areas to not be directly impacted
AH8	Any existing access tracks in areas of PAD that require upgrading for use during construction would not be the subject of direct ground disturbance such as grading. The methodology to be used for the upgrade would be designed to avoid this disturbance and may include laying of geotextile on the surface. If avoidance is not possible, then additional test excavation would be required and salvage completed as necessary prior to works commencing (in accordance with AH4 and AH6).	Construction	Locations where existing access tracks are required to be upgraded in areas of sites and PADs

Reference	Mitigation measures	Timing	Application location(s)
AH9	Construction planning and management would make sure that indirect impacts that could potentially result in a loss of known heritage values due to harm would not occur. Indirect harm could result from physical disturbance from surface water drainage or construction workers driving over sites that are to be protected.	Construction	All locations
AH10	Cultural heritage awareness training would be carried out for all personnel working on the proposal prior to the personnel participating in construction activities. The training shall cover features of heritage significance within and adjacent to proposal locations and proposal protocols that must be complied with to minimise and manage potential impacts to those features.	Construction	All locations
AH11	If at any time during construction, any items of potential Aboriginal archaeological or cultural heritage significance, or human remains are discovered outside of previously recorded sites or PAD, they would be managed in accordance with an the Aboriginal heritage unexpected finds protocol (refer to aligned with the protocol in Appendix 3 of the Revised Aboriginal Cultural Heritage Report. Technical Paper 2).	Construction	All locations
AH12	A temporary repository of any retrieved archaeological material and Aboriginal objects would be appropriately secured under the care of the archaeological consultant. Retrieved archaeological materials would be stored in appropriate, secure facilities confirmed in consultation with the relevant Aboriginal stakeholders. The strategy for the long-term conservation of salvaged or collected Aboriginal objects would be determined in consultation with the RAPs.	Construction	As relevant
AH13	Features/items of heritage significance that would remain in-situ within the transmission line easement would be mapped and recorded within GIS systems managed by Transgrid and would be entered on the NSW Aboriginal Heritage Information Management System (AHIMS). Relevant Transgrid systems and procedures would be updated as required with protocols that would be implemented during operation to ensure that impacts to the features/items of significance do not occur during maintenance activities.	Operation	Transmission line

Reference	Mitigation measures	Timing	Application location(s)
Historic heritage			
NAH1	The final construction methodology would be developed to avoid or minimise harm to heritage items PEC–E–H1 (Survey Marker Tree) and the sheep yards on the Yanga Pastoral Station Complex as far as practicable. If harm to these items can be avoided, temporary exclusion fencing would be installed to protect any elements of these items to be retained during construction. If harm to the sheep yards on the Yanga Pastoral Station Complex cannot be avoided, consultation would occur with NPWS. Where requested, archival recording of the sheep yards would occur, and the records would be provided to NPWS.	Pre-construction and construction	Transmission line
NAH2	The final construction methodology would be developed to avoid ground disturbance within the curtilage of PEC–E–H3 (Bundure railway station dwelling artefact scatter) where practicable. If ground disturbance within the curtilage can be avoided, temporary exclusion fencing would be installed to protect relevant parts of the item from harm during construction. If ground disturbance within the curtilage cannot be avoided during construction, the parts of the artefact scatter that could be harmed would be salvaged and analysed and managed in accordance with their determined significance, prior to the commencement of any activity that could harm the heritage items present.	Pre-construction and construction	Transmission line
NAH3	The locations of known heritage items in close proximity to the construction impact area and the relevant protocols to avoid and manage any potential harm to the items would be communicated to all relevant construction personnel prior to construction commencing in that area.	Pre-construction and construction	Transmission line

Reference	Mitigation measures	Timing	Application location(s)
NAH4	PEC E H4 would be subject to heritage survey and assessment when site access is available. If the site is found to contain or has the potential to contain features of heritage conservation significance, the final construction methodology would be adjusted as far as practicable to avoid harm. If harm can be avoided, temporary exclusion fencing would be installed to protect relevant parts of the site during construction. If parts of the site that contain or have the potential to contain features of heritage conservation significance would be subject to ground disturbance during construction, an archaeologist would recommend appropriate measure mitigation/management measures, which might include archaeological excavation and salvage (where appropriate). The archaeologist's recommendations would be implemented prior to the commencement of any activity that could harm the features of heritage conservation significance.	Pre-construction and construction This mitigation measure has been completed – refer to Section 3.3.3	Transmission line
NAH5 NAH4	During design refinement, the final location of transmission line structures and construction facilities would be determined with the aim to avoid or minimise impacts on all items assessed as having heritage significance, where feasible and reasonable. Items of moderate or high significance would be prioritised for avoidance or impact minimisation. Where impacts are not avoided, further assessment by an archaeologist would occur and be documented in an addendum non-Aboriginal heritage assessment.	Pre-Construction	All locations
NAH6 NAH5	If at any time during construction, any items of potential historic heritage archaeological significance, or human remains are discovered, they would be managed in accordance with an unanticipated discovery protocol that is aligned with the protocol in Appendix 1 of Technical paper 3.	Construction	All locations
NAH7 NAH6	Features/items of heritage significance that would remain in-situ within the transmission line easement and along access tracks would be mapped and recorded within GIS systems managed by Transgrid to reduce the potential for inadvertent impacts to occur during maintenance activities.	Operational	Transmission line and access tracks
NAH8 NAH7	Relevant Transgrid systems and procedures would be updated as required with protocols to avoid harm to heritage items and implemented during operation.	Operational	Transmission line and access tracks

Reference	Mitigation measures	Timing	Application location(s)
Land use and property			
LP1	Access tracks (temporary and permanent) would be confirmed in consultation with landholders to minimise impacts on agricultural activities to the greatest extent possible. Where permanent tracks are required, a <u>single</u> access track <u>s</u> would be designed to serve both temporary and permanent purposes, where possible.	Pre-construction and construction	All locations
LP2	Transmission line <u>towers</u> structures (and associated permanent structures or construction compounds) would be located where possible to avoid or minimise impacts, or as agreed with the affected landholder, on: • cropping and irrigated horticultural land • areas used for set up and pack up of agricultural equipment, entry points and turning areas • drainage catchments for farm dams • locations of high biosecurity risk.	Pre-construction	All locations
LP3	To minimise disruption to agricultural activities: • landholders would be consulted regarding any required adjustments to property infrastructure (fences, access tracks, etc) and the proposed timing and location of construction works, especially where some restriction on vehicular or stock movements would be necessary. Appropriate arrangements would be negotiated with the affected parties and <u>documented in a Property Management Plan (or equivalent)</u>. Measures would be put in place prior to any such disruption. • property infrastructure (such as gates) would be managed in accordance with landholder requirements, (provided access is not limited or restricted) • any damage to property infrastructure caused by construction would be repaired promptly • use of existing roads, tracks and other existing disturbed areas would be prioritised • where access is required across open spaces, care would be exercised to ensure that minimum damage is caused to the surface by confining vehicular or plant movement, as far as possible, to one route.	Pre-construction and construction	All locations
LP4	Consultation would be undertaken with relevant landowners who utilise aerial farming operations to identify appropriate mitigation arrangements (where feasible) such as the installation of aerial warning markers on the transmission lines.	Pre-construction and construction	Transmission line

Reference	Mitigation measures	Timing	Application location(s)
LP5	Disturbed areas would be stabilised and appropriately rehabilitated (i.e. as close as possible back to Pre-impacted conditions) as soon as feasible and reasonable following the completion of construction at each location. This would be carried out in consultation with the relevant landowner.	Construction	All locations
LP6	Procedures would be implemented so that potential impacts or conflicts between livestock and construction activities are appropriately managed. Procedures would be developed in consultation with affected landholders and would include management of: • noise intensive activities during sensitive periods within the livestock production cycle (such as lambing and calving) • vehicle movements and other activities within the vicinity of livestock • movement of stock away from potential stressors created by construction activities.	Construction	Transmission line
LP7	Biosecurity controls would be implemented during construction to minimise the risk of off-site transport or spread of disease, pests or weeds. Controls would include (but not limited to): • inspections and cleaning of vehicles, machinery, and personnel equipment prior to movement on and off construction work areas or between properties • minimising movements across adjoining farmland including trip numbers and locations • additional measures where localised areas of high biosecurity risks have been identified. The specific controls applicable to a property would be identified in consultation with the affected landholder. The effectiveness of these controls would be monitored in a manner and time interval consistent with the level of risk on each property.	Construction	All locations
LP8	Where present in locations that would accessed for construction activities , weeds would be managed in consultation with the relevant landholder. Consultation would also occur with the relevant authority (LIS Local Land Services , the relevant local council, or NSW DPI) in relation to notifiable weeds.	Construction	All locations
LP9	In the event of new infestations of notifiable weeds as a result of construction activities, the relevant control authority would be notified as per <i>Biosecurity Act 2015</i> and Biosecurity Regulation 2017.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
LP10	Prior to the commencement of works within Travelling Stock Reserves (TSR), LLS will be notified of work within TSRs during the construction phase so that lessee, stock handlers and other permit holders can be notified of any potential impacts to stock movements.	Construction	Transmission line
LP10 LP11	Fencing and access arrangements, such as locked gates, would be determined in consultation with landholders (where required such as around the new substation and optical repeater sites). Management of access including opening and closing of gates would be done in accordance with landholder requirements. Any damage caused by maintenance activities would be repaired promptly.	Operation	Transmission line
LP11 LP12	If landholders indicate adverse effects on agricultural precision farming GPS signals due to operation of the project within 12 months from commencement of operation, the claims would be investigated. Any disruption due to operation of the project would be addressed in consultation with the affected landholder. Where it is identified there is a disruption, Transgrid would investigate and implement mitigation measures (such as signal boosting equipment) in consultation with the affected operator.	Operation	Transmission line
LP12 LP13	Biosecurity controls, confirmed in consultation with the affected landholders, would be implemented during operation to minimise the risk of off-site transport or spread of disease, pests or weeds during maintenance activities.	Operation	All locations
LP13 LP14	Where present within the operational transmission line easement and associated areas for permanent infrastructure, weeds would be managed in accordance with the <i>Biosecurity Act 2015</i> .	Operation	All locations
Landscape and visual amenity			
LV1	Opportunities for the retention and protection of existing trees within the disturbance area would be identified during detailed construction planning. Identified trees of high conservation significance would be retained and protected where practicable.	Pre-construction	Whole of proposal
LV2	Temporary and permanent access would be designed to minimise vegetation removal, changes to landform, and visual impacts where practicable.	Pre-construction	Whole of proposal
LV3	Lighting at construction compounds and accommodation camps would be designed and operated in accordance with AS4282–2019 Control of the obtrusive effects of outdoor lighting.	Pre-construction and construction	Construction compound and accommodation camps

Reference	Mitigation measures	Timing	Application location(s)
LV4	Works within the Tree Protection Zones of retained trees within or immediately adjacent to the disturbance area would be planned with consideration of the tree protection measures outlined in managed in accordance with AS4970–2009 Protection of Trees on Development Sites. where Practicable and appropriate measures would be implemented to minimise the impact of the works on the long-term health of these trees.	Pre-construction	Whole of proposal
LV5	For residences where the project is predicted to have a high or very high visual impact, opportunities for screening vegetation would be investigated. Appropriate visual screening or other options would be confirmed in consultation with the affected landholder and implemented during construction. Vegetative screening would be maintained by the landholder.	Construction	Transmission line
LV6	Lighting at the substations would be designed and operated in accordance with AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting.	Operation	Dinawan 330kV substation and Wagga Wagga substation upgrade/ expansion
Social			
SE1	A Community and Stakeholder Engagement Management Plan (CSEMP) would be implemented. This would include: • appropriate communication and engagement tools and approaches to engage with councils, landholders, community groups in service communities, emergency services and the broader community • complaint handling processes in line with the Transgrid Complaints Handling Policy.	Pre-construction and construction	All locations
SE2	Land and Property Access Officers would be appointed for affected landholders to provide direct avenues of enquiry for information and issues management.	Construction	Line affected landholders along the alignment

Reference	Mitigation measures	Timing	Application location(s)
SE3	A Local Business and Employment Strategy would be implemented to guide local opportunities during construction, and where possible, align with existing plans and strategies of regional study area LGAs, and Transgrid's Reconciliation Action Plan. The strategy would be developed in consultation with regional study area the affected local councils and would take into account current unemployment trends across the region. The strategy would include initiatives for: • local supplier and labour procurement targets • Aboriginal workforce and business participation • training and upskilling programs for local labour force • transitioning the local workforce following the completion of construction.	Pre-construction and construction	All locations
SE4	A each the Workforce Management Plan would be developed for each the accommodation camps in consultation with relevant councils, social infrastructure managers and community service providers in nearby service communities. The plan would identify potential constraints in local service provision and mechanisms to promote workforce health and wellbeing and integration into the affected service community without affecting access for residents. It would include: • a list of recreation facilities, sports teams and organisations that workers could utilise • social service providers, including medical and allied health providers • local initiatives that facilitate non-resident workforce and community interactions at local venues, events and community projects. The plan would be reviewed every six months in collaboration with councils to identify and manage any emergent issues.	Pre-construction	Service communities – likely Balranald, Hay, Jerilderie, Coleambally, Lockhart and Wagga Wagga
SE5	If proposal construction coincides with the construction of other the projects around Wagga Wagga identified as part of the cumulative impacts assessment (or newly identified projects of a similar scale), a workforce accommodation strategy for the proposal would be implemented and would be informed by an additional review of existing housing and accommodation capacity relative to the proposal workforce needs.	Pre-construction and construction	Wagga Wagga LGA

Reference	Mitigation measures	Timing	Application location(s)
SE6	The long-term rental market in Wagga Wagga would not be used to satisfy short term (less than six months) accommodation needs for the construction workforce in Wagga Wagga.	Construction	Wagga Wagga LGA
SE7	Cultural Heritage and awareness training would be provided to all construction workers during the onboarding process.	Construction	Whole proposal
Economic			
EC1	The positive local employment and business opportunities would be maximised via promotion of local workforce participation and the preparation and implementation of an Local Industry Participation Plan and Australian Industry Participation Plan.	Pre-construction and construction	All locations
EC2	The proposal team would collaborate with the local Councils and local chambers of commerce to: - inform local business of the goods and services required of the proposal, the service provision opportunities and compliance requirements of business to be able to secure contracts - encourage local business to meet the requirements of the proposal for supply contracts.	Pre-construction and construction	All locations
Hydrology, flooding and water quality			
HF1	Permanent operational infrastructure and landforms within the transmission line easement would be designed and implemented/formed to minimise any potential scour and erosion risks associated with surface water runoff. Drainage infrastructure at substations would be designed to not materially worsen flood impacts on property and infrastructure.	Pre-construction and construction	All locations
HF2	Detailed construction planning would consider flood risk at construction areas. This would include: - identifying measures that would be implemented to not worsen flood impacts downstream and on other property and infrastructure during construction up to and including the five per cent AEP design flood event, and - confirming site layouts to avoid or minimise obstruction of overland flow paths and to limit the extent of flow diversion required. Practicable measures identified to minimise potential flood risks at construction areas would be implemented.	Pre-construction and construction	Transmission line and construction sites within flood prone land

Reference	Mitigation measures	Timing	Application location(s)
HF3	A detailed assessment would be undertaken to confirm that the bench level of the final design of the Dinawan 330kV Substation will be above the 100 year average recurrence interval (ARI) design and that a 200 year ARI design flood would not impede substation function. The assessment would consider a spills/overflows from the detention basin on the irrigation channel to the east of the substation location and a potential failure of the basin embankment. The bench level and design of the substation would be adjusted to ensure compliance with Transgrid's design standards.	Pre-construction	Dinawan 330kV Substation
HF3 HF4	A water quality monitoring program would be implemented to establish baseline water quality conditions at perennial watercourses that the transmission lines would cross, and to facilitate monitoring of any changes in water quality that may be attributable to the proposal during construction. The frequency, location and duration of sampling would be detailed in the monitoring program, but would include: • at a minimum two monitoring locations (one located upstream and one downstream of the transmission line crossing) of the proposal on Colombo Creek • downstream monitoring on the Murrumbidgee River with consideration of existing upstream WaterNSW gauges (including gauge 410130) • monitoring for total dissolved solids, total suspended solids, total nitrogen and total phosphorus. Sampling in the Murrumbidgee River and Colombo Creek would commence at least six months prior to the commencement of ground disturbing activities within the riparian zone at each respective location and then monthly during construction until completion of rehabilitation works in the respective areas. If there are exceedances of water quality criteria, then measures adopted as part of HF5 HF6 would be reviewed and revised. Monitoring would continue monthly during construction at each respective location until completion of rehabilitation works in the respective areas.	Pre-construction and construction	Upstream and downstream of the crossing transmission line crossing for Murrumbidgee River, Colombo Creek, Irrigation channel near Dinawan 330kV substation site (between Coleambally Irrigation Area and Yanco Creek)
HF4 HF5	Water supply options and management would occur in accordance with agreements between the construction contractor and relevant suppliers.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
HF5 HF6	A Soil and Water CEMP sub-plan would be developed in consultation with a Certified Professional in Erosion and Sediment Control and implemented during construction. The plan would detail the processes, responsibilities and measures to manage potential soil and water quality impacts in accordance with the principles and requirements in: • <i>Managing Urban Stormwater – Soils and Construction, Volume 1</i> (Landcom 2004), and <i>Volumes 2A and 2C</i> (DECCW, 2008), commonly referred to as the 'Blue Book' • <i>Best Practice Erosion and Sediment Control</i> (IESCA – 2008) • Transgrid's Environmental Guidance Notes • <i>Guidelines for Controlled Activities on Waterfront Land</i> (DPI, 2012a NRAR, 2018). The Soil and Water CEMP Sub-plan would contain appropriate measures (as a minimum) to: • minimise the extent of ground disturbance • divert surface water runoff around construction locations • install erosion controls within construction locations • collect and filter sediment from surface water runoff within construction locations • manage stockpiles to minimise erosion and sediment transport • manage saline and ASS (if present) • minimise the potential of soil and water quality impacts during storage of project wastes and potentially polluting substances • minimise the duration of soil exposure and progressively rehabilitate and stabilised disturbed areas • manage unexpected finds of contaminated materials • manage spills to reduce and address soil and water contamination.	Construction	All locations
HF6 HF7	Maintenance works in the vicinity of waterways would be conducted in accordance with Transgrid's Environmental Guidance Notes.	Operation	Transmission lines

Reference	Mitigation measures	Timing	Application location(s)
Air quality			
AQ1	To minimise particulate and gaseous emissions during construction, the following measures (as a minimum) would be implemented where practicable and appropriate: • use of water sprays or surfactants as required for dust suppression • adjust the intensity of dust generating activities based on observed dust levels and weather forecasts • protect stockpiled materials from wind erosion to minimise dust generation and position stockpiles as far as practicable away from any nearby receptors • limit vehicle movements to designated entry/exit routes and parking areas • implement measures to minimise the tracking of dust generating material onto paved roads • inspect and clean paved roads in the vicinity of site access points as required to minimise dust generation (up to 100 metres either side of the access point) • cover the loads of potential dust producing materials • minimise the extent of ground disturbance as far as practicable • stabilise disturbed areas as soon as practicable. The effectiveness of the installed controls would be monitored, and additional controls implemented as required to address any performance issues identified.	Construction	All locations
AQ2	Ensure that all vehicles and machinery are fitted with appropriate emission control equipment and maintained in a proper and efficient manner in line with guidelines contained in the National Environment Protection (Diesel Vehicle Emissions) Measure 2009.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
AQ3	To minimise emissions from concrete batching plants, the following measures (as a minimum) would be considered and implemented where practicable and appropriate: • store all aggregate and sand in appropriate storage bins or bays to minimise dust generation, and ensure that the material does not exceed the height of the bay • fit cement silos and hoppers with dust filters and emergency pressure alert and automatic cut off overfill protection • fully seal all inspection points and hatches • ensure that all transfer methods adopted address and minimise potential dust generation • transfer of cement from storage to batching using sealed steel augers. The effectiveness of the installed controls would be monitored and additional controls implemented as required to address any performance issues identified.	Construction	Concrete batching plant(s)
AQ4	To minimise dust emissions during screening activities, the following measures (as a minimum) would be considered and implemented where practicable and appropriate: • ensure screen covers are fitted to the screening equipment • control dust emissions from screening activities using water sprinklers, where required and appropriate • inspect the water sprinklers on a regular basis and maintain as required to ensure operational efficiency • where practicable, install wind breaks in appropriate locations adjacent to the dust generating equipment and processes • prior to screening, dampen the rocks during dry weather conditions. The effectiveness of the installed controls would be visually monitored and additional controls implemented as required to address any performance issues identified.	Construction	Dinawan 330kV substation earthworks material site

Reference	Mitigation measures	Timing	Application location(s)
AQ5	To minimise potential odour emissions and impacts from the wastewater treatment plants, the following measures would be considered and implemented where practicable and appropriate: • prevent excessive inorganic material accumulating on the screens by disposing of screened material in waste bins on a regular basis • place waste bins containing screened material and sludge as far away as practicable from the construction compound and accommodation sites • ensure waste bins are fully closed at all times • remove screened material and sludge from site at regular intervals and dispose in an appropriate manner. The effectiveness of the installed controls would be monitored and additional controls implemented as required to address any performance issues identified.	Construction	Cobb Highway, Dinawan and Lockhart construction compound and accommodation sites
AQ6	During atmospheric conditions that are conducive to dust generation, dust generation from project-related traffic movements on unsealed roads and access tracks (routes) in close proximity to sensitive receivers would be visually monitored. Where dust from project-related traffic movements is impacting or has the potential to impact the sensitive receivers, measures to minimise dust emissions and potential associated amenity impacts would be implemented. The following measures would be implemented where practicable and appropriate: • lower the speed of project-related traffic along the routes • apply dust suppression (for example using water carts or the application soil binders) on appropriate sections of the route in the vicinity of potentially affected sensitive receivers. The effectiveness of the implemented controls would be visually monitored and additional controls identified and implemented as required and where practicable such as: • minimise the volume of project-related traffic using the routes • use alternative routes. The measures would remain implemented until more suitable atmospheric conditions prevail or the controls are no longer required to minimise potential dust impacts.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
Noise and vibration			
NV1	A Construction Noise and Vibration Management Plan (CNVMP) would be prepared by the construction contractor prior to construction works commencing and would (as a minimum) identify: • all noise and vibration sensitive receivers • feasible and reasonable noise mitigation where management levels are likely to be exceeded • feasible and reasonable noise measures to manage traffic noise impacts on public roads where impacts are identified at any sensitive receiver due to proposal-related traffic • feasible and reasonable vibration mitigation where vibration criteria are likely to be exceeded • describe associated noise and vibration monitoring programs • refer to complaint handling protocols for complaints related to construction noise and vibration • outline community consultation measures including notification requirements. This CNVMP would be implemented for the duration of construction.	Pre-construction	All locations
NV2	Where noise from construction is likely to result in noise affected receivers, mitigation and management measures would be implemented where practicable and appropriate. This would include (but is not limited to) the following measures: • select quieter plant and equipment and use alternative construction methods to minimise noise levels • plan and schedule concurrent noisy activities to minimise the number of items of noisy plant operating at one time and cumulative noise levels • install screens or use barriers to mitigate noise from stationary noise sources • maximise the offset distance between noisy plant and orient equipment away from sensitive receivers • use noise source controls, such as residential class mufflers, to reduce noise from all regularly-used plant including cranes, excavators and trucks • use alternative reversing alarms in place of traditional beeper reversing alarms during works outside standard construction hours where noise impacts have been predicted • turn off machinery when not in use	Pre-construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
	- ensure equipment is well maintained and not generating excessive noise - operate machinery in a manner which reduces maximum noise level events, such as shaking excavator buckets, loading trucks from a height, steel on steel contact and dragging materials across hard surfaces - provide awareness training regarding noise mitigation measures to be implemented - notify and consult with potentially affected receivers about upcoming noisy activities - ensure that noise affected receivers outside standard construction hours and highly noise affected sensitive receivers are provided with appropriate respite.		
NV3	Where construction is likely to result in vibration levels that exceed relevant criteria at sensitive receivers, mitigation and management measures would be implemented where practicable and appropriate. This would include (but is not limited to) the following measures: - avoid the use of vibration-intensive plant at distances where human discomfort would result - substitute lower vibration-intensive plant and methods (for example use a smaller machine, lower power settings or alternative equipment) - sequence operations to avoid or minimise concurrent vibration-intensive activities - schedule the use of vibration-sensitive equipment during the least sensitive times of the day - confirm any vibration-sensitive heritage structures that could be impacted by the proposal works. Develop site-specific measures to avoid vibration impacts and implement the measures during vibration-intensive activities in the vicinity - inform and consult with potentially affected receivers about upcoming vibration-intensive activities.	Pre-construction and construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
NV4	Where noise from construction–related traffic is likely to result in road traffic noise increases of more than 2 dB at affected receivers, mitigation and management measures would be implemented where practicable and appropriate. This would include (but is not limited to) the following measures: • minimise proposal–related traffic movements along the route • minimise speeds for proposal–related traffic in the vicinity of affected receivers • avoid compression braking and the use of air brakes in the vicinity of affected receivers • implement driver training and measures to ensure driver awareness, speed limits, driver behaviour and designated routes are effectively communicated • limit traffic movements to daytime periods as far as possible and minimise traffic movements outside standard construction hours.	Pre-construction and construction	All locations
NV5	Activities likely to generate noise levels that exceed applicable noise management levels at sensitive receivers would be scheduled during standard construction hours wherever practicable. Other activities required outside standard construction hours that are likely to generate noise levels that exceed applicable noise management levels at any nearby sensitive receivers would be carried out in accordance with an out of hours works protocol (Mitigation measure NV6).	Construction	All locations, excluding the operation of the accommodation camps

Reference	Mitigation measures	Timing	Application location(s)
NV6	Develop and implement an out of hours works (OOHW) protocol that details how the proposal would identify, assess and approve out of hours works outside standard construction hours that are likely to generate noise levels that exceed the relevant noise management levels at sensitive receivers. The protocol would include provisions to: • carry out additional assessments for works proposed outside standard construction hours to confirm predicted noise levels • minimise noise levels outside standard construction hours • carry out the noisiest activities as early as possible in the work shift where practicable • identify appropriate respite for noise affected receivers (where required) • notify and engage with potentially affected receivers about upcoming works outside standard construction hours and address any associated complaints. The OOHW protocol would not apply to the operation of the accommodation camps. Prior to works outside standard construction hours, engagement and consultation would occur with potentially affected receivers regarding various mitigation and management measures. Based on this consultation, appropriate mitigation and management options would be considered and implemented where feasible and reasonable to minimise the impacts.	Construction	All locations, excluding operation of the accommodation camps
NV7	Where residences or other sensitive receivers/ structures are within the minimum working distances for vibration, different construction methods with lower source vibration levels would be investigated and implemented, where feasible. Attended vibration measurements would be undertaken at the start of the works to determine actual vibration levels at the structure. Works would cease if the monitoring indicates vibration levels are likely to, or do, exceed the relevant criteria.	Pre-construction and construction	All locations
NV8	Prior to the commencement of blasting, a Blast Management Strategy would be developed. The strategy would describe the process that would be used to design each blast (depths and Maximum Instantaneous Charge for each location etc) to comply with relevant noise and vibration criteria at any nearby sensitive receivers. The strategy would also detail noise and vibration monitoring and landholder notification requirements for blasting. The strategy would be implemented for all blasting.	Construction	Blasting locations

Reference	Mitigation measures	Timing	Application location(s)
NV9	Investigate any complaints regarding construction noise and vibration to determine if actual noise and vibration levels are as predicted and that appropriate mitigation measures have been implemented. Where required, identify and implement appropriate additional mitigation measures.	Construction	Blasting locations
NV10	For each residence where potential operational noise levels are predicted to exceed project trigger levels, noise monitoring to confirm actual operational noise levels would be carried out: • within six months of the commencement of operation (where meteorological conditions permit); and • at the request of the landowner of the residence at any time within two (2) years after the commencement of operation. The noise monitoring would occur during weather/atmospheric conditions conducive to generating the corona effect. For residences where the monitoring identifies operational noise levels in excess 35 dB(A) LAeq,15min and internal noise levels in excess of 25 dB(A) as a result, consultation would occur with the landowner of the affected residence to identify if treatment is required and, if so, confirm appropriate treatments. Once appropriate treatments have been confirmed in consultation with the landholder, the treatments would be implemented within 12 months. For the 500kV line between Dinawan 330kV substation and Wagga Wagga substation this assessment would be required to occur once the line is operational at the initial 330kV voltage and subsequently once the line is increased in operational capacity to 500kV (at a point in the future following the required additional network upgrades).	Operation	All locations
Traffic and access			
TA1	A Traffic and Transport Management sub-plan would be developed and implemented. The sub-plan would detail how potential proposal-related traffic and access impacts during construction would be minimised and managed. This plan would be prepared in consultation with the local councils and Transport for NSW.	Pre-construction and construction	All locations
TA2	The Traffic and Transport Management sub-plan would outline the process for obtaining road occupancy licences, and preparing and implementing traffic management plans and traffic controls plans, as required by the relevant roads authority, for road works. Road occupancy licences would be obtained prior to any such occupancy.	Pre-construction and construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
TA3	Any permits required under the National Heavy Vehicle Law for oversized and overmass vehicle movements associated with the proposal would be obtained from the National Heavy Vehicle Regulator. Permit applications would be supported by a Vehicle Movement Plan prepared to identify the proposed heavy vehicle route(s). The plan would consider activities of adjoining land uses and safety of the public, particularly when entering urban areas from rural highways.	Pre-construction and construction	Construction haulage routes, access/egress points to access tracks and main construction compound and accommodation camps.
TA4	Measures that are required to address potential road safety issues associated with proposal-related use of access routes would be identified in consultation with the relevant roads authority. Any road upgrade works to facilitate construction of the proposal would be designed in accordance with Austroads guidelines as relevant. The Traffic and Transport Management sub-plan would include a program for monitoring road safety along proposal access routes and addressing any construction-related issues identified.	Pre-construction	Construction haulage routes, access tracks, main construction compound and accommodation camp accesses
TA5	A Driver Code of Conduct would be developed and implemented. The code would: - define acceptable driver behaviour for proposal personnel to promote road safety address fatigue management - ensure that the impacts of construction-related vehicle movements on local roads and the local community are minimised.	Construction	Construction haulage routes, access tracks, main construction compound and accommodation camp accesses
TA6	Consultation with rail authorities (operators) would occur for all proposal activities required in active rail corridors. The consultation would confirm authority requirements (such as track occupancy authorisations) and necessary requirements for staff working within the rail corridor (accreditations). All works in active rail corridors would occur in accordance with the identified requirements.	Pre-construction and construction	Where the transmission line requires access within the rail corridor.

Reference	Mitigation measures	Timing	Application location(s)
TA7	Road condition surveys would be carried out for all local roads that would be used as construction haulage routes, in consultation with the relevant roads authority. The surveys would be carried out prior to the road being used by heavy vehicles to support construction of the proposal. A road condition monitoring and maintenance program would be developed in consultation with the relevant roads authority for all local roads used as construction haulage routes and implemented for the duration of construction. Post–construction road condition surveys would be carried out for local roads used as a construction haulage route when use by construction vehicles ceases. Damage to the roads (and other infrastructure such as stock grids) that is attributed to the proposal would be addressed in consultation with the relevant roads authority and within three months of construction use concluding or as otherwise agreed with the relevant roads authority. Roads would be reinstated to equivalent or better condition.	Pre-construction and construction	All sealed local roads (within the vicinity or 200 m of the proposal) and/or all unsealed roads on haulage routes.
TA8	Actions to ensure that existing road structures proposed to be used during construction are suitable for the proposed use would be investigated and implemented where required. These would include: while establishing access tracks, a suitably qualified engineer would assess the existing structures for suitability considering structure type, condition, vehicle types, loading and frequency of use if structures are deemed unsuitable, the following alternatives would be considered and implemented where practicable and appropriate: alternative routes (access via easement) alternative vehicle types (smaller loads) temporary works (e.g. propping, or similar) in consultation with asset owners. Any damage to road structures caused by proposal-related heavy vehicle usage would be rectified at the conclusion of use.	Pre-construction and construction	Existing bridge and drainage/culvert assets

Reference	Mitigation measures	Timing	Application location(s)
TA8 TA9	A Community Communications Strategy would be developed and implemented to manage communications in order to engage and notify local communities of major works that could disrupt the road network. The Community Communication Strategy would be developed in conjunction with the Traffic and Transport Management sub-plan to detail the methodology, frequency and response measures in relaying information to the community and for addressing community concerns. All affected communities would be notified in advance of any disruptions to the transport network. This may be in the form of variable message signs, website notices, public notices in local publications and personal correspondence.	Pre-construction and construction	All locations
TA9 TA10	Road Occupancy Licence(s) would be sought for all temporary lane closures (as required) with the relevant roads authority) prior to construction. by the relevant roads authority). Associated activities within the road reserve would occur in accordance with the relevant licences. Any road closures with significant impact, such as short-term full road closure and long-term temporary lane/road closures would be assessed on a case-by-case basis, and approval sought from the relevant road authority. Where feasible, temporary road closures are to be planned outside of the traffic peak periods to minimise impact to the road network.	Construction	All roads that intersect with the transmission line alignment (for stringing of transmission lines) or on haulage routes.
TA10 TA11	Vehicle Movement Plans would be prepared as part of the Traffic and Transport Management sub-plan and implemented for all proposal heavy vehicle routes. The plans would identify the allowable heavy vehicle routes and include travel directions, permitted intersection turning movements, speeds, approved parking and lay-up areas, maximum allowable types/size of trucks and any traffic control required. The requirements of Vehicle Movement Plan would be communicated to all construction heavy vehicle drivers.	Construction	All roads on haulage routes, as identified in Table 4.4 of Technical paper 4.
TA11 TA12	Significant traffic generating developments in the vicinity of the proposal would be identified. Consultation would occur with those developments and the relevant roads authority regarding proposal-related vehicle movements and road works. Measures to address any potentially significant cumulative traffic and access impacts would be identified and implemented.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
TA12 TA13	The appointed Construction Contractor would coordinate and appropriately manage movements on the alternative route options and communicate the changes to the affected residents and the council as part of the communication process of the Traffic and Transport Management sub-plan. This would be implemented should local road closures be required and alternative route provided.	Construction	Local roads as identified in Table 4.4 of Technical paper 4.
TA13 TA14	A Fatigue Management Plan would be developed and implemented for proposal that addresses driver fatigue and associated regulatory requirements. This plan is to be implemented during construction.	Construction	All roads on haulage routes, as identified in Table 4.4 of Technical paper 4.
TA14 TA15	Road and surface conditions and the traffic controls implemented at each proposal site access/egress point from the sealed road network would be monitored during construction. Any identified issues would be rectified.	Construction	Access/egress points to access tracks and the main construction compound and accommodation camps
TA16	Existing connections to the public road network would be considered for use when access to construction locations via private land is required. Existing site access points would be used for construction access where feasible and reasonable and in consultation with the relevant landholder. Consultation with the relevant roads authority would occur for all new site access points.	Pre-construction and construction	Access/egress points to access tracks
TA17	Temporary access points within the road reserve that are not required for operational reasons would be removed and restored in consultation with the relevant roads authority following the completion of construction.	Construction	Access/egress points to access tracks
TA15 TA18	Construction access tracks would be retained for operational access, where required and practicable in consultation with the relevant landholder.	Operation	Access tracks
Hazards and risk			
HR1	The proposal would be designed and constructed in accordance with the <i>Guidelines for Limiting Exposure to Time-Varying Electric and Magnetic Fields (1 Hz) – 100 kHz</i> (ICNIRP, 2010). The design would meet the EMF exposure guidelines set out in Table 19–2 of the EIS and worst case scenarios within Transgrid's <i>Transmission Line Design Manual – Major New Build</i> .	Pre-construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
HR2	A minimum 50-metre-wide managed APZ would be provided to the hazard perimeter of the fixed construction equipment and camp site buildings unless an alternative fire protection approach that achieves the same level of bushfire risk management is identified by a suitably qualified specialist. Any APZ would be regularly maintained to provide a maximum grass height of 400 millimetres <u>up to</u> 150 millimetres during the prescribed Bushfire Danger Period and when the grassland fuel reaches 70 per cent cured. Vegetation inside the main construction compounds and accommodation camp sites would be regularly maintained to a maximum height of 75 millimetres.	Pre-construction and construction	Main construction compounds and accommodation camps
HR3	Buildings within the construction compound and camp site would be constructed to comply with Section 3 and Section 5 (BAL 12.5) of <i>Construction of Buildings in Bushfire Prone Areas – AS 3959:2018</i> (Standards Australia, 2018). The sub-floor space of each building would be enclosed with stainless steel flymesh securely fixed to the external wall(s) and buried into the ground, unless an alternative fire protection approach that achieves the same level of bushfire risk management is identified by a suitably qualified specialist.	Pre-construction and construction	Main construction compounds and accommodation camps
HR4	Water for fire-fighting operations would be confirmed prior to during construction with consideration to occupancy density and site layout. This would include onsite static water supply and fire-fighting hose reels when working in areas where vehicles may travel through environments such as areas of: - known rocks where equipment such as bulldozers and excavators may create sparks - long cured (dry) vegetation (grass and crops). All weather access having a minimum width of four metres would be provided to the static water supply tanks.	Pre-construction and construction	Main construction compounds and accommodation camps
HR5	Appropriate construction methods and protection measures for crossing of the high-pressure gas transmission pipeline west Olympic Highway would be confirmed in consultation with APA Group and implemented during construction activities in the vicinity.	Pre-construction and construction	High-pressure gas transmission pipeline crossing, west of Olympic Highway
HR6	Security measures would be implemented to minimise the risk of ignition leading to bushfire(s). Sources of potential ignition would be secured at the end of each shift or as sites are left unattended.	Construction	Main construction compound and accommodation camp sites

Reference	Mitigation measures	Timing	Application location(s)
HR7	Consultation with emergency services (the NSW Rural Fire Service and Fire and Rescue NSW) would be undertaken prior to construction to ensure emergency access provisions are provided during operation.	Construction	All locations
HR8	Prior to occupation of the construction camps and offices, all bushfire protection and mitigation measures would be certified as compliant with relevant regulatory requirements by a suitably qualified bushfire consultant.	Construction (prior to camp occupation)	All locations
HR9	Controls to minimise potential ignition of vegetation would be implemented and a water supply (suitable extinguisher) and trained operator on hand during all outdoor hot works/grinding activities, and during vegetation slashing within and adjacent to the construction compounds and accommodation camps. No outdoor hot works would be undertaken during periods of Total Fire Ban and Catastrophic Fire Weather Days unless there is a suitable fire suppression unit present on site and only with prior agreement with local fire services.	Construction	All locations
HR10	To reduce the level of risk of ignition of the surrounding vegetation Transgrid would need to engage implement appropriate measures to ensure fire-fighting resources are available before blasting occurs.	Construction	All locations blasting proposed
HR11	All chemicals, fuels or other hazardous substances would be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards and applicable guidelines. The capacity of any bunded area shall be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s shall be shown on the site plans.	Construction	All locations
HR12	Equipment would be checked in accordance with Australian Standard requirements for potential electrical faults, including faulty power leads and generators.	Construction	All locations
HR13	Dangerous goods and hazardous substances would be transported in accordance with relevant legislation and codes, including the <i>Dangerous Goods (Road and Rail Transport) Act 2008</i> , Road and Rail Transport (Dangerous Goods) (Road) Regulation 1998 and the <i>Australian Code for the Transport of Dangerous Goods by Road and Rail</i> (National Transport Commission, 2018).	Construction	All locations
HR14	Appropriate spill containment equipment would be provided and located at strategic, accessible locations.	Construction	All locations
HR15	Security measures would be implemented to minimise the risk of arson within and adjoining construction areas. The location of appropriate security measures would be determined using a risk-based approach.	Construction	All locations

Reference	Mitigation measures	Timing	Application location(s)
HR16	<u>An Emergency Management and Response Plan would be prepared for construction that contains:</u> <u>the procedures and protocols to ensure to appropriate responses to foreseeable on-site and off-site emergencies, including (but not limited to):</u> <u>fire and hazardous material incidents</u> <u>bushfire emergency including evacuation or relocation of workers to nominated safe refuge zones during a bushfire emergency either within or remote to the work zone</u> <u>appropriate risk controls to mitigate potential risks to the health and safety of site personnel and first responders</u> <u>protocols for the management of bushfire risk during construction, including fuel loads in the vicinity of proposal facilities. This includes restriction and/or prevention of certain activities that present bushfire risks on days with a fire danger rating of equal to or greater than 'high', and as directed by relevant state authorities</u> <u>training requirements for construction workers, including training on bushfire risks and preventative actions (such as risks associated with operation (and maintenance) of vehicles, plant and equipment).</u> <u>The Emergency Management and Response Plan would be prepared for the entire project but would contain site-specific information procedures and protocols as required for individual sites. The plan would be developed in consultation with Fire and Rescue NSW and the District Office of the Rural Fire Service.</u> <u>A minimum of two up-to-date copies would be kept in an accessible, dedicated location at each accommodation camp and construction compound.</u> <u>The Emergency Management and Response Plan would be implemented in the event of an emergency situation.</u>	Construction	All locations
HR16 HR17	All chemicals or other hazardous substances at the Dinawan 330kV substation and existing Wagga Wagga substation would be stored in bunded and weatherproof facilities away from drainage lines, and in accordance with supplier's instructions and relevant legislation, Australian Standards and applicable guidelines. The capacity of the bunded area would be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s would be shown on the site plans.	Operation	Dinawan 330kV substation

Reference	Mitigation measures	Timing	Application location(s)
HR17 HR18	Emergency spill procedures would be implemented to avoid and manage accidental spillages of fuels, chemicals or fluids during operation and maintenance activities in accordance with the Transgrid's HSE Guideline. Environmental spill kits would be provided at strategic, accessible locations, and staff would be trained in spill response procedures.	Operation	All locations
HR18 HR19	The Wagga Wagga substation Emergency Response Manual would be updated to include the new proposed design and required revised emergency response procedures.	Pre-operation	Wagga Wagga substation
HR19 HR20	An Emergency Response Manual would be prepared for the proposed Dinawan 330kV substation and include emergency response procedures.	Pre-operation	Dinawan 330kV substation
HR20 HR21	The proposal would be designed, operated and maintained in accordance with Transgrid's Bushfire Risk Management Plan. This includes reduction in fuel loads, management of APZs and inspections of infrastructure.	Operation	All locations
Soils, contamination and groundwater			
SCG1	Construction materials would be selected to withstand high saline soil and groundwater environment (where applicable).	Pre-construction and construction at relevant site(s)	Locations mapped as moderate to high-risk salinity.
SCG2	Disturbance to areas of medium risk of contamination would be avoided or minimised where practicable during construction. Disturbance to these areas refers to intrusive work, such as excavation. Where disturbance cannot be avoided, potential impacts would be minimised during finalisation of the design and construction methodology where practicable. Areas of medium risk of contamination that would be disturbed by construction activities would be further investigated including completion of a site inspection. Based on the outcome of the site inspection, where considered to be required, a Phase 2 investigation would be completed in accordance with National Environmental Protection Measure 2013. Additional mitigation measures identified through further investigation would also be implemented.	Pre-construction at relevant site(s)	Cleared agricultural land, potential quarry and PFAS sites.

Reference	Mitigation measures	Timing	Application location(s)
SCG3	Direct impacts to registered bores would be avoided, where possible. If the bores are: - not required to be removed <u>impacted</u> during construction, then they would be clearly demarcated with a 5 by 5 metre construction exclusion zone - are to be removed <u>impacted</u> during construction or unavoidably damaged, then make good provisions would apply in consultation with the registered bore owner.	Pre-construction and construction <u>at relevant site(s)</u>	Registered bores (refer Table 21-7)
SCG4	Prior to carrying out any blasting, a desktop assessment would be carried out to identify any high potential GDEs and registered bores in the vicinity that might be affected. Potential impacts to the GDEs and bores would be assessed using the latest available location data. <u>The assessment would:</u> <u>assess any high potential GDEs and registered bores within 50 metres of a blasting site against the minimum impact criteria of the Aquifer Interference Policy (2012)</u> - identify any necessary measures to <u>monitor blasting and</u> mitigate and monitor any potential significant impacts. The measures would be implemented <u>prior to and</u> during the blasting <u>(as relevant)</u>. Where the assessment identifies potentially significant impacts to high potential GDEs and bores due to blasting that cannot be mitigated, alternative lesser impact construction methodologies or engineering solutions would be investigated and implemented.	Construction (prior to blasting) <u>at relevant site(s)</u>	Finalised blasting locations if within 50 metres of high potential GDEs
SCG5	Construction materials, spoil and waste would be suitably stored to minimise the potential for soil, groundwater or water quality impacts.	Construction	All
SCG6	Prior to ground disturbance in areas of <u>PASS-potential acid sulfate soils (ASS)</u> occurrence (e.g. in low lying areas surrounding former or current lakes and river beds), testing would be carried out to determine the presence of actual and/or potential ASS. If ASS are encountered, they would be managed in accordance with the <i>Acid Sulfate Soil Manual</i> (ASSMAC, 1998) and Transgrid's HSE Guideline.	Construction	All areas identified as potential ASS

Reference	Mitigation measures	Timing	Application location(s)
SCG7	Prior to ground disturbance, a visual inspection would be undertaken for the presence of saline soils. Areas of known or suspected salinity would be subject to further testing as required. If salinity is confirmed, excavated soils would be managed in accordance with <i>Book 4 Dryland Salinity: Productive use of Saline Land and Water</i> (NSW Department of Environment and Climate Change, 2008b) and the <i>Salinity Training Manual</i> (DPI, 2014) to manage salinity impacts. Erosion controls would be implemented in accordance with <i>The Blue Book</i> (Landcom, 2004).	Construction	All
SCG8	All chemicals, fuels or other hazardous substances would be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards and applicable guidelines. The capacity of any bunded area shall be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s shall be shown on the site plans.	Construction and operation	All (construction) Dinawan and Wagga substations (operation)
SCG9	The discovery of previously unidentified contaminated material would be managed in accordance with an unexpected contamination finds procedure.	Construction	All
SCG10	A site-specific risk assessment would occur for locations where there is a risk of encountering Unexploded Ordnance (UXO). The risk assessment would be carried out prior to any activities that could interact with UXO. This would include field verification to validate the historical assessment of UXO contamination and identify appropriate mitigation practices. The risk assessment would occur with input from an appropriate UXO specialist and would identify if and when an explosives engineer is required during site activities. An unexpected finds procedure would be implemented. The procedure would specify the actions that site personnel must take to minimise the risk to and from any UXO encountered. The management actions identified in the risk assessment would be implemented prior to and during all relevant site activities. All personnel conducting intrusive works within an identified UXO area would be provided with appropriate safety and awareness briefing(s) prior to the participating in the intrusive works.	Pre-construction and construction	All

Reference	Mitigation measures	Timing	Application location(s)
SCG11	If groundwater is encountered during piling or excavations, and dewatering is required, any dewatering volumes would be recorded by the contractor and reported annually for each groundwater source by the water calendar year (July to June) . Records would be (and made available to the relevant authority – such as DPIE or DPI – upon request).	Construction	All locations
SCG12	Environmental spill kits containing spill response materials suitable for the works being undertaken would be available at the proposed Dinawan and Wagga substations with extras available to be carried in vehicles for use at maintenance work sites.	Operation	Dinawan and Wagga substations
Waste management and resources			
WM1	The proposal would achieve an Infrastructure Sustainability Council verified 'Design' and 'As-built' rating of Excellent under v1.2 of the IS rating tool.	Pre-construction and construction	All locations
WM2	Measures to minimise excess spoil generation would be investigated at finalisation of the proposal's design and construction methodology. This would include a focus on optimising the design to minimise spoil volumes and the reuse of material on-site.	Pre-construction and construction	All locations
WM3	Opportunities to re-use or recycle construction and demolition waste would be investigated during finalisation of the proposal's design and construction methodology.	Pre-construction and construction	All locations
WM4	All waste would be assessed, classified, managed and disposed of in accordance with the <i>Waste Classification Guidelines</i> (NSW EPA, 2014).	Construction	All locations
WM5	Waste streams would be segregated, where feasible , to avoid cross-contamination of materials and maximise reuse and recycling opportunities.	Construction	All locations
WM6	All waste generated and surplus spoil to be removed from the construction of the proposal would be transported to appropriately licensed waste disposal or transfer facilities or other facilities lawfully able to accept materials.	Construction	All locations
WM7	Waste during operations would be managed in accordance with Transgrid's existing Environmental Management System and processes for the identification, classification, handling and management of waste.	Operation	All locations
WM8	All waste would be assessed, classified, managed and disposed of in accordance with the <i>Waste Classification Guidelines</i> (NSW EPA, 2014).	Operation	All locations

Reference	Mitigation measures	Timing	Application location(s)
Cumulative impacts			
CI1	Consultation with relevant roads authority would occur in relation to road use.	Construction	All locations
CI2	Consultation with relevant local councils and other water supply operators would occur in relation to the proposal's water supply strategy to ensure there is effective management of these demands during construction and operation.	Pre-construction	All locations
SE5	If proposal construction coincides with the construction of other projects around Wagga Wagga, a workforce accommodation strategy for the proposal would be implemented and would be informed by an additional review of existing housing and accommodation capacity relative to the proposal workforce needs.	Pre-construction	Wagga Wagga LGA
TA11	Significant traffic generating developments in the vicinity of the proposal would be identified. Consultation would occur with those developments and the relevant roads authority regarding proposal-related vehicle movements and road works. Measures to address any potentially significant cumulative traffic and access impacts would be identified and implemented.	Construction	All locations
Aviation impacts			
AV1	<u>The concept design of the transmission line tower coordinates and elevations would be provided to:</u> <u>the Wagga Wagga Airport Manager to enable the Airport Manager to note the transmission line segment that infringes the Wagga Wagga Airport OLS and pass the details to CASA for assessment</u> <u>Airservices Australia</u> <u>the Department of Defence.</u> <u>Further notification is to occur if the finalised design of the proposal alters the details as supplied to the above authorities.</u>	Pre-construction	Wagga Wagga LGA
AV2	<u>To facilitate the flight planning of aerial application operators, details of the finalised design of the proposal, including location and height information of transmission lines should be provided to land holders so that, when asked for hazard information on their property, the land holder may provide the aerial application pilot with all relevant information. This applies to land holders who will have the proposed transmission line over their properties, and to landowners with property boundaries immediately adjacent to the proposed transmission line.</u>	Pre-construction and construction	All locations

Appendix C Community guide to the EIS for EnergyConnect (NSW – Eastern section)



EnergyConnect (NSW-Eastern Section)

Community guide to the EIS

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About EnergyConnect

What is the project and why is it needed?

EnergyConnect is one of the nation's largest electricity infrastructure projects. It will deliver the infrastructure required to support Australia's transition to a clean energy future and includes a new 900 km electricity transmission line, known as an interconnector.

The interconnector is being built between Wagga Wagga in New South Wales and Robertstown in South Australia, with a connection to Red Cliffs in Victoria, connecting the power grids of the three states.

EnergyConnect will also lower power bills for homes and businesses and create 1,500 jobs, primarily across regional NSW.

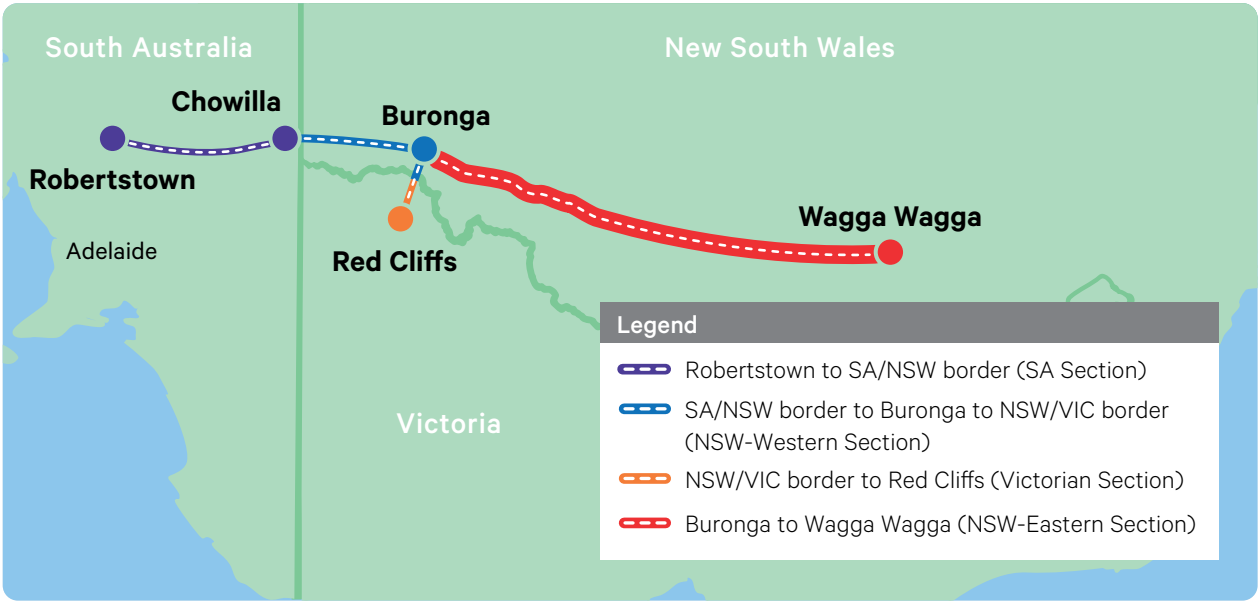
How is the project being delivered?

The NSW Minister for Planning has declared EnergyConnect *Critical State Significant Infrastructure*.

Transgrid is delivering the NSW section of EnergyConnect in two stages:

- NSW-Western Section from the NSW/SA border to Buronga through to the NSW/Victoria border
- NSW-Eastern Section from Buronga to Wagga Wagga.

The NSW Government has approved the NSW-Western Section. You can register with the [NSW Government's Major Projects Portal](#) to receive updates.



This document is a community guide to the EnergyConnect (NSW-Eastern Section) Environmental Impact Statement (EIS). The EIS assesses environmental issues, including landscape character, visual amenity, economic impact, traffic, and cultural heritage. The EIS also identifies strategies to avoid, mitigate, and manage potential impacts.

To view the EIS, please visit the [Department of Planning and Environment \(DPE\) website](#).

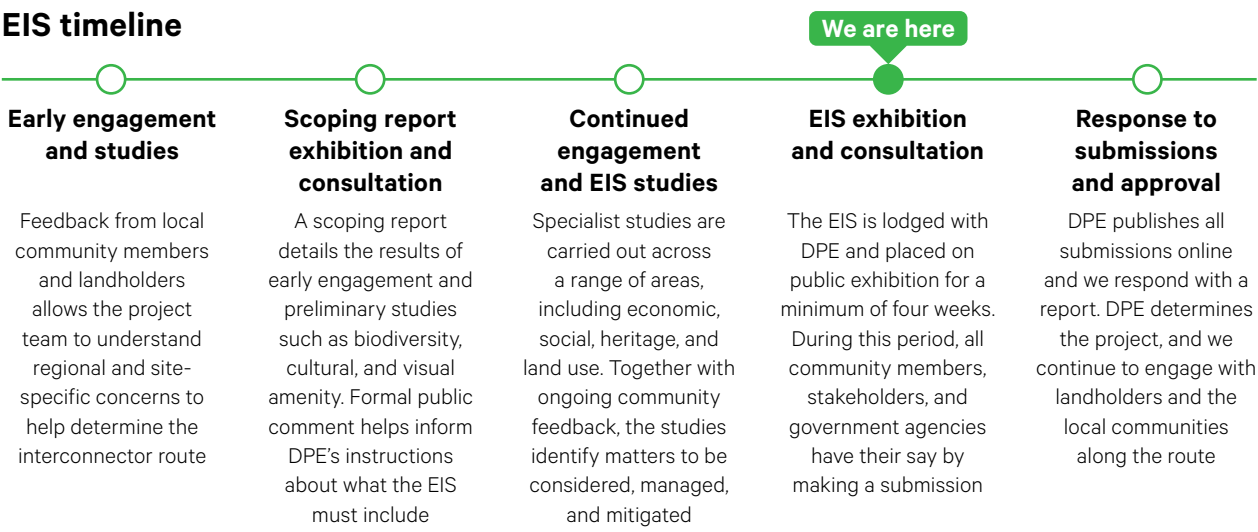
What is an Environmental Impact Statement?

Under the *Environment, Planning and Assessment Act 1979* (NSW), *Critical State Significant Infrastructure* must go through a comprehensive assessment process, which includes the development of an Environmental Impact Statement (EIS).

An EIS is a document that provides information on a project to help the Minister for Planning decide whether that project should be approved.

- An EIS:
- summarises the technical studies carried out to determine the potential impacts of a project including economic, social and environmental considerations
 - sets out proposed management measures to avoid or minimise those impacts
 - summarises the stakeholder and community engagement undertaken and the engagement results.

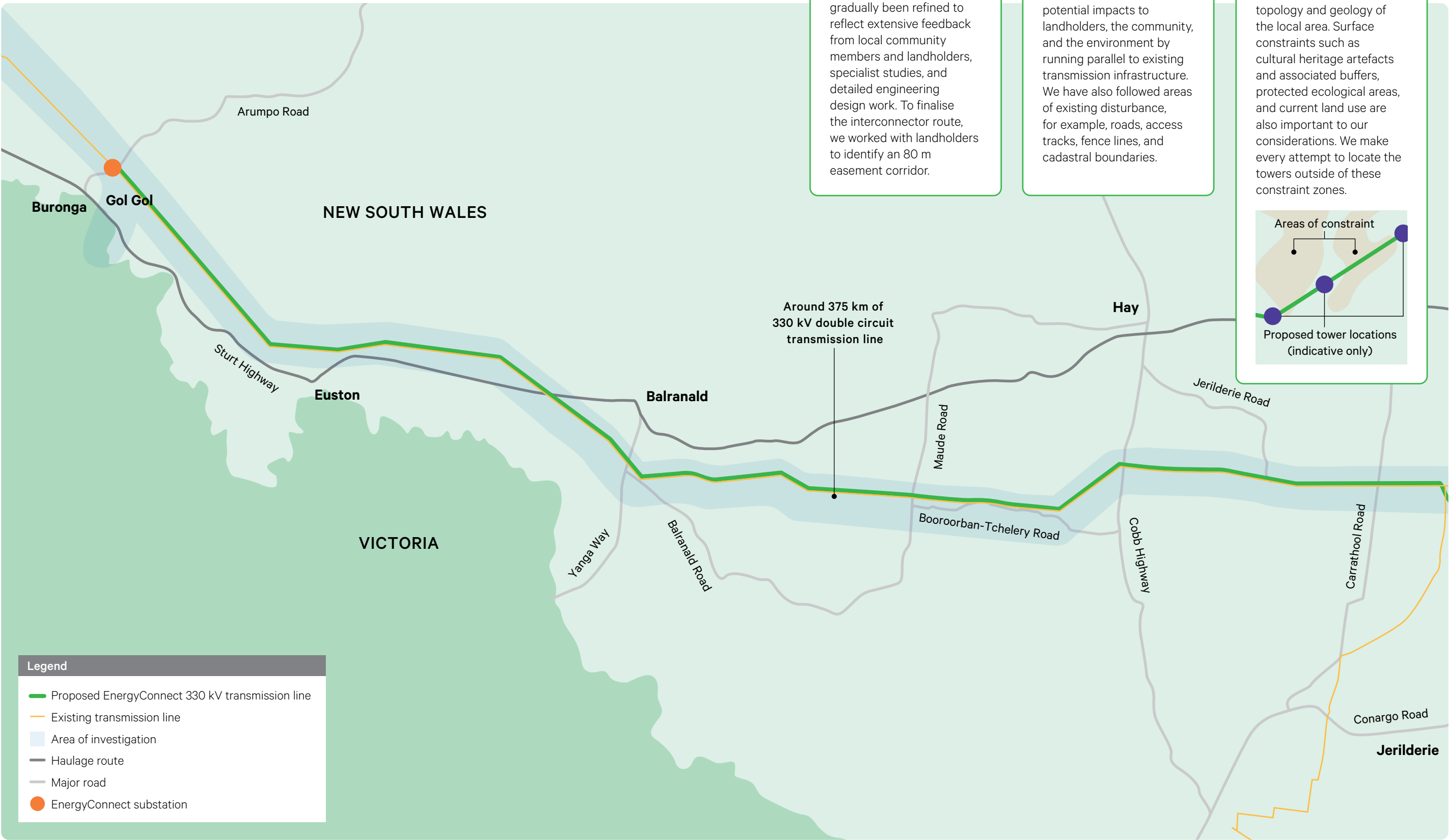
EIS timeline



Engagement activities

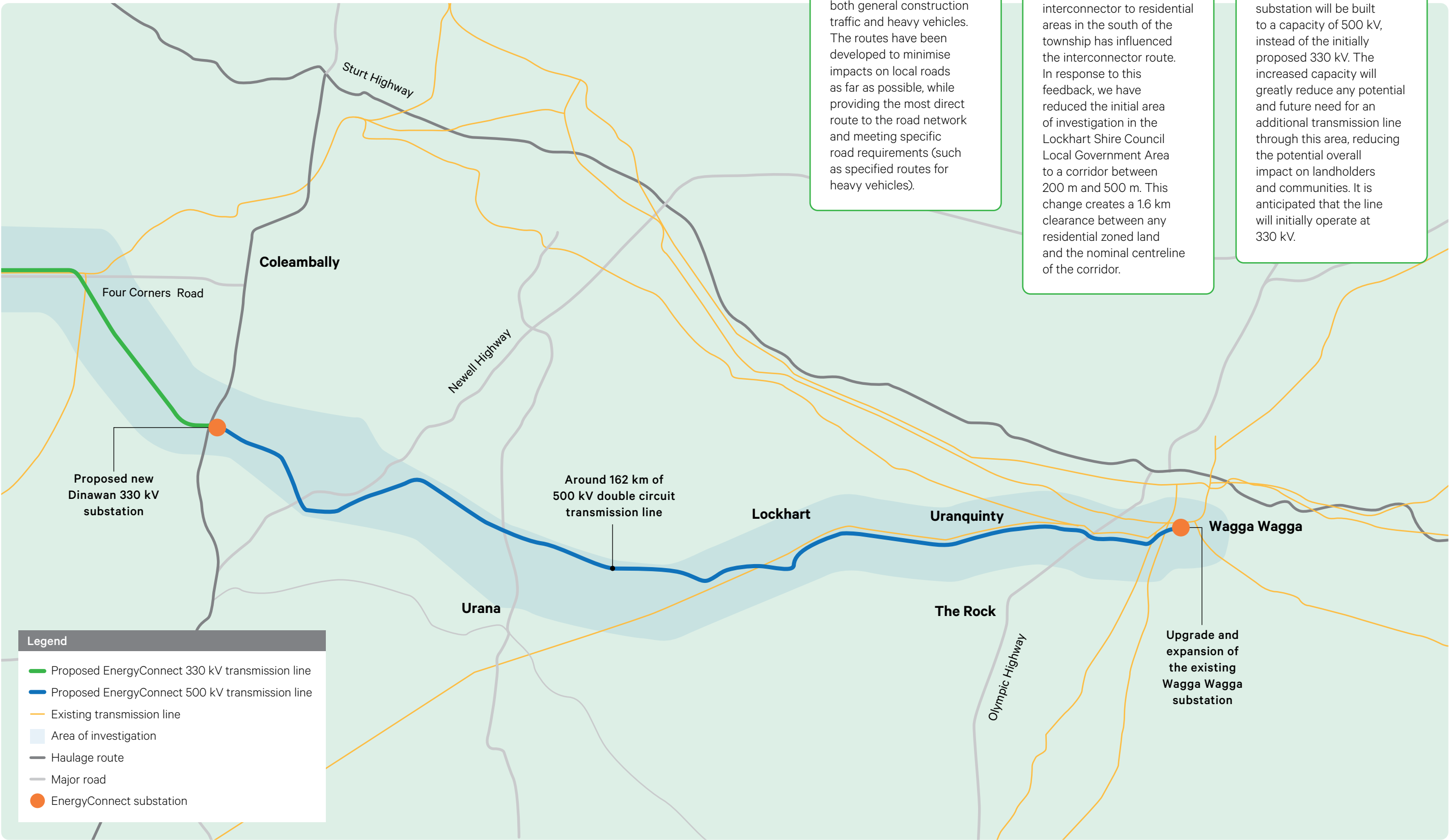
 Building project awareness	 Providing accessible information	 Implementing consultation activities
• 97 print advertisements across 10 media publications with an estimated readership of 153,200+ • 72 social media posts across 25 local community pages with 63,500+ followers • 2,700 flyers, poster displays, and other materials displayed at prominent locations	• 11 guides and fact sheets developed for EnergyConnect • 124 community calls and emails responded to via the project phone line and email address • 400+ recipients to a monthly e-newsletter • 9,500+ visits to the project webpage	• 29 community information sessions both online and at 15 locations along the route • 643 property-specific meetings with landholders and property managers • 9,500+ views of the online interactive map, with 319 comments provided

NSW-Eastern Section Buronga to Four Corners



NSW-Eastern Section

Four Corners to Wagga Wagga



Construction

Subject to NSW Government and Commonwealth planning and environmental approvals, construction of EnergyConnect will commence in late 2022 and will be completed in three phases:

- 1 **enabling works phase** – from late 2022
- 2 **main construction phase** – from late 2022 to mid 2024
- 3 **commissioning, demobilisation, and remediation phase** – from mid 2024 to early 2025.

Construction work would be carried out seven days per week between 7 am and 7 pm.

Enabling works phase

To support the delivery of EnergyConnect, some activities are expected to commence earlier as part of a staged construction approach. Enabling works are low-impact, pre-construction activities that will enable the main construction activities to commence shortly after. Enabling works include:

- biodiversity and heritage investigations
- installing monitoring equipment and environmental controls
- clearing vegetation
- connecting services and relocating utilities
- establishing access tracks.

Additional information about enabling works can be found in section 6.6.1 of the EIS.

Main construction phase

Following the enabling works phase, the main construction activities will commence. The main construction is anticipated to take around 18 months, with construction at each transmission line structure being intermittent. The infrastructure to be constructed in this phase include:

- transmission line infrastructure
- upgrade and expansion of the existing Wagga Wagga substation
- construction of the Dinawan 330 kV substation and associated works.

Additional information about the main construction activities can be found in section 6.6.2 of the EIS.

Transmission line infrastructure

The NSW-Eastern Section proposal includes around 540km of transmission line:

- about 375 km of new 330 kV double circuit transmission line and associated infrastructure between the existing Buronga substation and the proposed Dinawan substation
- about 162 km of new 500 kV double circuit transmission line and associated infrastructure between the proposed Dinawan substation and the existing substation at Wagga Wagga.

The transmission line would be supported on a series of guyed or self-supporting towers typically spaced between 400 m and 600 m apart. The towers would range in height from 40 m to 65 m, depending on local conditions.

Guyed towers

Guyed towers are structures with a central steel column supported by four steel cables (guy wires). The guy wires are anchored to the ground providing the structure strength and stability.

Guyed tower heights will range from 40 to 60 m, with the guyed wires extending up to approximately 35 m from the base of the structure, creating an overall square footprint of around 50 x 50 m. The actual construction footprint is significantly smaller with less disturbance to the land and environment.

Self-supporting towers

Self-supporting towers are supported by four legs, each with individual foundations.

Self-supporting tower heights will range from 40 to 65 m with a square footprint of up to 26 x 26 m.

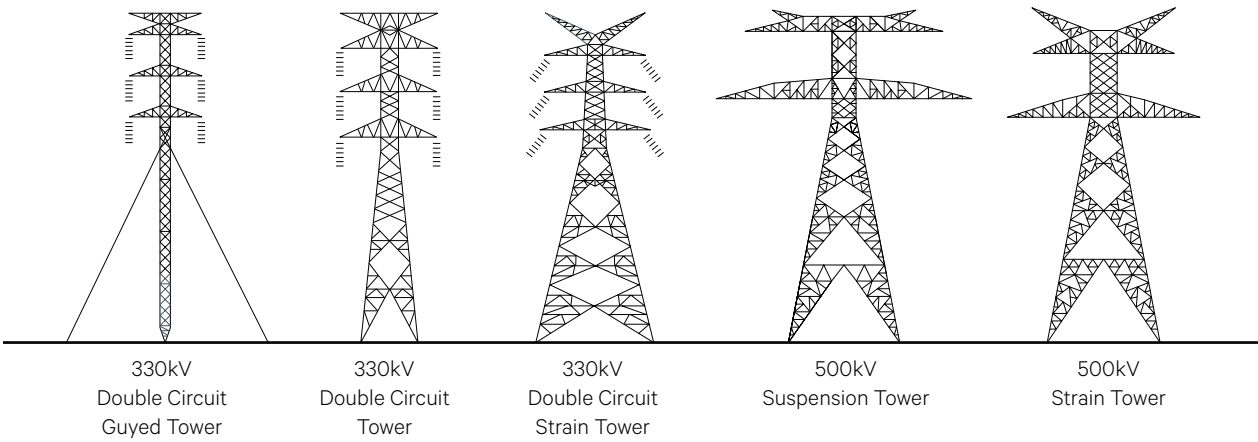
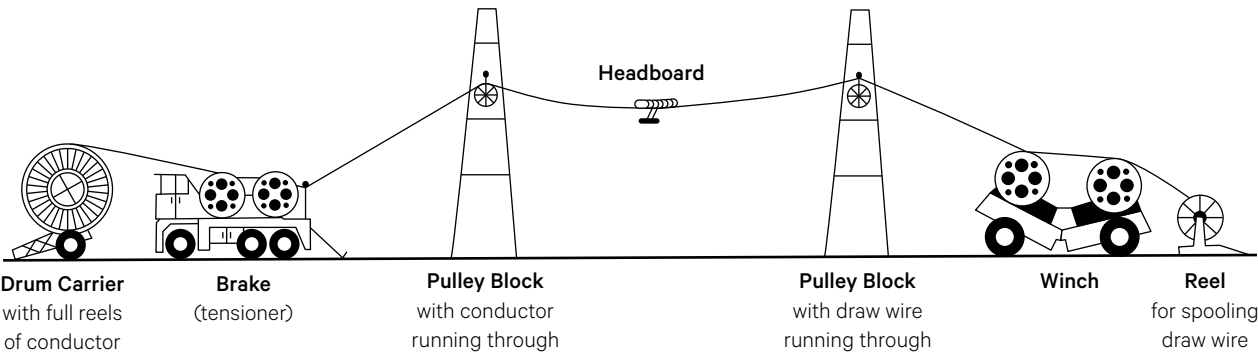


Figure is not to scale. Typical widths only, may vary on a case-by-case basis.

Construction process

Generally, the main activities associated with the construction of the transmission lines include:

- excavation works at each tower site, for the installation of tower foundations
- tower assembly, typically done by assembling the tower in sections on the ground and hoisting or lifting successive sections into place using cranes
- stringing the transmission line, by either a ground-pulled draw wire (with brake/winch sites) or a line stringing drone.



Note: Schematic illustration only. The location of brake and winch components could be up to around 10 km apart (up to around 20 towers, not consecutive towers).

Substations

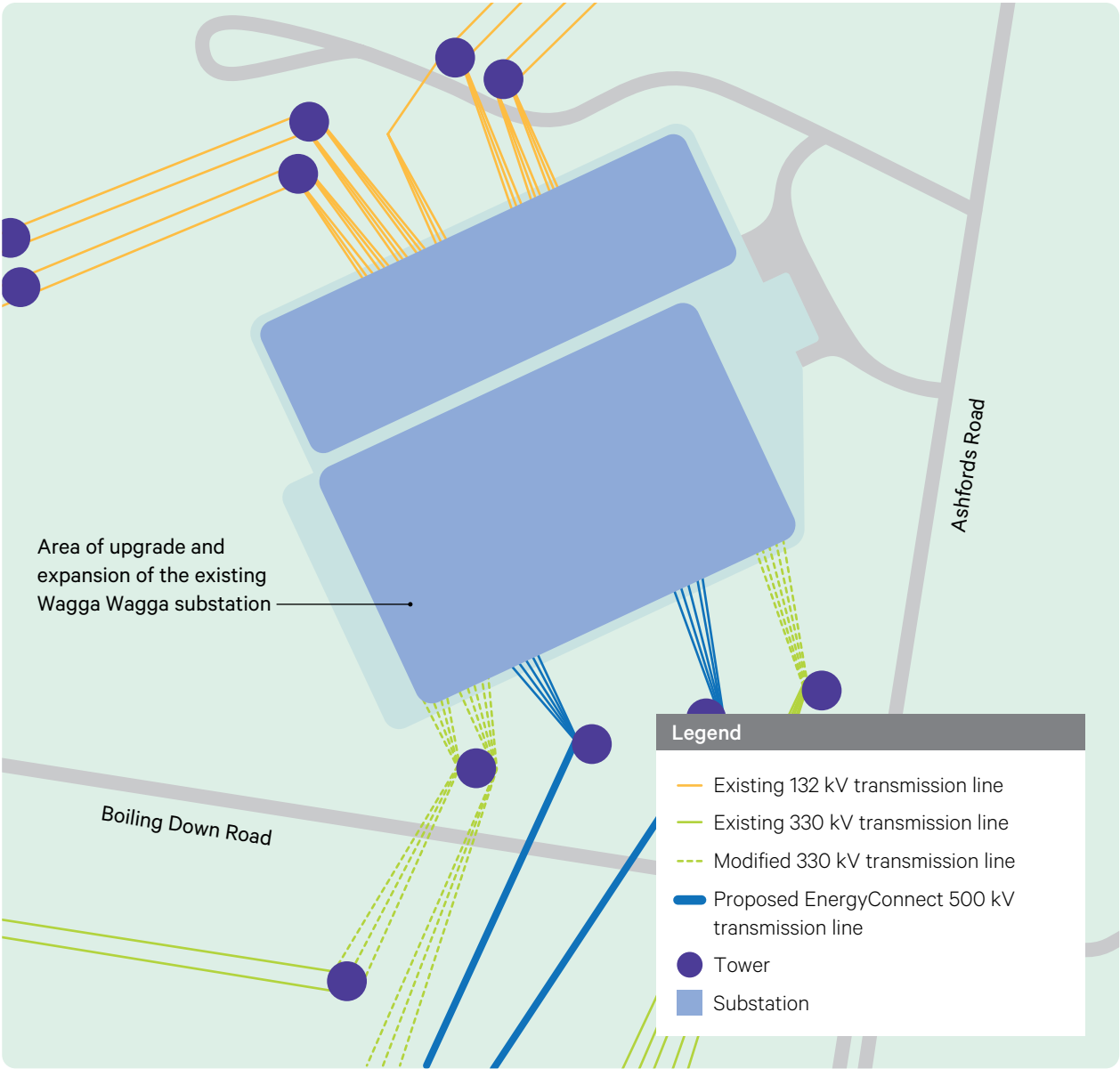
EnergyConnect will require the upgrade and expansion of Transgrid’s existing Wagga Wagga substation on Ashfords Road and the construction of one new substation, known as Dinawan.

Wagga Wagga

At Wagga Wagga, an upgrade and expansion to the existing substation are required to connect the new transmission line to the network.

Works will include installing new line bays, relocating and upgrading existing bays and associated electrical and civil works such as drainage and earthworks.

Wagga Wagga substation



Dinawan

A new substation is needed to meet transmission network and systems safety requirements, and allow greater connectivity in the region.

A location between Buronga and Wagga Wagga, approximately 30 km south of Coleambally, was selected to allow sufficient space for future expansion and renewables connections while considering existing land uses and environmental factors.

The new substation will be known as the Dinawan substation. Dinawan is the local Wiradjuri word for emu.

Dinawan substation



Temporary and ancillary infrastructure

Three communication huts containing signal boosting equipment will be built along the alignment. Access roads will also be built or upgraded as required. Other ancillary works necessary to construct the transmission line and substation can include laydown and staging areas, concrete batching plants, brake/winch sites, and site offices.

Commissioning, demobilisation, and remediation phase

Commissioning is the process of integrating the new infrastructure into the existing electricity network and making it operational. Demobilisation is removing all remaining construction materials and equipment from sites and rehabilitating the project areas in accordance with project commitments.

Additional information about commissioning, demobilisation, and remediation activities can be found in section 6.6.3 of the EIS.

Environmental Impact Statement (EIS)

The EIS is informed by several studies on specific environmental considerations for the proposal. These studies identify potential impacts to the environment and communities and propose management measures to avoid or minimise these impacts.

Environmental aspects for the project and key outcomes of the assessments are outlined below.

Biodiversity

Ecological surveys were extensively conducted across the proposal area. These surveys identified a range of existing flora and fauna within the study area, including various threatened flora and fauna like the endemic Plains Wanderer.

Measures to minimise potential impacts include preparing a biodiversity offset strategy as well as infrastructure-specific measures such as locating transmission line towers outside high-value biodiversity areas and locating construction laydown areas or work sites within already disturbed areas.

Additional information about biodiversity can be found in Chapter 9 of the EIS.

Heritage

Detailed consultation and field surveys led to the identification of Aboriginal and non-Aboriginal heritage items and sites. In addition to previously recorded sites, the field surveys uncovered 91 previously unrecorded Aboriginal sites, three new potential non-Aboriginal historical heritage items and two new non-Aboriginal historical archaeological sites. No items of World, National, Commonwealth or State Heritage significance were identified as being impacted by the proposal.

Management measures to protect items and sites have been developed. These include the proposed route aiming to protect, conserve, and manage the significance of Aboriginal objects and culture and non-Aboriginal heritage.

Additional information about Aboriginal heritage can be found in Chapter 10 of the EIS, with historic heritage in Chapter 11.

Land use and property

Existing land uses were mapped, and the environment analysed, showing more than 93 per cent of land in the study area is mainly used for agricultural purposes including sheep and cattle grazing, and dryland cropping.

Measures to minimise impacts to current land use include consulting landholders on the timing and location of construction works to minimise impacts to their operations.

Additional information about land use and property can be found in Chapter 12 of the EIS.

Landscape character and visual amenity

Local surveys identified there would be typically low to moderate landscape and visual impacts across all areas during construction and operation.

A relatively small number of visual impacts are anticipated on private residential properties, however no adverse impacts on significant vistas was identified.

Potential impacts to private properties near the transmission lines would be reduced by maximising the spacing of transmission line structures. Potential screening may also be developed in consultation with affected landowners in an effort to reduce disruption to views.

Additional information about landscape character and visual amenity can be found in Chapter 13 of the EIS.

Social

Targeted consultation was conducted across the local area to understand how the proposal would affect communities including their way of life, health and wellbeing, and access to services and infrastructure. The consultation identified generally minor to moderate impacts across all areas during construction and operation.

Measures to manage and reduce potential impacts include ongoing consultation with stakeholders such as landholders, Local Government and emergency services, and seeking local suppliers and staff for the project.

Additional information about social impacts can be found in Chapter 14 of the EIS.

Economic

Increased economic activity for the regional economy was identified through expenditure on goods, services and local employment. The proposal would provide around 500 full-time equivalent construction jobs, of which 20 per cent would be sourced locally in the study area. Non-labour expenditure of around \$106 m in the region during the first year of construction would create around 571 direct and indirect jobs and create \$159 m in gross business turnover.

Employment and business opportunities would be maximised through local procurement where possible and collaboration with local Councils and chambers of commerce.

Additional information about economic impacts can be found in Chapter 15 of the EIS.

Hydrology, flooding and water quality

The hydrology and flooding study included the catchment areas of the Murrumbidgee River and the Lower Murray River. Assessments were conducted on flooding impacts; water quality, supply and resources; and geomorphology – the form, shape, size and structure of watercourses.

Construction of the proposal would have a negligible impact on flood behavior with a short-term and manageable effect on water demands. Practicable measures to minimise potential flood risks at construction areas would be implemented. In addition, a water quality monitoring program will be established, and a soil and water plan implemented to minimise ground disturbance.

Additional information about hydrology, flooding and water quality can be found in Chapter 16 of the EIS.

Air quality

The main existing emissions in the proposal study area were wind-blown dust from exposed land, agricultural activities and from vehicles using the local road network.

Proposed management measures to reduce impacts include using water sprays to suppress dust, minimising traffic volumes, and implementing emission management measures at compounds and accommodation sites.

Three ambient air quality monitoring stations at Buronga, Hay and Wagga Wagga would record air quality data during construction and operation.

Additional information about air quality can be found in Chapter 17 of the EIS.

Noise and vibration

Extensive noise and vibration assessments were undertaken across the proposal study area to understand how construction and operation may affect communities, including at night.

Measures to manage potential noise and vibration impacts include minimising the number of items operating at one time; installing screens, barriers or other noise source controls near noise sources; scheduling construction activities to avoid out-of-hours work, where feasible and reasonable; and consulting with those potentially affected about upcoming activities.

Additional information about noise and vibration can be found in Chapter 18 of the EIS.

Traffic and access

The existing road network across the proposal study area consists of national, state, regional and local roads. During construction, local roads would continue to operate within capacity with negligible to no change in performance, and across the existing road network there would be an overall low increase in peak hourly traffic.

Measures to manage potential impacts include distributing heavy vehicle traffic movements throughout the day to minimise their impact on town centres' peak traffic activities and notifying communities of any major works that may disrupt local road networks.

Additional information about traffic and access can be found in Chapter 19 of the EIS.

Additional factors detailed in the EIS include:

- Hazards and risks (Chapter 20)
- Soils, contamination and groundwater (Chapter 21)
- Waste management and resource use (Chapter 22)
- Cumulative impacts (Chapter 23).

How to make a submission

Making a submission is an important part of the EIS process and we encourage everyone to have their say. The Department of Planning and Environment (DPE) must receive your submission before the close of the exhibition period and you need to include:

- 1 your name and address
- 2 the application name: EnergyConnect (NSW-Eastern Section)
- 3 the application number: SSI-9172452
- 4 a brief statement on whether you support or object to the proposal
- 5 the reasons why you support or object to the proposal.

It is DPE policy to place copies of submissions on its website. If you do not want your personal information made public, please state this clearly at the top of your submission.

Mark your submission for the attention of Director – Energy Assessments and submit it in one of these ways:

DPE Major Projects Planning Portal

Post

Major Projects Assessment Department of Planning and Environment
Locked Bag 5022
Parramatta NSW 2124

Disclosure

Anyone lodging submissions must declare reportable political donations (including donations of \$1,000 or more) made in the previous two years. For more details, and a disclosure form, [visit the DPE donations page](#).

Privacy

Under section 1152(5) of the *Environmental Planning and Assessment Act 1979* (NSW), the Director-General may provide copies of submissions received during the exhibition period, or a summary of the submissions, to Transgrid. All submissions and information obtained during the public exhibition period will be used in accordance with the *Privacy Act 1988* (Cth). All submissions received will be regarded as public documents and any information contained in them can be published in subsequent assessment documents.

Copies of the submissions received on the project may be issued to interested parties. If the author of a submission does not wish the information to be distributed, this needs to be clearly stated in the submission.

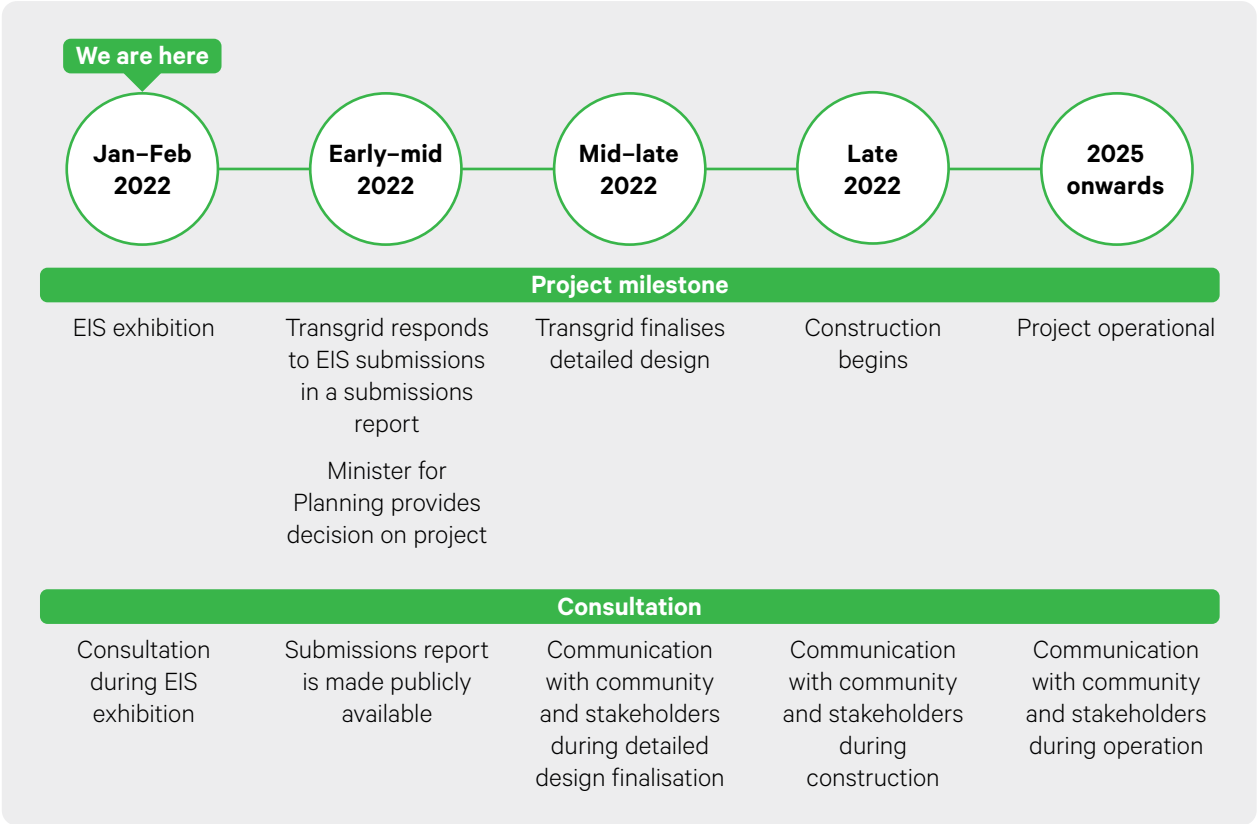
Before making your submission, [read the DPE Privacy Statement](#) or call 1300 305 695 for a copy.

Next steps

Following the EIS exhibition, feedback will be summarised in a submissions report, which will be made publicly available. Transgrid will consider all feedback and provide a response.

The Minister for Planning will then make a decision about whether to approve the proposal.

Construction of EnergyConnect would commence in late 2022, subject to NSW Government and Commonwealth planning approvals.



Connect with us

Transgrid is committed to working with landholders and communities through all stages of EnergyConnect. Please connect with us if you need any information.



1800 49 06 66 (free call)
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transgrid.com.au/energyconnect

Subscribe to our project newsletter at
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Find out more at

Telephone: 1800 49 06 66 (free call)

Email: pec@transgrid.com.au

transgrid.com.au/energyconnect

Appendix D Response to Department of Planning and Environment Request for Information

This appendix provides responses to the Request For Information (RFI) aspects raised by Department of Planning and Environment (DPE) on 3 March 2022.

1. Biodiversity

Provide summary tables as per the templates below. Notes relating to the tables:

- summarise impacts by PCT (combining the five IBRA subregions);
- if a portion of a PCT meets criteria for state or commonwealth listing and a portion does not, please identify each respective area (ha);

Provide similar summary tables for EPBC Act listed aquatic and migratory species.

Summary tables for the above required items have been included in the *Revised Biodiversity Development Assessment Report* (Revised BDAR) (WSP, 2022b) (Supplementary technical assessment 1). These tables have been included in the following sections and tables of the Revised BDAR respectively:

- section 12.2.10 – *Table 12.11 Summary of native vegetation impact – ecosystem credit offset requirement*
- section 12.3.7 – *Table 12.20 Summary of threatened flora species impacts and credit liability*
- section 12.3.8 – *Table 12.21 Summary of threatened fauna species impacts and credit liability.*

Provide two summary figures (one for BC Act and the other for EPBC Act listed TECs) showing the approximate location of the TECs along the alignment – preference for each figure to be one page – similar per BDAR Figure 3–3 if scale allows.

Summary figures showing the approximate location of the identified TECs along the length of the refined alignment have been included as Figure D-1 and Figure D-2 below. These figures show the listed TECs under both the BC Act and EPBC Act respectively. These figures represent a summary of the more detailed figures from Appendix B–6 and Appendix D–2 of the Revised BDAR respectively.

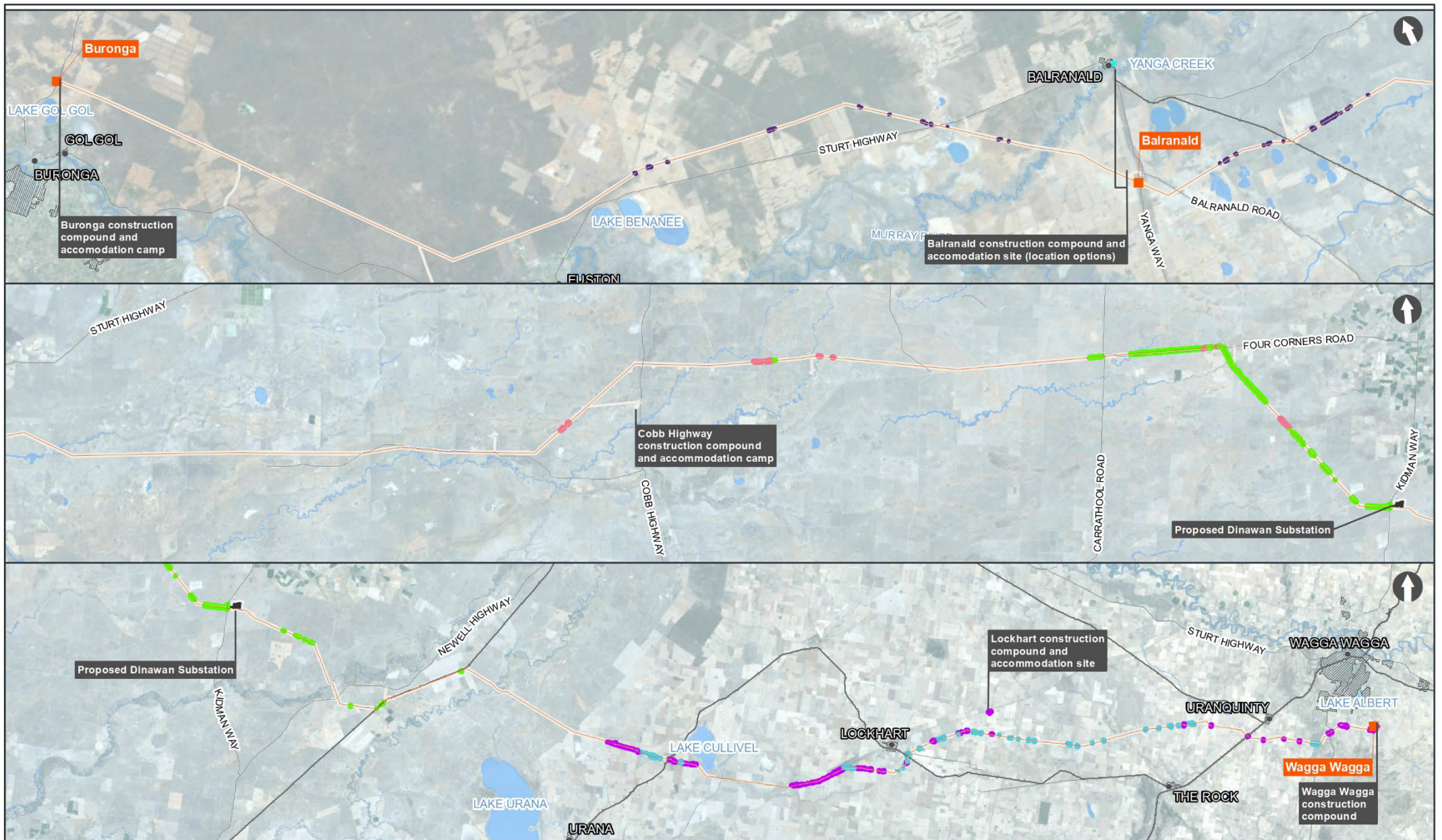


Figure D-1

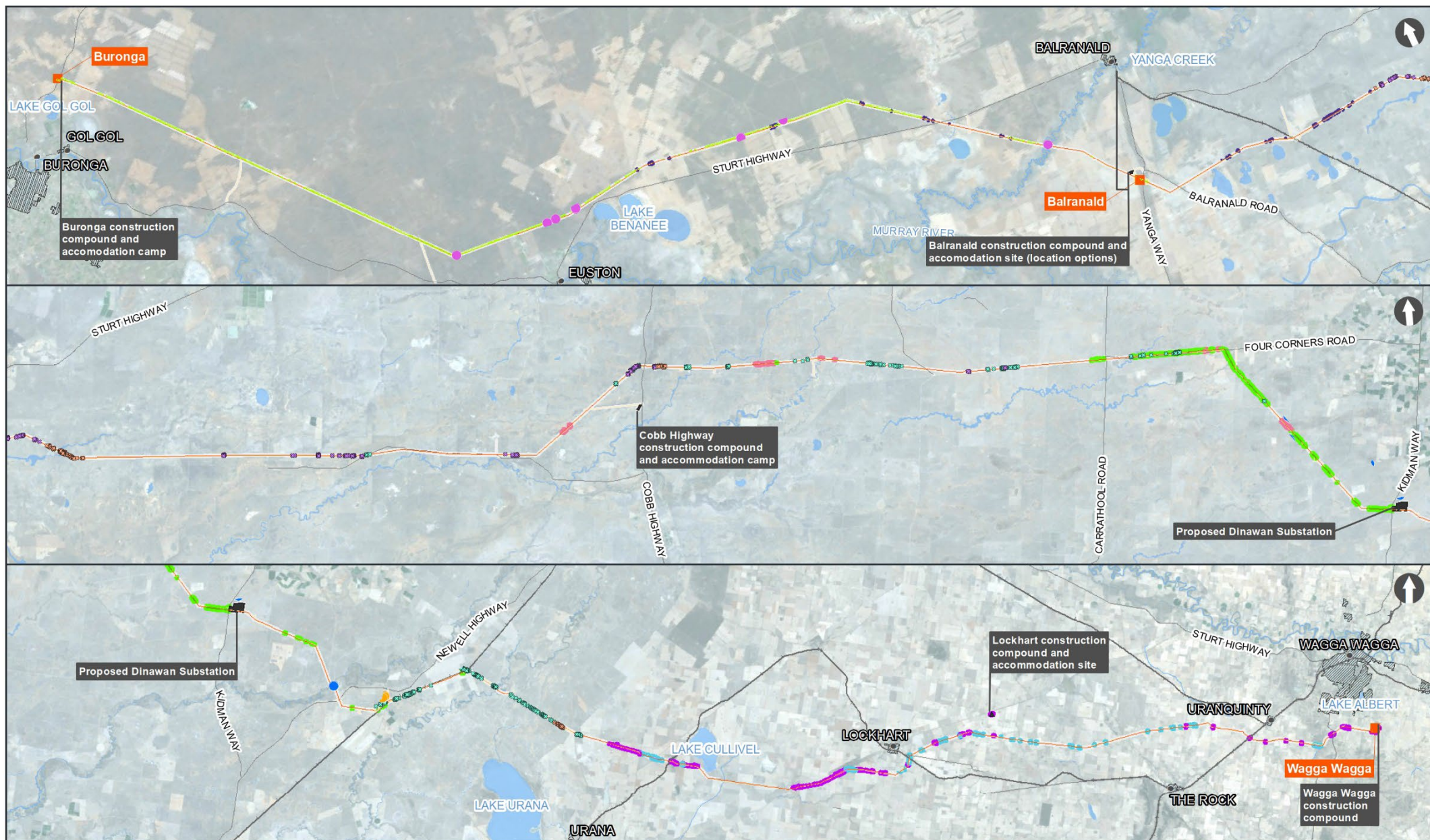
Project Components

- Proposed
- Existing Substation
- Access Tracks
- Existing Railway
- Built Up Areas
- Waterbody

Threatened Ecological Community

- *Acacia melvillei* shrubland in the Riverina and Murray Darling Depression bioregions | Endangered
- *Allocasuarina luehmannii* woodland in the Riverina and Murray-Darling Depression bioregions | Endangered
- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Penepine, Nandewar and Brigalow Belt South Bioregions | Endangered
- Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Penepine, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions | Endangered
- Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions | Endangered
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland | Critically Endangered

BC Act threatened ecological communities along the alignment



0 10 20 KM

Project Components

- Proposed Alignment
- Access Tracks
- Main Construction Compounds and Accommodation

Existing Substation

- Existing Railway
- Built Up Areas
- Waterbody

Threatened Fauna Species

- Corben's Long-eared Bat - *Nyctophilus corbeni*
- Plains-wanderer - *Pedionomus torquatus*
- Regent Parrot - *Polytelus anthopeplus*
- Superb Parrot - *Polytelus swainsonii*
- *Brachycome papillosa*

Matters of National Significance

- *Macaranga cheeli*
- *Swainsona murrayana*
- Buloke Woodlands of the Riverina and Murray Darling Depression bioregions - Endangered
- Grey Box (*E. microcarpa*) Grassy Woodlands and derived native grasslands of South-eastern Australia - Endangered
- Natural Grasslands of the Murray Valley Plains - Critically Endangered

- Plains mallee box woodlands of the Murray Darling Depression, Riverina and Namadgee Coastal Plains Bioregions - Critically Endangered
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains - Critically Endangered
- Weeping Myall Woodlands - Endangered
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland - Critically Endangered

Figure D-2

EPBC Act threatened ecological communities along the alignment

2. Heritage

Insert site numbers to Table 9.1 of the updated ACHAR

Table 9.1 of the *Revised Aboriginal Cultural Heritage Assessment Report* (Navin Officer, 2022a) (Supplementary technical assessment 2) has been updated to provide the additional site reference numbering as requested in the RFI (refer to Chapter 9 of the *Revised Aboriginal Cultural Heritage Assessment Report*). This table has also been replicated below in Table D-1.

Table D-1 Transmission line alignment – impact summary (replication of Table 9.1 of the *Revised Aboriginal Cultural Heritage Assessment Report*)

Site features and significance	Number of sites impacted based on impact type						Number of sites not impacted		
	Direct (Area A)	Potential direct impact (Area A centreline clearing/ track upgrade/ works area)	Potential direct impact only (Area B)	Direct and potentially direct (Area A & B)	Potential direct impact only (A centreline clearing/ track upgrade/works area & B)	Total sites impacted	Sites not directly impacted, adjacent to impact areas	Sites not impacted	Total sites Not-impacted
Artefact scatter									
Low scientific significance	PEC-E-95	PEC-E-35 PEC-E-90		PEC-E-102	PEC-E-38 PEC-E-99	6	PEC-E-11 PEC-E-46	PEC-E-43	3
Moderate scientific significance		PEC-E-45 PEC-E-52 PEC-E-70		PEC-E-39 PEC-E-60 PEC-E-80 PEC-E-83	PEC-E-59	8	PEC-E-29	PEC-E-18 PEC-E-63 PEC-E-64 PEC-E-66 PEC-E-96	6
Artefact scatter and Modified Tree									
Moderate scientific significance				PEC-E-74		1			
Artefact Scatter, Hearth									
Moderate scientific significance				PEC-E-27 PEC-E-28 PEC-E-37 PEC-E-100	PEC-E-22 PEC-E-30	6	PEC-E-10 PEC-E-14		2
Artefact Scatter, hearth, modified tree									
Moderate scientific significance				PEC-E-105		1			
Moderate to high scientific significance				PEC-E-36		1			
Artefact scatter, Mounds, Hearths									
Moderate scientific significance				47-5-0008		1			

Site features and significance	Number of sites impacted based on impact type						Number of sites not impacted		
	Direct (Area A)	Potential direct impact (Area A centreline clearing/ track upgrade/ works area)	Potential direct impact only (Area B)	Direct and potentially direct (Area A & B)	Potential direct impact only (A centreline clearing/ track upgrade/works area & B)	Total sites impacted	Sites not directly impacted, adjacent to impact areas	Sites not impacted	Total sites Not-impacted
Earth Mound									
Moderate scientific significance			PEC-E-26			1	PEC-E-25 PEC-E-56		2
Hearth									
Moderate scientific significance		PEC-E-50	(47-6-0603 47-6-0604 47-6-0605 47-6-0606 47-6-0832)		PEC-E-06 PEC-E-103	4	PEC-E-47	PEC-E-19 PEC-E-32	3
Isolated find									
Low scientific significance	PEC-E-94 47-5-0047	PEC-E-40 PEC-E-41 PEC-E-51 PEC-E-53 PEC-E-55 PEC-E-67 PEC-E-68 PEC-E-71 PEC-E-75	PEC-E-69 PEC-E-79 PEC-E-88		PEC-E-91 PEC-E-97 PEC-E-101	17	PEC-E-01 PEC-E-02 PEC-E-04 PEC-E-05 PEC-E-07 PEC-E-09 PEC-E-12 PEC-E-15 PEC-E-21 PEC-E-23 PEC-E-61 PEC-E-93 PEC-E-104 47-4-0331 47-5-0048	PEC-E-08 PEC-E-72 PEC-E-73 PEC-E-92	19

Site features and significance	Number of sites impacted based on impact type					Number of sites not impacted			
	Direct (Area A)	Potential direct impact (Area A centreline clearing/ track upgrade/ works area)	Potential direct impact only (Area B)	Direct and potentially direct (Area A & B)	Potential direct impact only (A centreline clearing/ track upgrade/works area & B)	Total sites impacted	Sites not directly impacted, adjacent to impact areas	Sites not impacted	Total sites Not-impacted
Moderate scientific significance		PEC-E-58 PEC-E-86	PEC-E-54 PEC-E-84 PEC-E-89			5	PEC-E-82	PEC-E-33 PEC-E-44 PEC-E-65 PEC-E-81 PEC-E-85 PEC-E-87	7
Isolated Find, Earth Mound, Hearth									
Moderate scientific significance							PEC-E-57		1
Isolated find, hearth									
Moderate scientific significance	PEC-E-24	PEC-E-13	PEC-E-98	PEC-E-31		4	PEC-E-34	PEC-E-20	2
Midden									
Moderate scientific significance			PEC-E-03			1			
Modified tree									
Moderate scientific significance			PEC-E-42* PEC-E-48* PEC-E-49* PEC-E-76* PEC-E-77*			5	PEC-E-17	PEC-E-62 PEC-E-78	3
Modified tree, artefact scatter									
Moderate scientific significance							PEC-E-16		1

Site features and significance	Number of sites impacted based on impact type						Number of sites not impacted		
	Direct (Area A)	Potential direct impact (Area A centreline clearing/ track upgrade/ works area)	Potential direct impact only (Area B)	Direct and potentially direct (Area A & B)	Potential direct impact only (A centreline clearing/ track upgrade/works area & B)	Total sites impacted	Sites not directly impacted, adjacent to impact areas	Sites not impacted	Total sites Not-impacted
Potential Archaeological Deposit									
PAD		PEC-E-PAD14	PEC-E-PAD10 PEC-E-PAD11 PEC-E-PAD13	PEC-E-PAD03 PEC-E-PAD08 PEC-E-PAD18 PEC-E-PAD19 PEC-E-PAD20 PEC-E-PAD21 PEC-E-PAD22 PEC-E-PAD23+ PEC-E-PAD24+ PEC-E-PAD25	PEC-E-PAD12 PEC-E-PAD16 PEC-E-PAD38/39 PEC-E-PAD07 PEC-E-PAD30 PEC-E-PAD31 PEC-E-PAD32 PEC-E-PAD33 PEC-E-PAD36 PEC-E-PAD37	31		PEC-E-PAD02 PEC-E-PAD15 PEC-E-PAD34 PEC-E-PAD44 PEC-E-PAD45 PEC-E-PAD46	6
				PEC-E-PAD26+ PEC-E-PAD27+ PEC-E-PAD29+ PEC-E-PAD35+ PEC-E-PAD40	PEC-E-PAD42 PEC-E-PAD43				
Total	4	19	18	29	22	92	28	27	55

*Disturbance Area B and A centreline impacts may or may not be direct for scarred trees depending on their height, and the vegetation clearance height required for their position relative to the final design of proposal infrastructure

+ Archaeological subsurface testing completed at PAD and found to have low potential for intact deposits in the tested locations

3. Amenity impact table

Populate the information in the attached spreadsheet (this is the similar to previous amenity impact table request but excludes resident details)

The table template provided has been populated with the revised list of receivers identified as likely to have potential amenity impacts during construction or operation of the proposal from either a visual and/or noise and vibration perspective (within the ranges identified in the table). The table has been reproduced as Table D-2 below.

With respect to the ‘Visual impacts (operational infrastructure) – before mitigation’, the identified receivers have been listed based on the refined visual impact assessment undertaken following exhibition of the EIS which included field validation of each of the properties identified as having a moderate or above potential visual impact. This assessment resulted in the reduction of the predicted impact level (Pre-mitigation) for a number of the previously identified receivers within the EIS.

Support with a map identifying the location of the impacted receivers (with receiver numbers)

A support map series identifying the location of the revised impacted receivers (with receiver numbers), has been provided as Figure D-3 below.

Table D-2 Sensitive receiver – amenity impacts

ID	Distance to easement (m) ¹	Distance to nearest tower (m)	Adjacent to existing transmission line (including: – existing line voltage – tower height)	Visual Impact (operational infrastructure) – before mitigation (revised assessment)	Visual Impact (operational infrastructure) – residual (revised assessment)	Visual screening proposed?	Operational noise exceedances (500kV + 1 percent)		Construction noise exceedances (standard hours only) Highly noise affected >75 dB(A)
							Significant > 5 dB(A)	Marginal / moderate 3–5 dB(A)	
422	235 metres	360 metres	No - greenfield alignment	Moderate	Moderate	Not yet determined ²	–	Yes	–
20522	235 metres	360 metres	No - greenfield alignment	–	–	–	–	Yes	–
12942	220 metres	260 metres	No - greenfield alignment	–	–	–	–	Yes	–
385 * Note this receiver is currently vacant	60 metres	250 metres	No - greenfield alignment	High	Moderate	Not yet determined ²	Yes	–	Yes
450	260 metres	340 metres	Yes (located in front of proposal) Voltage: 132kV Height: 16.5 metres	High-moderate	Moderate	Not yet determined ²	–	Yes	–
461	340 metres	380 metres	Yes (located in front of proposal) Voltage: 132kV Height: 16.3 metres	High-moderate	Moderate	Not yet determined ²	–	–	–
432	410 metres	450 metres	Yes (located in front of proposal) Voltage: 132kV Height: Up to 16 metres (max)	Moderate	Moderate	Not yet determined ²	–	–	–

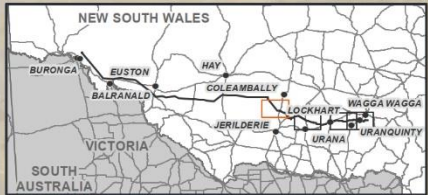
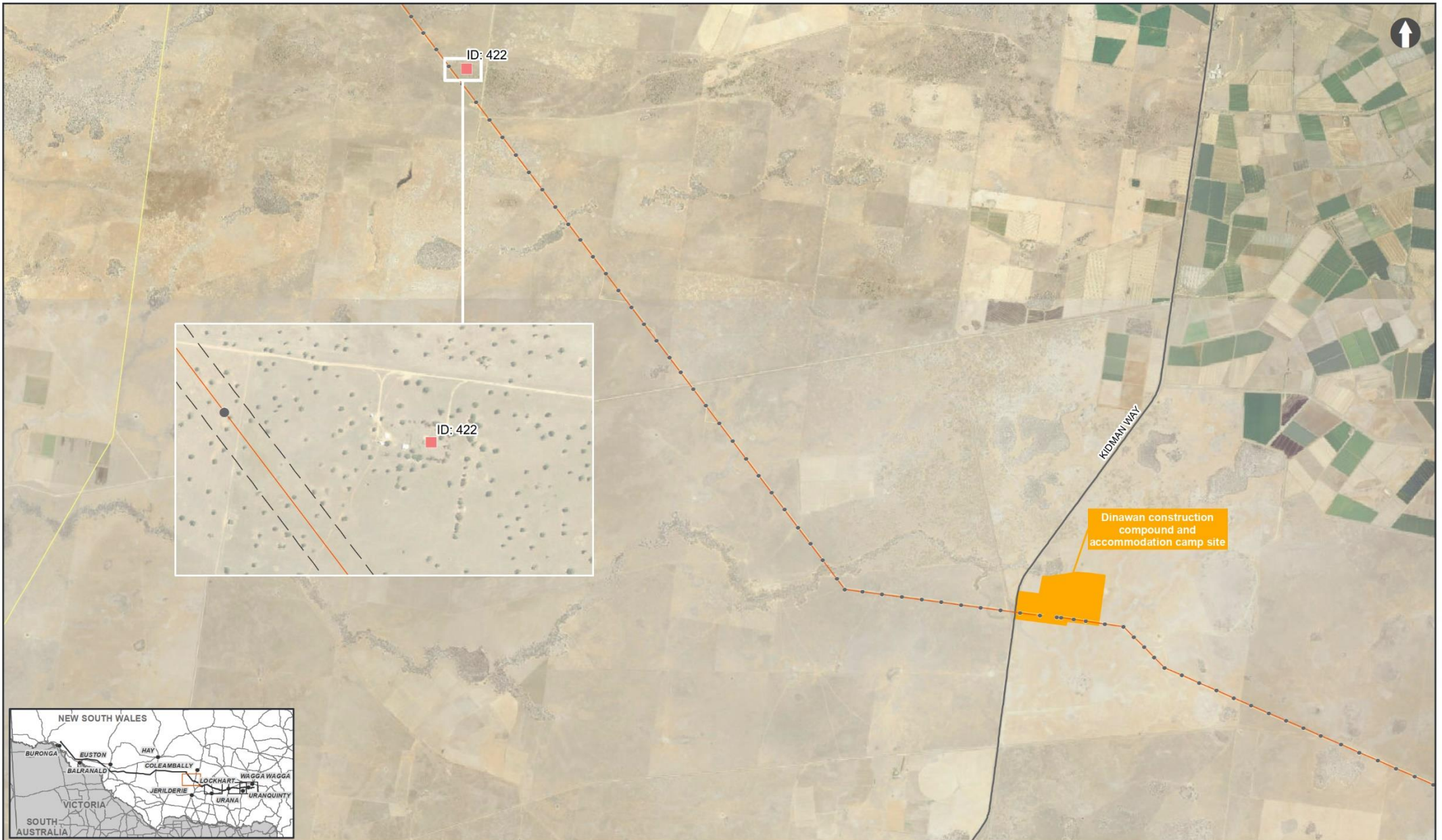
ID	Distance to easement (m) ¹	Distance to nearest tower (m)	Adjacent to existing transmission line (including: – existing line voltage – tower height)	Visual Impact (operational infrastructure) – before mitigation (revised assessment)	Visual Impact (operational infrastructure) – residual (revised assessment)	Visual screening proposed?	Operational noise exceedances (500kV + 1 percent)		Construction noise exceedances (standard hours only) Highly noise affected >75 dB(A)
							Significant > 5 dB(A)	Marginal / moderate 3–5 dB(A)	
186	340 metres	395 metres	Yes (located behind proposal) Voltage: 330kV Height: Up to 37 metres (max)	High-moderate	Moderate	Not yet determined ²	–	–	–
26749	130 metres	175 metres	Yes (2 x lines located behind proposal) Voltage: 330kV Height: 33.7 metres and 36.5 metres (max)	High	High	Not yet determined ²	Yes	–	Yes
501	500 metres	580 metres	Yes (2 x lines located behind proposal) Voltage: 330kV Height: 33.7 metres and 36.5 metres (max)	Moderate	Moderate	Not yet determined ²	–	–	–
502	460 metres	540 metres	Yes (2 x lines located behind proposal) Voltage: 330kV Height: 33.7 metres and 36.5 metres (max)	Moderate	Moderate	Not yet determined ²	–	–	–
504	245 metres	365 metres	Yes (2 x lines located behind proposal) Voltage: 330kV Height: 33.7 metres and 36.5 metres (max)	–	–	–	–	Yes	–

ID	Distance to easement (m) ¹	Distance to nearest tower (m)	Adjacent to existing transmission line (including: – existing line voltage – tower height)	Visual Impact (operational infrastructure) – before mitigation (revised assessment)	Visual Impact (operational infrastructure) – residual (revised assessment)	Visual screening proposed?	Operational noise exceedances (500kV + 1 percent)		Construction noise exceedances (standard hours only) Highly noise affected >75 dB(A)
							Significant > 5 dB(A)	Marginal / moderate 3–5 dB(A)	
233	220 metres	300 metres	Yes (2 x lines located behind proposal) Voltage: 330kV Height: 30.4 metres and 28.3 metres (max)	Moderate	Low-Moderate	Not yet determined ²	–	–	–
202	250 metres	300 metres (within existing Wagga Wagga substation)	Yes (3 x lines located behind proposal) Voltage: 330kV Height: 40.5 metres, 43.1 metres and 37.8 metres (max) respectively	–	–		–	Yes	–

Note 1: Distance to nearest tower location is indicative and based on current design noting this is subject to design refinement and has potential to change.

Note 2: Screening of properties to minimise visual impacts would be subject to finalisation of the proposal design and consultation with land holders

Note 3: the above list has removed all sensitive receivers which were identified in the EIS as being potentially impacted but which had since been field validated as not being residential dwellings.

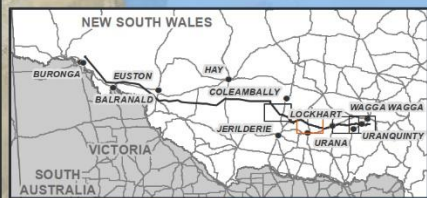
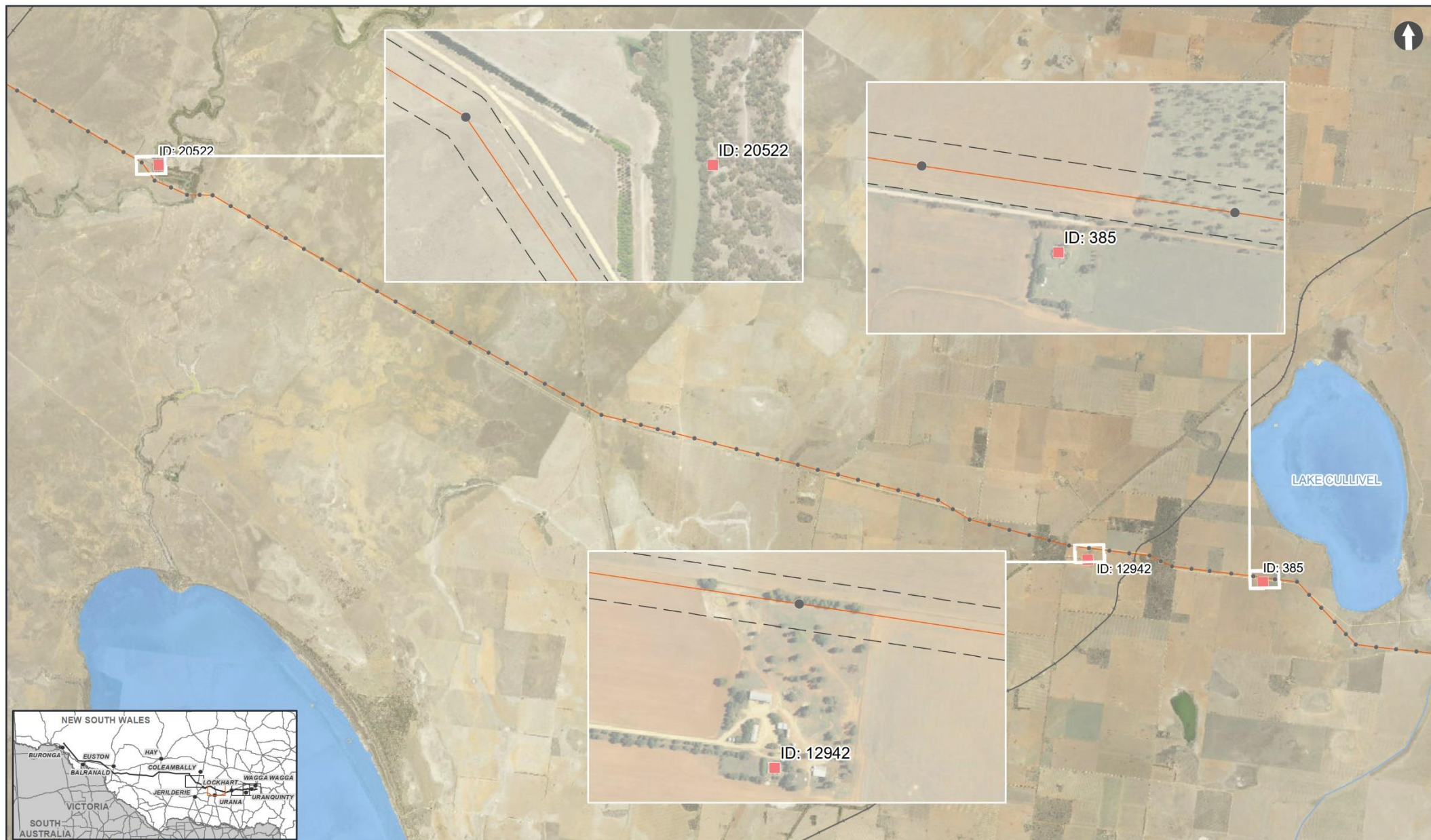


0 2.5 5 KM

- Existing Substation
- Existing Transmission Line Infrastructure
- Existing Railway
- Built Up Areas
- Waterbody
- Refined Alignment
- Refined Transmission Line Towers
- Refined Transmission Line Easement
- Sensitive Receptors**
- Residential Dwelling (1)

Figure D-3a

Amenity Impacted Receivers – Revised Assessment (refer to Table D-2)



0 2.5 5 KM

- Existing Substation
- Existing Transmission Line Infrastructure
- Existing Railway
- Built Up Areas
- Waterbody
- Refined Alignment
- Refined Transmission Line Towers
- Refined Transmission Line Easement
- Sensitive Receptors**
- Residential Dwelling (3)

Figure D-3b

Amenity Impacted Receivers – Revised
Assessment (refer to Table D-2)



- Existing Substation
- Existing Transmission Line Infrastructure
- Existing Railway
- Built Up Areas
- Waterbody
- Refined Alignment
- Refined Transmission Line Towers
- Refined Transmission Line Easement
- Sensitive Receptors**
- Residential dwelling (3)

Figure D-3c

Amenity Impacted Receivers – Revised Assessment (refer to Table D-2)

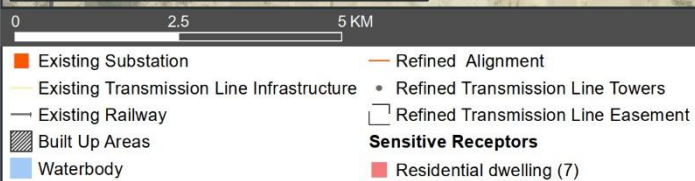
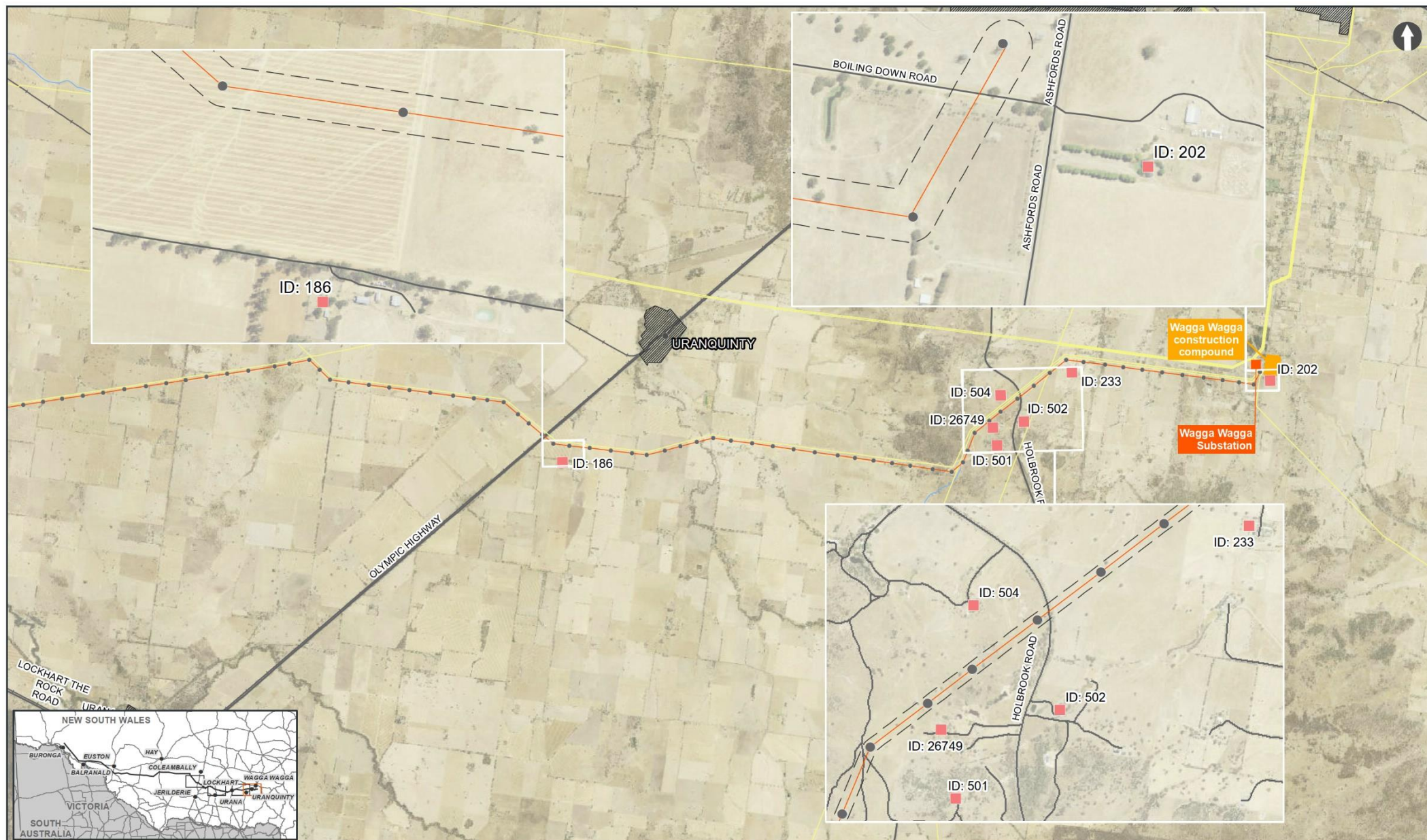


Figure D-3d

Amenity Impacted Receivers – Revised Assessment (refer to Table D-2)

4. Visual

The VIA assessed a maximum height of 60 metres, while the proposed maximum height of the towers is 65 metres. Please confirm if impacts would increase for any residences/receivers

As described in Chapter 5 of the EIS and section 1.4 of the *Visual and Landscape Character Impact Assessment* (Technical paper 5), the proposal would comprise a mix of different potential tower types (including free standing, guyed and strained) which could have varying typical heights (subject to finalisation of the preferred design). As described in the EIS, the heights of each of the potential transmission tower types could be up to around 60 metres for the free standing and guyed tower types, and up to 65 metres for the strained tower types.

The assessment presented in Technical paper 5 (and the associated photomontages) considered the potential worst-case scenario for each of the sections of the proposal (i.e. the 330kV section and the 500kV section) assessing up to a 60 metre free-standing tower for the section of the proposal between Buronga and Dinawan (the 330kV section of the proposal) and up to a 65 metre free-standing tower type for the section between Dinawan and Wagga Wagga (the 500kV section of the proposal).

As, such impacts it is not considered that there would be any increase for residences/receivers along the alignment. Notwithstanding, as discussed RFI response 3 above, additional field validation and assessment of the potential visual impacts of the residences/receivers identified as potentially having a high or above impact has been undertaken (refer to Supplementary technical assessment 4). This assessment indicates that, in comparison to the impact assessment presented in the EIS, the proposal would have an overall reduced impact for a number of previously identified residences/receivers

Confirm the tower height of existing parallel transmission lines

The tower heights for existing transmission line towers which currently operated in areas which would be parallel to the proposal can vary due to a range of factors such as existing line voltage, local ground conditions etc.

A summary of the tower height of existing parallel sections of transmission lines is provided in Table D-3.

Table D-3 Roads proposed for use throughout the whole of the construction period

Existing line name	Line section of proposal	Parallel line voltage (kV)	Parallel line tower range (to proposal)	Parallel line structure height above ground (m)		
				Minimum	Maximum	Average
X3	Buronga to Balranald	220	629–998	29	40	36
X5	Balranald to Four Corners	220	140–628	30	38	35
99A	Lockhart to Uranquinty	132	100–290	12	17	15
62	Sawpit Gully to Wagga	330	1–28	24	43	30
63	Uranquinty to Wagga	330	1–65	24	38	31

5. Sensitive receivers

Extract from EIS Section 4.3 shown with italicised text:

Within the vicinity of the proposed operational infrastructure, the following number of sensitive receivers have been identified:

- *11 total receivers within 200 metres of the proposal*
 - *56 total receivers within 500 metres of the proposal*
 - *152 total receivers within one kilometre of the proposal*
 - *641 total receivers within two kilometre of the proposal*
 - *5,875 total receivers within five kilometre of the proposal.*
- Clarify if the above distances are to the centreline or easement;
 - Of these receivers, specify how many are residences;
 - Identify how many receivers (and residences) are within 100 metres of centreline

The distances to receivers as identified in section 4.3 of the EIS were based on the distance from the receiver to the transmission centreline for the proposal. Therefore there would be 40 metres reduced distance to the closest easement edge to each residence.

Of the receivers identified, the number of sensitive receivers which have been identified as residential dwellings are shown in Table D-4.

Table D-4 Summary of sensitive receivers within the vicinity of the proposal

Distance	Number of residential receivers ¹	Total number of receivers identified
Within 100 metres of proposal	None	2 (utility installations)
Within 200 metres of proposal	2	11
Within 500 metres of proposal	18	56
Within one kilometre of proposal	85	152
Within two kilometre of proposal	504	641
Within five kilometre of proposal	5537	5,875

Note 1: Field validation of the potential sensitive receivers has only been completed on identified receivers within around 500 metres of the proposal alignment. Outside of this range, the identified number and type of receivers has been identified based on publicly spatial information.

6. Figures

EIS Appendix F figures

- All inset maps: Add a symbol on map showing location of access point to camps, compounds, substations and label roads
- F2: Balranald camp inset – adjust scale as needed to show access point (ensure Sturt Highway label remains on map)
- F2: Balranald compound inset – show access point linking facility with public road network, label roads
- F3: Label the road that crosses Curtains Creek
- F5: All insets – show access point linking facilities with public road network, label roads
- F5: Show approximate location of the Wagga Wagga substation upgrade area

The series of maps provided as Appendix F of the EIS have been updated to address the comments noted above. The revised series of maps have been included below and relabelled as Figure D-4a to D-4e respectively.

EIS Figure 6–12 – add road names to inset

Figure 6–12 has been updated to include road names (where possible) to the insert of the Wagga Wagga section of the alignment. This map has been included below as Figure D-5.

New figure summarising key landscape features in proximity to the transmission line corridor

- preference is for one figure with three sections (as per EIS Figure 9–3)
- include project infrastructure
- clearly show and label major watercourses and lakes
- identify major roads and towns, national parks and conservation areas and key irrigation areas
- plus anything else of importance to landscape context as needed (i.e. features that may have been avoided by the project)

A new figure identifying the key landscape features in proximity to the transmission line corridor which incorporate the key features identified above has been prepared. This map has been included below as Figure D-6.

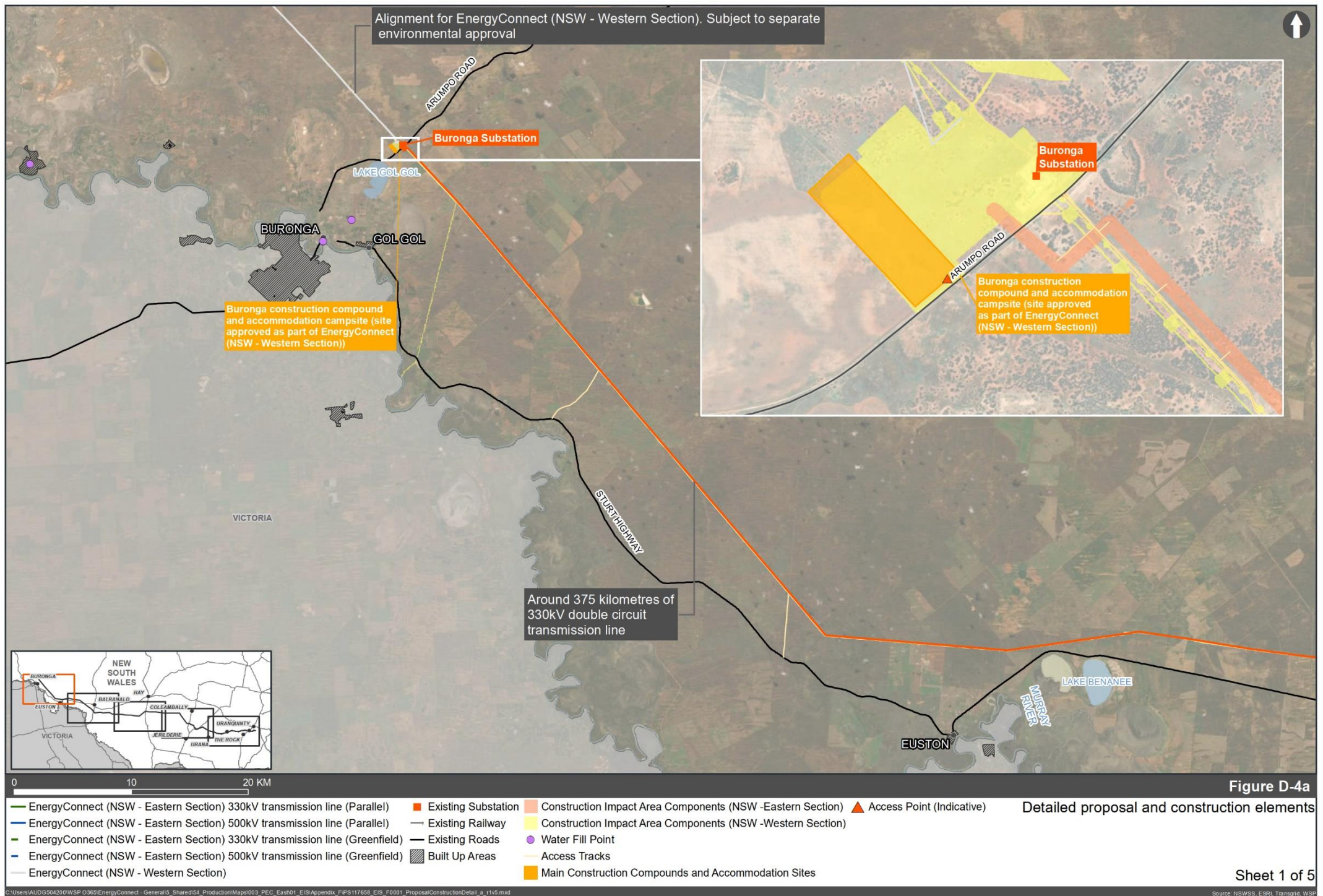
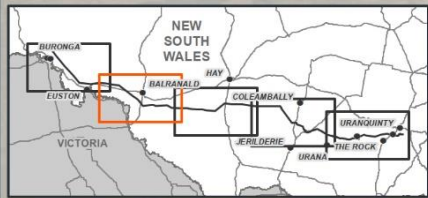
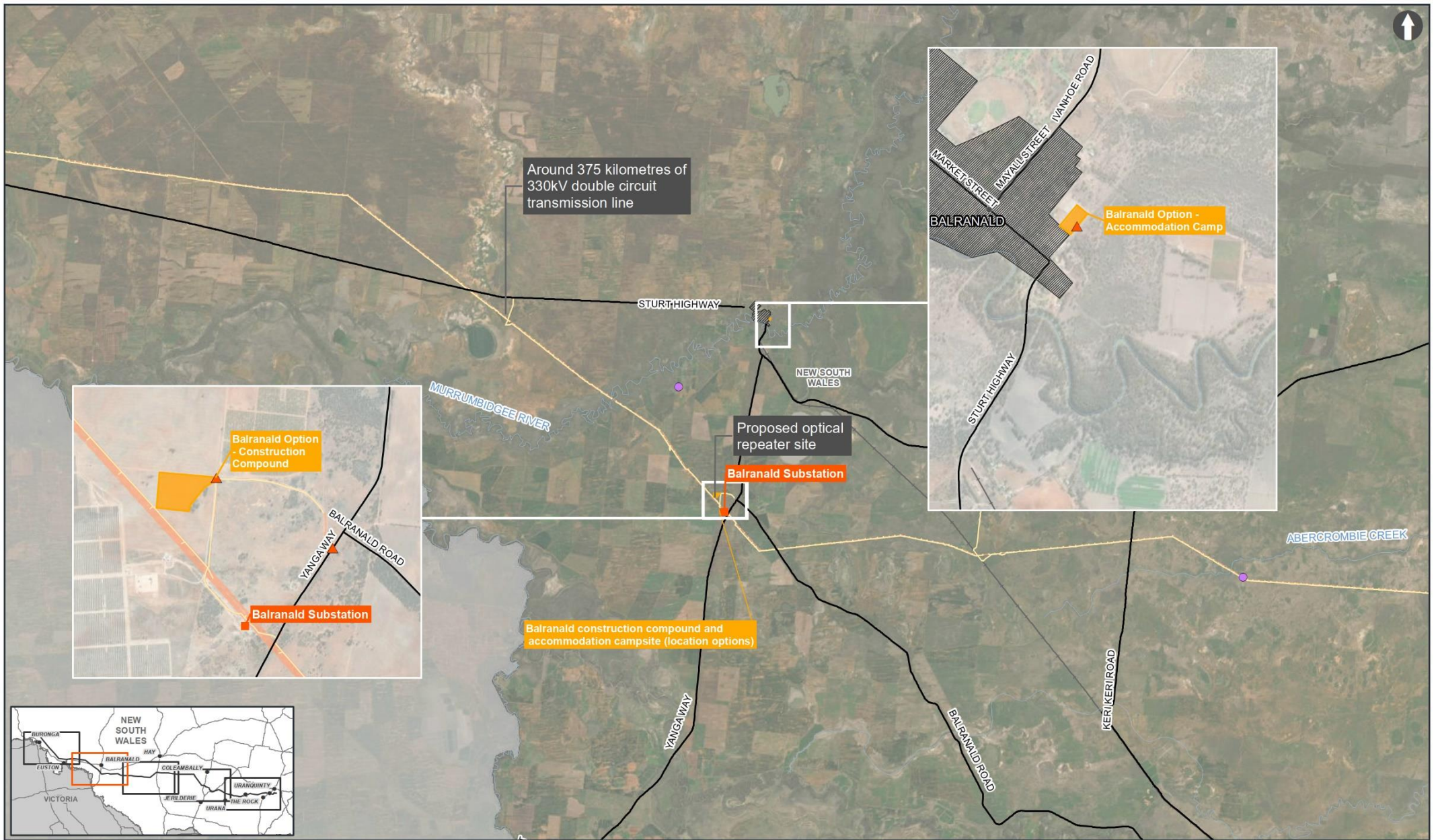


Figure D-4a



0 10 20 KM

- EnergyConnect (NSW - Eastern Section) 330kV transmission line (Parallel)
- EnergyConnect (NSW - Eastern Section) 500kV transmission line (Parallel)
- EnergyConnect (NSW - Eastern Section) 330kV transmission line (Greenfield)
- EnergyConnect (NSW - Eastern Section) 500kV transmission line (Greenfield)
- EnergyConnect (NSW - Western Section)

- Existing Substation
- Existing Railway
- Existing Roads
- Built Up Areas

Construction Impact Area Components

- Construction Impact Area (transmission line component)
- Water Fill Point
- Access Tracks
- Main Construction Compounds and Accommodation Sites

- ▲ Access Point (Indicative)

Detailed proposal and construction elements

Figure D-4b

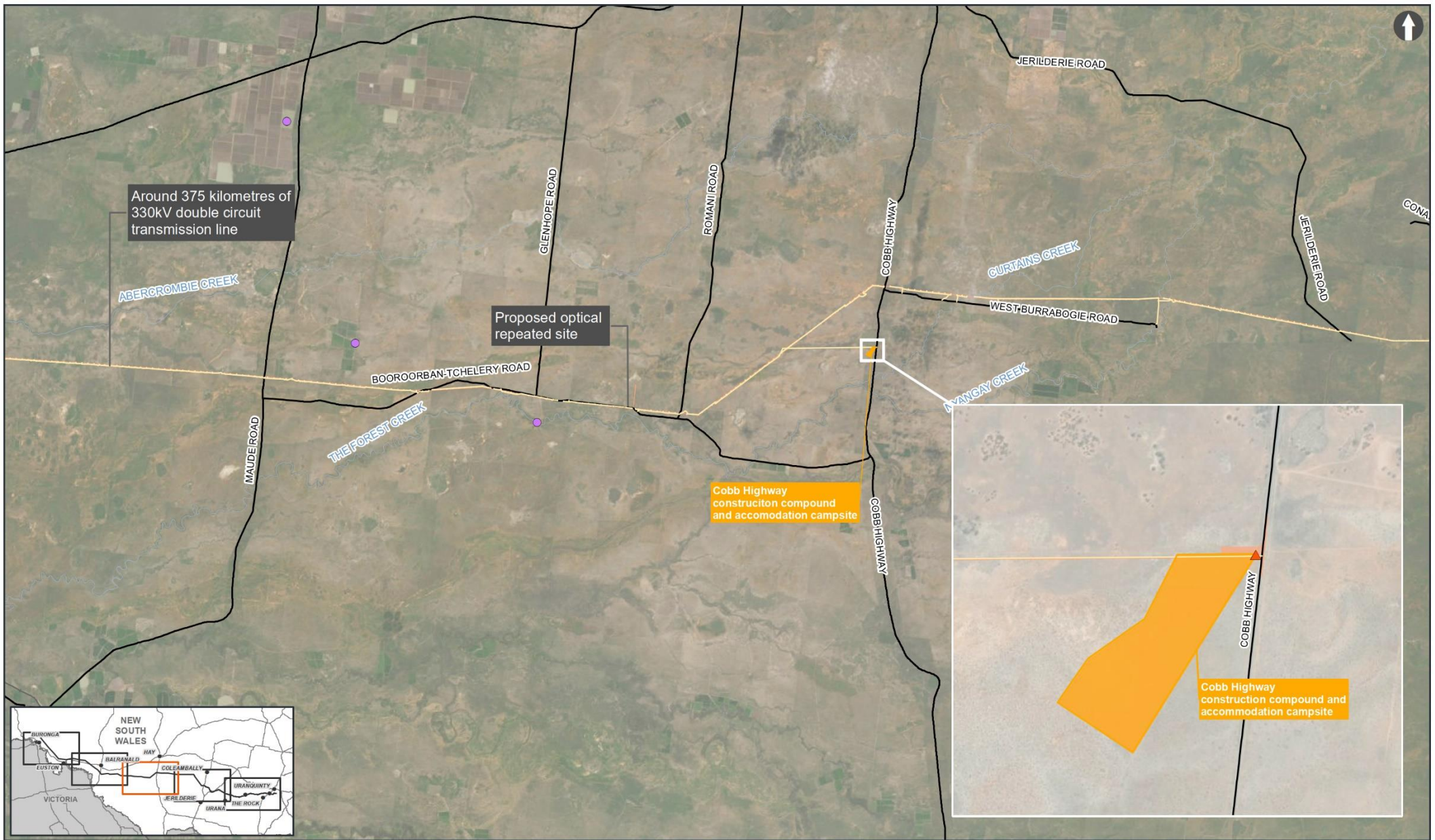
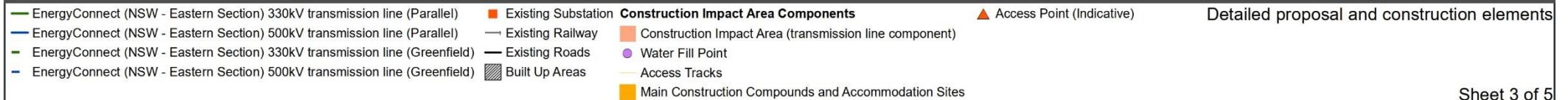
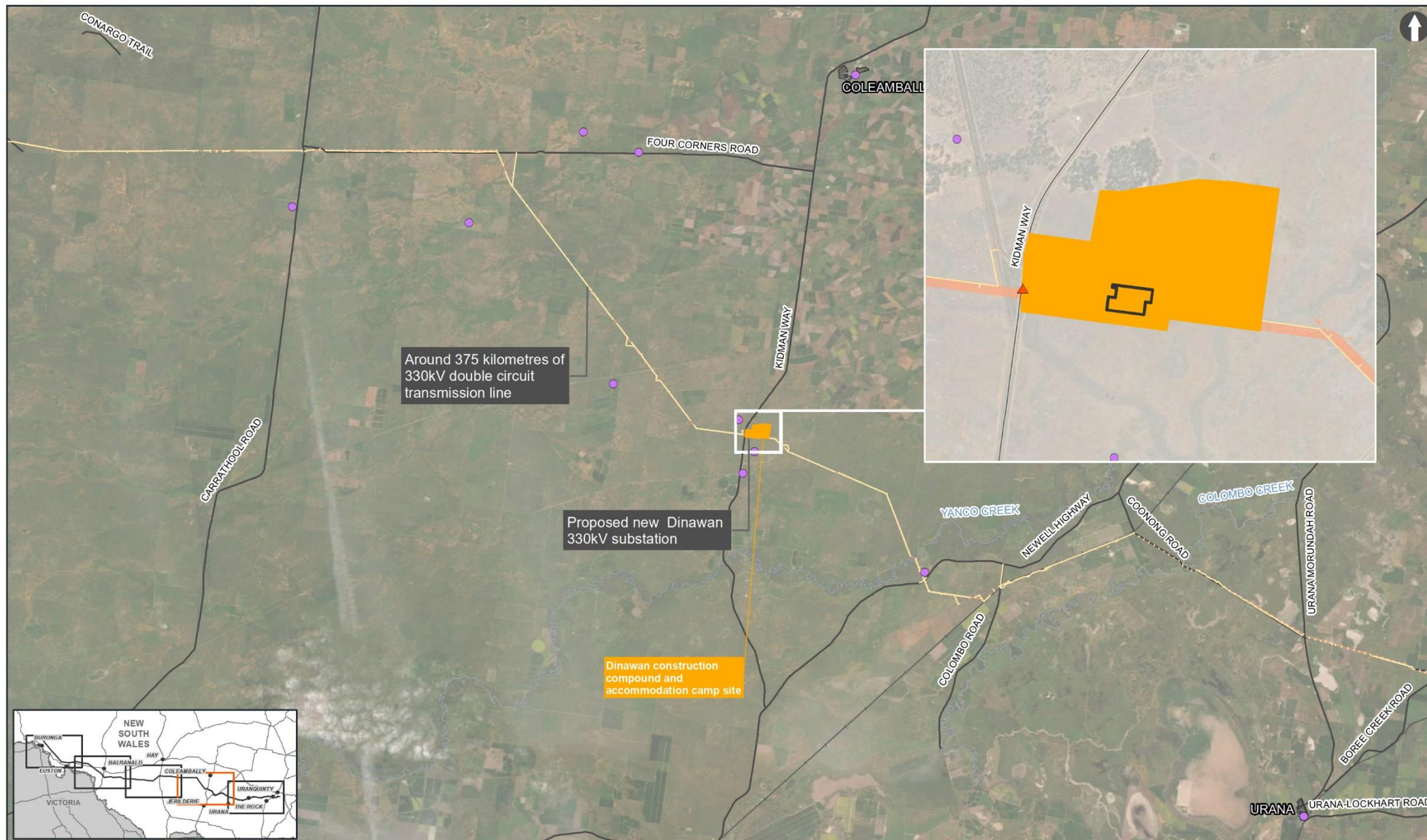


Figure D-4c





- EnergyConnect (NSW - Eastern Section) 330kV transmission line (Parallel)
- EnergyConnect (NSW - Eastern Section) 500kV transmission line (Parallel)
- EnergyConnect (NSW - Eastern Section) 330kV transmission line (Greenfield)
- EnergyConnect (NSW - Eastern Section) 500kV transmission line (Greenfield)

- Existing Substation
- Existing Railway
- Existing Roads
- Built Up Areas

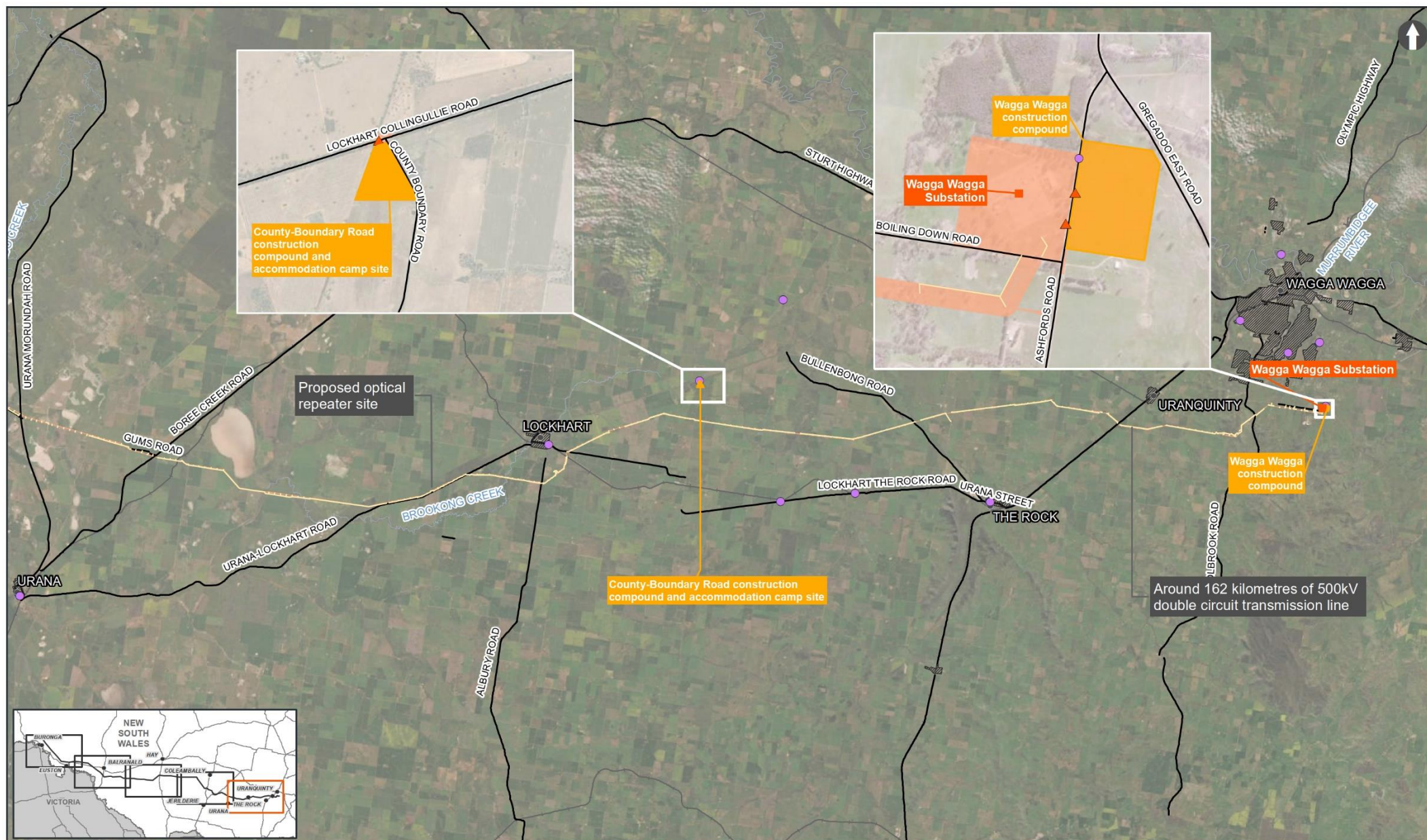
Construction Impact Area Components

- Construction Impact Area (transmission line component)
- Water Fill Point
- Access Tracks
- Main Construction Compounds and Accommodation Sites

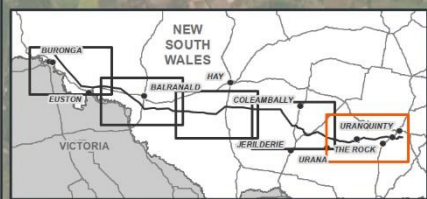
- ▲ Access Point (Indicative)
- Dinawan Substation Layout

Detailed proposal and construction elements

Figure D-4d



Around 162 kilometres of 500kV double circuit transmission line



0 10 20 KM

- EnergyConnect (NSW - Eastern Section) 330kV transmission line (Parallel) - EnergyConnect (NSW - Eastern Section) 500kV transmission line (Parallel) - EnergyConnect (NSW - Eastern Section) 330kV transmission line (Greenfield) - EnergyConnect (NSW - Eastern Section) 500kV transmission line (Greenfield)	- Existing Substation - Existing Railway - Existing Roads - Built Up Areas	Construction Impact Area Components - Construction Impact Area (transmission line component) - Water Fill Point - Access Tracks - Main Construction Compounds and Accommodation Sites	Access Point (Indicative)	Figure D-4e Detailed proposal and construction elements
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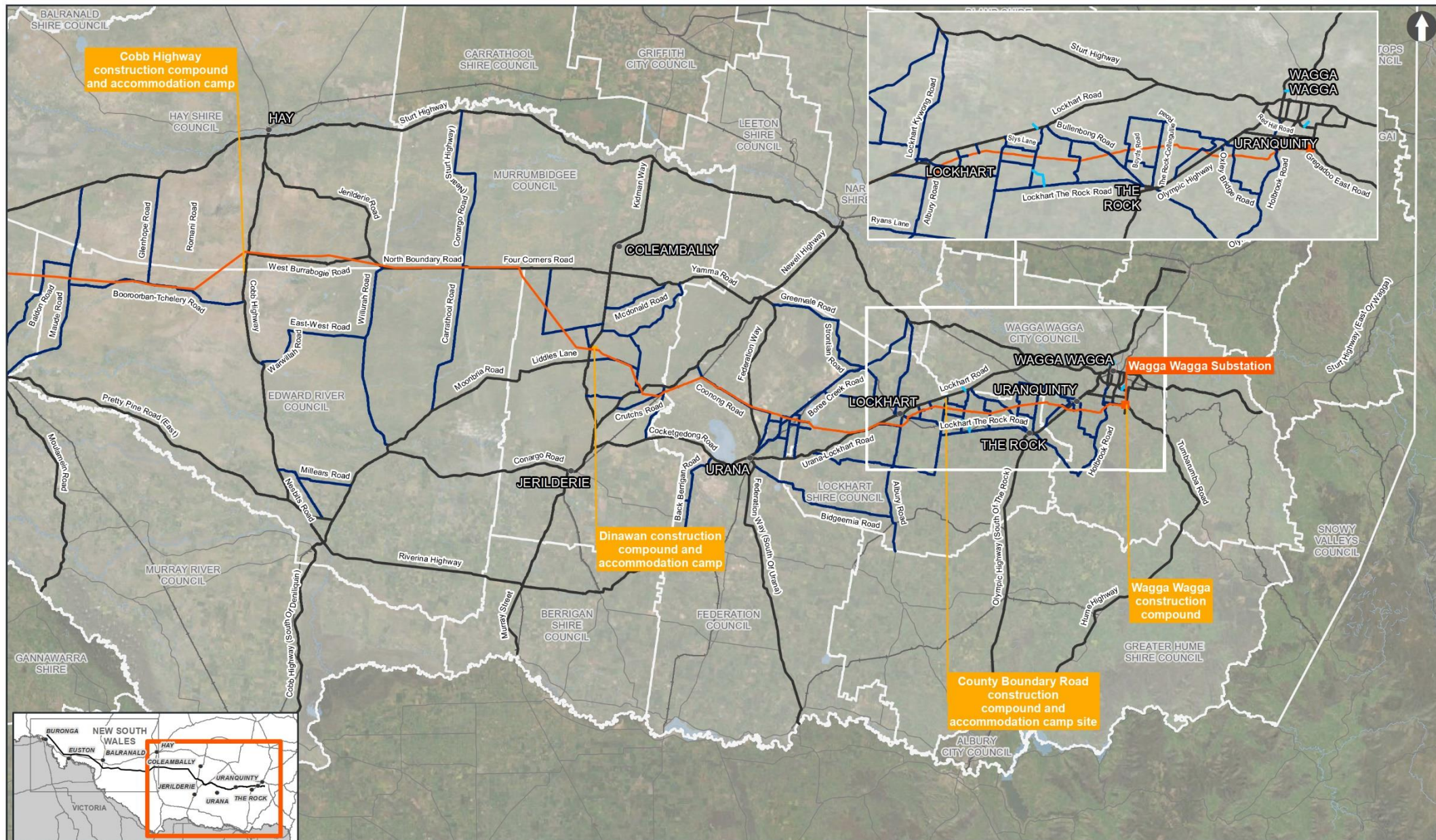


Figure D-5 (EIS Figure 6-5)

Prospective traffic routes within the traffic and transport study area

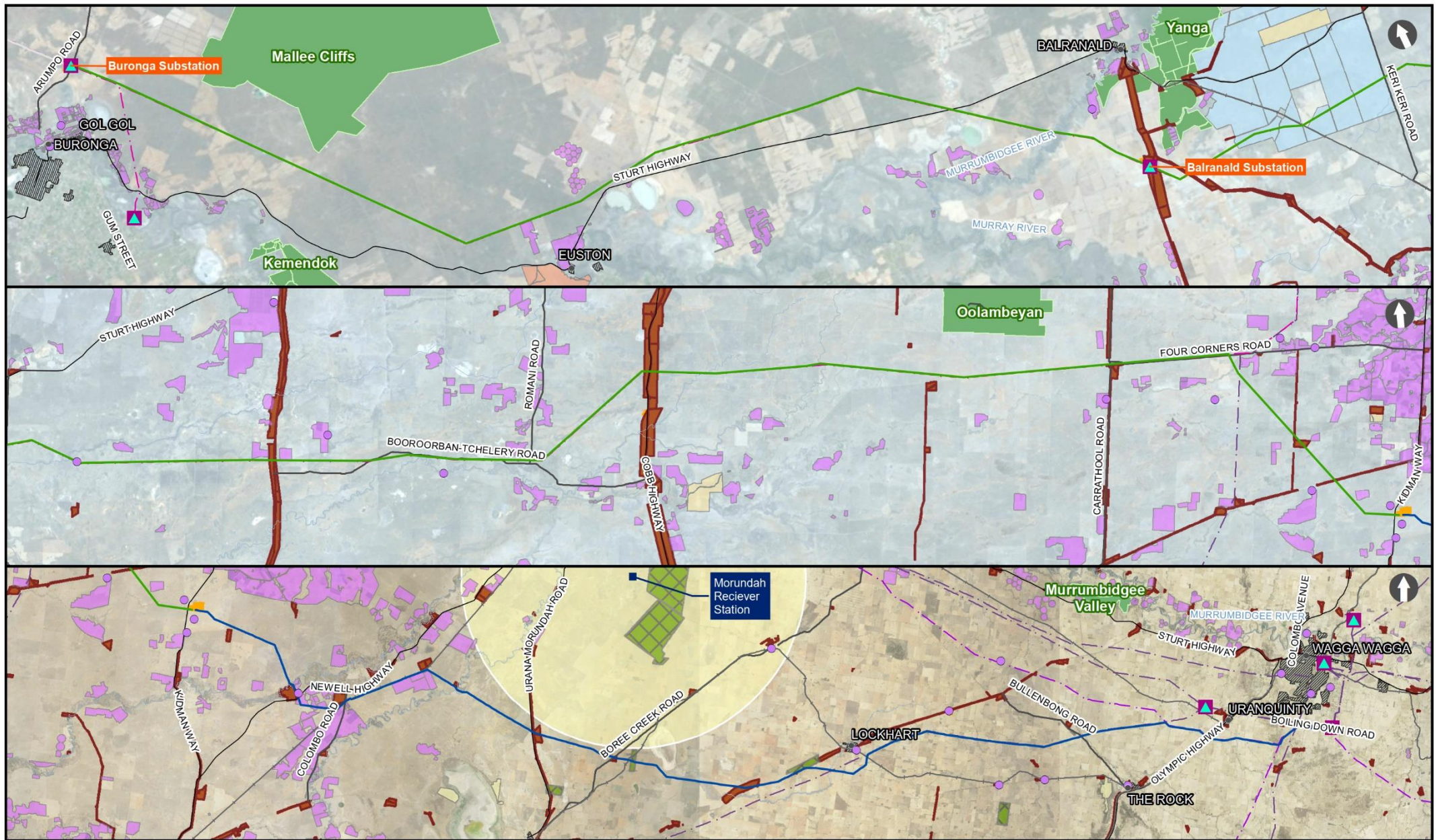


Figure D-6

Overview of Landscape Features



7. Other matters

List the 26% of roads that would be used for the entire construction period

The roads that would be used for the entire construction period (based on the current construction methodology) are shown in Table D-5.

Table D-5 Roads proposed for use throughout the whole of the construction period

Road Name	Local Council Area
Abbotts Tank Road	Balranald Shire Council
Benanee Road	Balranald Shire Council
Euston Prungle Road	Balranald Shire Council
Murray Valley Highway	Balranald Shire Council
Booroorban–Tchelery Road	Edward River Council
Moonbria Road	Edward River Council
Boree Creek Road (south of Boree Creek)	Federation Council
Brookong Creek Road	Federation Council
Chapman Street	Federation Council
Cocketgedong Road	Federation Council
Federation Way (north of Urana)	Federation Council
William Street	Federation Council
Woodhouse Street	Federation Council
West Burrabogie Road	Hay Shire Council
Bullenburg The Rock Road	Lockhart
County Boundary Road	Lockhart
Flood Detour Road	Lockhart
Frank Westblades Lane	Lockhart
Lockhart Boree Creek Road	Lockhart
Lockhart–Kywong Road	Lockhart
Lockhart The Rock Road	Lockhart
Olympic Highway (between Urana Street, The Rock and Yarrangundry Street Uranquinty)	Lockhart
Railway Street	Lockhart
Reid Street	Lockhart
Solider Settlement Road	Lockhart
Spanish Avenue	Lockhart
Yuluma Road	Lockhart
Olympic Highway (south of The Rock)	Lockhart
Balranald Road (north of alignment)	Murray River Council

Road Name	Local Council Area
Impimi Road	Murray River Council
Jerilderie Street (Jerilderie)	Murrumbidgee Council
Jerilderie–Urana Road	Murrumbidgee Council
Liddles Lane	Murrumbidgee Council
Newell Highway (north of Jerilderie)	Murrumbidgee Council
Six Mile Lane	Murrumbidgee Council
Wilson Road	Murrumbidgee Council
Lockhart Road (near Galore)	Narrandera
Brunskill Road	Wagga Wagga
Dunns Road	Wagga Wagga
Edward Street	Wagga Wagga
Elizabeth Avenue	Wagga Wagga
Glenfield Road	Wagga Wagga
Gregadoo Road	Wagga Wagga
Hammond Avenue	Wagga Wagga
Holbrook Road	Wagga Wagga
Inglewood Road	Wagga Wagga
Lake Albert Road	Wagga Wagga
Lloyd Road	Wagga Wagga
Lockhart Road (east of Bullenbong Creek)	Wagga Wagga
Mitchell Road	Wagga Wagga
Olympic Highway (Between Sturt Highway and Yarragundry St In Uranquinty)	Wagga Wagga
Pearson Street	Wagga Wagga
Plumpton Road	Wagga Wagga
Red Hill Road	Wagga Wagga
Somervilles Road	Wagga Wagga
Sturt Highway (east of Wagga)	Wagga Wagga
Sturt Highway (between Olympic Highway and Wagga Wagga)	Wagga Wagga
Uranquinty Cross Road	Wagga Wagga
Yarragundry Street	Wagga Wagga
Sturt Highway (between Newell Highway and Olympic Highway)	Wagga Wagga
Bakers Lane	Wagga Wagga
Bourke Street	Wagga Wagga
Docker Street	Wagga Wagga

What will determine the final option for the Balranald and Lockhart construction compounds and camps?

Balranald construction compound and accommodation camp

Section 6.7.1.1 of the EIS noted that, at the time of writing, two construction compound and accommodation camp site options at Balranald were being considered. The EIS noted that there were two options being considered for the use of these sites:

- a split arrangement utilising the established accommodation camp within Balranald with a construction compound area located along Yanga Way
- a combined option with both the construction and accommodation components co-located along Yanga Way.

At this time, consideration of the preferred site at Balranald is ongoing. Determination of the preferred arrangement would be based on the finalisation of the construction methodology by SecureEnergy. The preferred arrangement would also be subject to the commercial agreement available to lease the existing accommodation camp within the township of Balranald. Discussion regarding potential leasing arrangements for this site are currently ongoing.

Lockhart construction compound and accommodation camp

Discussion regarding the preferred location of the Lockhart construction compound and accommodation camp site is provided in section 2.4.1.1 of the Addendum Report for the proposal. In summary, following public exhibition of the EIS, ongoing consultation with the land holders of the two sites has determined that the preferred site for the construction compound and accommodation camp sites at Lockhart is the County–Boundary Road site to the north east of the Lockhart township. The Urana–Lockhart Road site has therefore been removed from the scope of the proposal.

Appendix E Desktop survey report of the proposed haulage routes



Desktop Survey Report

Project:	Energy Connect
Client:	Secure Energy
dteq Project no.	210348_01
Date of initial release:	2021/07/02
Prepared by:	FTH

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Document No.		210348_01_D99_0101			
Rev.	Date	Revision details	Prepared by	Checked by	Approved by
00	2021/07/02	Initial release	FTH	KOK	

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1. Introduction

The below desktop study provides the reader with an overview of the preliminary transport routes for the Project Energy Connect. The desktop studies aim to present routes based on previous transport movements in the region for similar cargo's (Heavy / Over dimensional) along with outlining potential transport configurations and pinch points along the route. This desktop study is based on available maps and pictures at google earth and google maps. We have to point out that a desktop study may not reveal all potential obstacles on the considered routes and due to that we cannot guarantee the veracity of this report. We recommend inspecting and surveying the routes physically for any other obstacles, e.g. height clearances, tunnel dimensions, roundabouts / traffic island which might require modification and street furniture which possibly needs to be removed. Furthermore, bridge capacities must be checked by certified engineer and / or approved by respective road authorities.

2. Disclaimer

All technical solutions are for informational purposes only. The desktop report is not intended nor is to be used as a guarantee or warranty, expressed or implied, regarding the future adequacy, performance, or condition of any technical solution herein. Before execution, all technical details need to be verified and accepted by all parties involved, including but not limited to the client, carrier, MWS insurer, and/or cargo owner. This work is intended solely for the client. The company assumes no liability with respect to any reliance on this survey report. The client assumes the entire risk as to the accuracy and completeness of the information contained herein. This survey report may not be copied, reproduced, or distributed, in whole or in part, for any reason other than the project.

3. General

3.1 List of abbreviations

Abbreviation	Definition
agw wp	All going well, weather permitting
CoG	Centre of gravity
DNVGL	Det Norske Veritas Germanischer Lloyd
EOSP	End of sea passage
ETA	Estimated time arrival
ETD	Estimated time departure
ETS	Estimated time of sailing
GPS	Global positioning system
HL	Heavy lift
IMO	International Maritime Organization
ISPS	International Ship and Port Facility Security
JHA	Job hazard assessment
JSA	Job safety analysis
kN	Kilo newton
LC	Lashing capacity
MBL	Minimum breaking load
MS	Method statement
MSL	Maximum securing load
mton	Metric ton
MWS	Marine Warranty Surveyor
N/A	Not applicable
PNR	Point of no return
POB	Pilot on board
POD	Port of discharge
POL	Port of loading
PPE	Personal protection equipment

PS	Portside
QHSES	Quality, Health and Safety, Environment and Security
RA	Risk assessment
RORO	Roll on / Roll off
SOP	Standard operation procedure
SoW	Scope of work
STB	Starboard
SWA	Stop work authority
TP	Technical proposal
WLL	Working load limit
WP	Waypoint

Table 1 - List of abbreviations

3.2 Project contact list

Operations / Commercial	Technical / Engineering
Paul Booth Country Manager T: +61 476819221 E: paul.booth@deugro.com	Felix Thole Transport Engineer T: +49 15222883398 E: felix.thole@dteq-solutions.com

Table 2 - Project contact list

4. Cargo details

Title	Dimensions, LxWxH, mm	Weight, mton	Quantity, pcs
Power Transformer	10100x5500x4600	160	16

Table 3 - Cargo details

*Subject to final packing list details from Project owner at time of shipment/award.

The above details have advised as the largest packages for the project and in such shall be used to define the transport envelope.

6. General overview

After initial investigations into recommended ports of entry for the Project Energy Connect Packages, four ports were identified as a recommended port of entry:

1. Newcastle
2. Geelong
3. Adelaide
4. Port Kembla



Figure 2 - Map Overview - Ports of entry

6.1 Delivery Sites

The Wagga Wagga site is located at the coordinates 35°12'1.48"S 147°23'44.75"E.
Address: Ashford Rd, Gregadoo NSW 2650

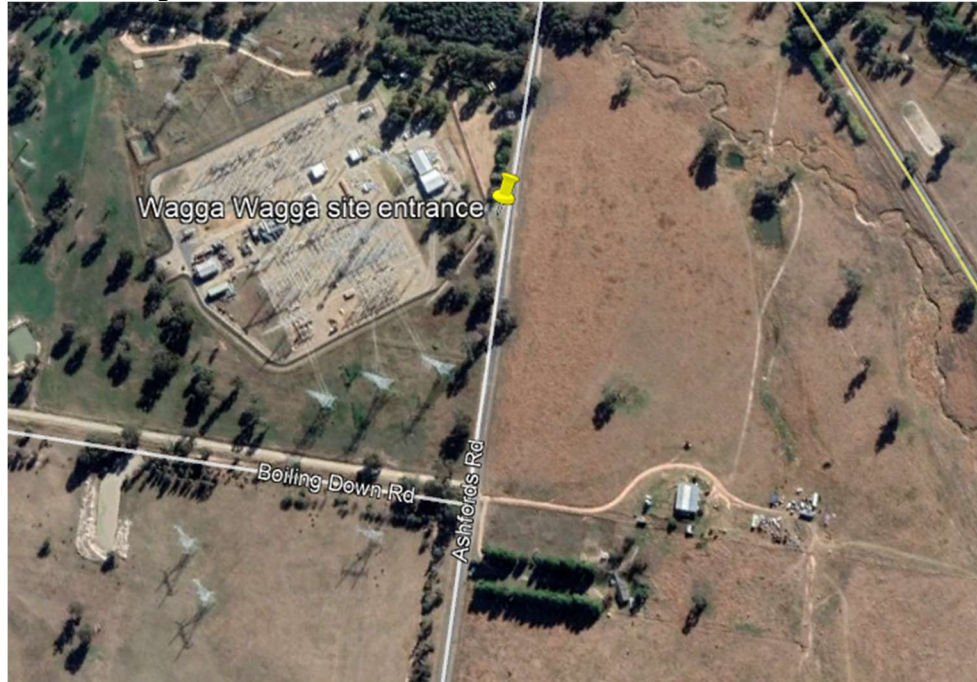


Figure 3 - Wagga Wagga site entrance

The Dinawan site is located at the coordinates 35° 3'31.07"S 145°47'28.81"E.
Address: Kidman Way, B87, Argoon NSW 2707



Figure 4 - Dinawan site entrance

7. Newcastle – Wilton

7.1 Route Overview

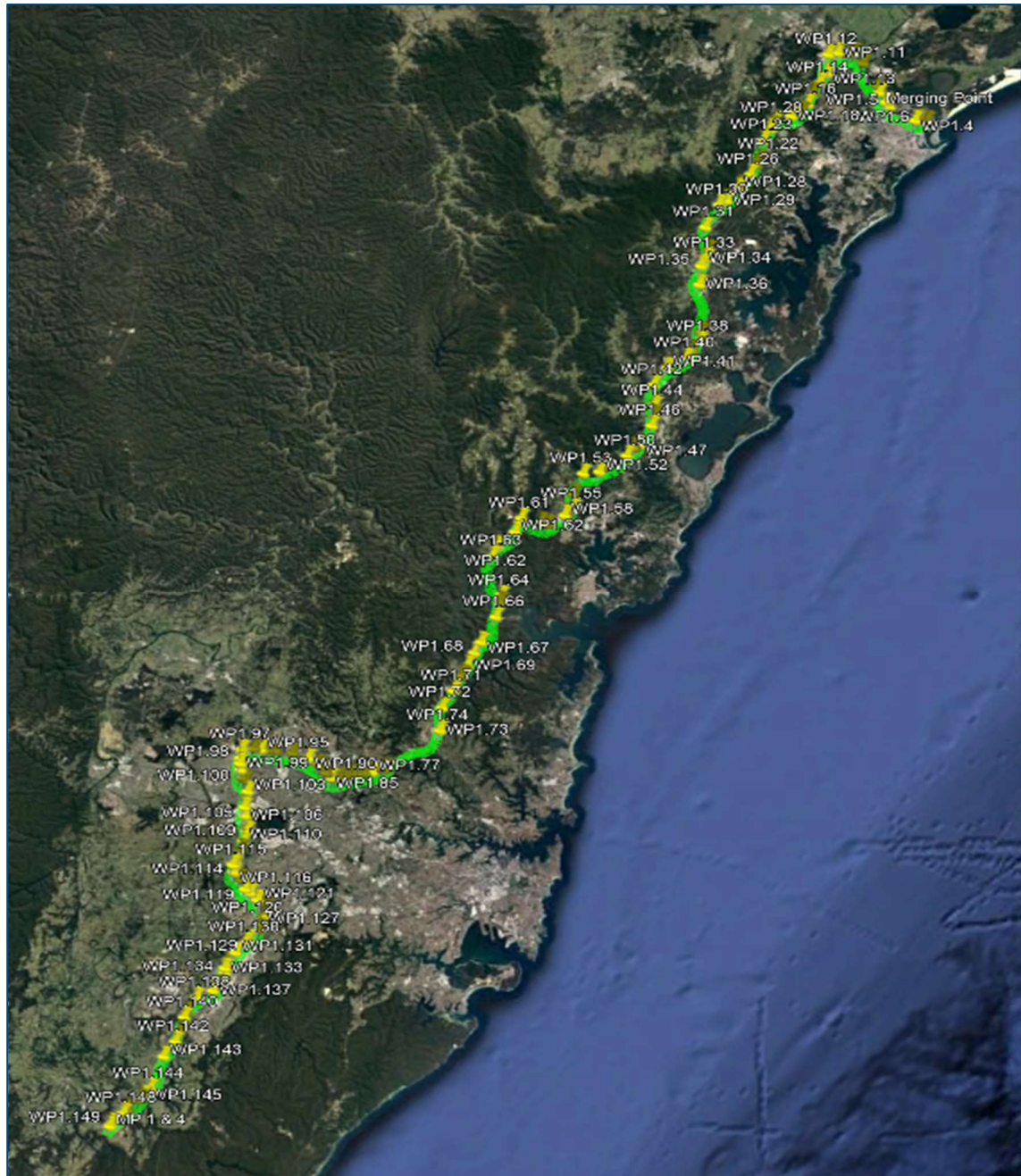


Figure 5 - Route Overview / Newcastle - Wilton

Above figure is showing the route from port of Newcastle towards the Merging Point on Hume Motorway, nearby Wilton, where the route is merging with the investigated route from Port Kembla. This partial Route has a total distance of 241km. For a detailed route overview, please refer to the provided .kml file.

7.2 Elevation profile

The Route was split into two paths, the first part as the exit from Newcastle Port, the second part as the main route until the Merging Point. Along the route the max. inclination was determined with 11.8%. Subject to the actual transport configuration, the transformer will need further prime mover.

Newcastle cargo is imported through Mayfield berth 4 to avoid narrow streets and light bridges. Anything above 100mt needs to come out of Mayfield 4 due to weak bridge infrastructure ex Carrington / West & East Basin. This will be the start point of the route.



Figure 6 - Elevation profile / Newcastle – Wilton, part 1

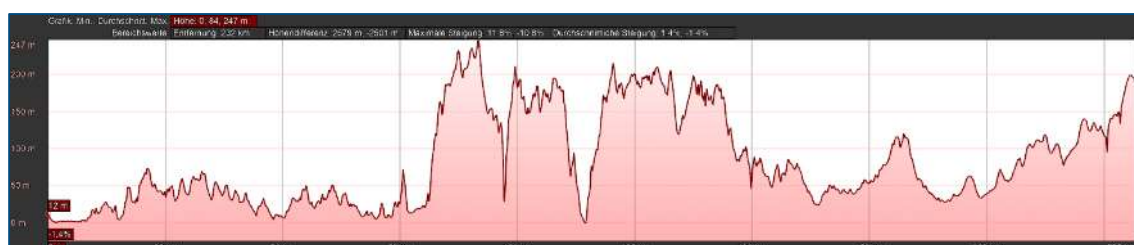


Figure 7 - Elevation profile / Newcastle – Wilton, part 2

7.3 Table of occurrences

Table 4 – Table of occurrences / Newcastle - Wilton

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
0	WP1.1	Port Gate	32°54'003"S151°46'011"E		
1	WP1.2	Railway crossing	32°53'056"S151°45'035"E		
1.5	WP1.3	Turn right	32°54'002"S151°45'013"E		
1.5	WP1.4	Turn right	32°54'002"S151°45'013"E		
6	WP1.5	Turn right	32°52'054"S151°43'003"E		
6.5	WP1.6	Bridge	32°52'036"S151°42'049"E	Pass over	30
8	MP	Merging Point	32°51'049"S151°42'019"E	0-Pass overint for Route	
9	WP1.7	Bridge	32°51'015"S151°42'012"E	Pass over	95
12.5	WP1.8	Bridge	32°48'038"S151°41'004"E	Pass under	
15	WP1.9	Bridge	32°48'042"S151°40'018"E	Pass over	23
15.5	WP1.10	Bridge	32°48'040"S151°39'056"E	Pass under	
17	WP1.11	Turn left	32°48'048"S151°38'058"E	Drive towards A1 Sydney / B68 Kurri Kurri	
18	WP1.12	Turn left	32°50'019"S151°38'013"E	onto Pacific Motorway / M1 Wallsend Sydney	

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
21	WP1.13	Bridge	32°51'003"S151°38'006"E	Pass under	
23	WP1.14	Bridge	32°51'052"S151°37'034"E	Pass over	80
25	WP1.15	Bridge	32°52'046"S151°36'059"E	Pass over	20
26.5	WP1.16	Bridge	32°53'023"S151°36'033"E	Pass over	20
28	WP1.17	3 x Bridge	32°53'043"S151°36'004"E	Pass under	
29	WP1.18	Bridge	32°54'002"S151°35'015"E	Pass under	
31.5	WP1.19	Bridge	32°54'017"S151°33'060"E	Pass over	25
32	WP1.20	Bridge	32°54'031"S151°33'050"E	Pass under	
32.5	WP1.21	Bridge	32°54'044"S151°33'045"E	Pass over	40
33	WP1.22	Bridge	32°55'038"S151°33'035"E	Pass over	25
35	WP1.23	Bridge	32°57'014"S151°33'003"E	Pass over	85
38	WP1.24	Bridge	32°57'037"S151°32'044"E	Pass over	65
39	WP1.25	Bridge	32°58'024"S151°32'029"E	Pass over	15
40.5	WP1.26	Bridge	32°59'016"S151°31'058"E	Pass over	15
42.5	WP1.27	Bridge	32°59'030"S151°31'009"E	Pass under	
43	WP1.28	Bridge	33°0'027"S151°31'004"E	Pass over	75
45.5	WP1.29	Bridge	33°0'047"S151°30'006"E	Pass over	55
46.5	WP1.30	Bridge	33°2'033"S151°29'030"E	Pass under	
50	WP1.31	Bridge	33°4'022"S151°28'026"E	Pass under	
53.5	WP1.32	Bridge	33°5'002"S151°28'043"E	Pass over	65
55	WP1.33	Bridge	33°5'030"S151°28'031"E	Pass under	
56	WP1.34	Bridge	33°5'038"S151°28'011"E	Pass over	110
56.5	WP1.35	Bridge	33°7'007"S151°28'005"E	Pass over	45
59	WP1.36	Bridge	33°10'053"S151°27'058"E	Pass under	
66.5	WP1.37	Bridge	33°11'037"S151°28'006"E	Pass under	
68	WP1.38	Bridge	33°12'022"S151°27'060"E	Pass under	
69.5	WP1.39	Bridge	33°12'057"S151°27'025"E	Pass over	25
71	WP1.40	Bridge	33°13'042"S151°26'054"E	Pass under	
73	WP1.41	Bridge	33°15'005"S151°25'024"E	Pass under	
76.5	WP1.42	Bridge	33°16'034"S151°24'017"E	Pass over	30
79	WP1.43	Bridge	33°16'044"S151°24'019"E	Pass under	
79.5	WP1.44	Bridge	33°17'030"S151°24'022"E	Pass over	150
82	WP1.45	Bridge	33°18'017"S151°24'022"E	Pass over	40
84	WP1.46	Bridge	33°19'049"S151°24'009"E	Pass under	
86	WP1.47	Bridge	33°20'000"S151°23'007"E	Pass over	60
87	WP1.48	Bridge	33°20'004"S151°22'047"E	Pass over	25
87.5	WP1.49	Bridge	33°20'040"S151°22'040"E	Pass over	45
88	WP1.50	Bridge	33°21'036"S151°22'013"E	Pass over	55
92	WP1.51	Bridge	33°21'058"S151°20'020"E	Pass under	
92.5	WP1.52	Bridge	33°22'006"S151°19'055"E	Pass under	

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
93.5	WP1.53	Bridge	33°23'045"S151°18'037"E	Pass over	40
98	WP1.54	Bridge	33°24'055"S151°17'050"E	Pass under	
101	WP1.55	Bridge	33°25'020"S151°17'050"E	Pass over	20
101.5	WP1.56	Bridge	33°25'023"S151°17'021"E	Pass over	40
102	WP1.57	Bridge	33°25'026"S151°17'014"E	Pass over	110
102.5	WP1.58	Bridge	33°26'007"S151°17'008"E	Pass over	60
106	WP1.59	Bridge	33°25'058"S151°15'044"E	Pass under	
107	WP1.60	Bridge	33°25'039"S151°15'014"E	Pass over	470
108	WP1.61	Bridge	33°26'043"S151°13'038"E	Pass over	70
110	WP1.62	Bridge	33°27'053"S151°13'008"E	Pass under	55
114	WP1.62	Bridge	33°28'039"S151°11'042"E	Pass under	
115	WP1.63	Bridge	33°31'053"S151°11'023"E	Pass over	85
122	WP1.64	Bridge	33°32'018"S151°12'000"E	Pass over	45
123	WP1.65	Bridge	33°33'027"S151°11'060"E	Pass over	620
125	WP1.66	Bridge	33°35'034"S151°11'037"E	Pass under	
130	WP1.67	Bridge	33°36'024"S151°10'025"E	Pass under	
131	WP1.68	Bridge	33°37'025"S151°9'048"E	Pass under	
135	WP1.69	Bridge	33°38'011"S151°9'015"E	Pass under	
135	WP1.69	Bridge	33°39'014"S151°8'050"E	Pass under	
138	WP1.70	Bridge	33°39'025"S151°8'014"E	Pass under	
138.5	WP1.71	Bridge	33°40'042"S151°8'007"E	Pass under	
141	WP1.72	Bridge	33°42'035"S151°7'014"E	Pass under	
144	WP1.73	Bridge	33°42'032"S151°7'002"E	Pass under	
144.5	WP1.74	Turn left	33°45'033"S151°7'004"E	subject to Tunnel dimensions	9230
153	WP1.75	Tunnel exit	33°45'036"S151°2'057"E		
154	WP1.76	Bridge	33°45'050"S151°2'032"E	Pass over	40
156	WP1.77	Bridge	33°45'052"S151°1'029"E	Pass over	40
157	WP1.78	Bridge	33°46'000"S151°0'050"E	Pass under	
158	WP1.79	Bridge	33°46'004"S151°0'017"E	Pass over	165
159	WP1.80	Bridge	33°46'009"S150°59'055"E	Pass under	
159.5	WP1.81	Bridge	33°46'014"S150°59'031"E	Pass under	
160	WP1.82	Bridge	33°46'019"S150°59'013"E	Pass under	
160.5	WP1.83	Bridge	33°46'022"S150°58'054"E	Pass under	
161	WP1.84	Bridge	33°46'016"S150°58'025"E	Pass under	
162	WP1.85	Bridge	33°45'057"S150°58'004"E	Pass under	
162.5	WP1.86	Bridge	33°45'052"S150°57'053"E	Pass under	
163	WP1.87	Bridge	33°45'025"S150°57'046"E	Pass under	
163.5	WP1.88	Bridge	33°45'016"S150°57'026"E	Pass under	
164	WP1.89	Bridge	33°44'044"S150°57'012"E	Pass over	205

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
165	WP1.90	Bridge	33°44'019"S150°56'026"E	Pass under	
168	WP1.91	Bridge	33°44'007"S150°55'005"E	Pass under	
170	WP1.92	Bridge	33°44'004"S150°53'035"E	Pass over	145
170.5	WP1.93	Bridge	33°44'004"S150°53'006"E	Pass under	
171	WP1.94	Bridge	33°43'058"S150°53'006"E	Pass under	
171.5	WP1.95	Bridge	33°43'052"S150°52'025"E	Pass under	
172	WP1.96	Bridge	33°44'009"S150°51'055"E	Pass under	
174	WP1.97	Bridge	33°44'039"S150°51'004"E	Pass over	70
175	WP1.98	Bridge	33°45'011"S150°50'057"E	Pass under	
176	WP1.99	Bridge	33°45'049"S150°50'057"E	Pass under	
177	WP1.100	Bridge	33°46'013"S150°51'001"E	Pass over	70
178	WP1.101	Bridge	33°46'027"S150°51'001"E	Pass over	75
179	WP1.102	Bridge	33°47'016"S150°51'017"E	Pass under	
181	WP1.103	Bridge	33°47'054"S150°51'030"E	Pass over	95
182	WP1.104	Bridge	33°48'047"S150°51'023"E	Pass under & Pass over	335
183	WP1.105	Bridge	33°49'018"S150°51'017"E	Pass under	
185	WP1.106	Bridge	33°49'057"S150°51'014"E	Pass over	50
186	WP1.107	Bridge	33°50'020"S150°51'026"E	Pass under	
186.5	WP1.108	Bridge	33°50'036"S150°51'023"E	Pass over	40
187	WP1.109	Bridge	33°51'019"S150°51'020"E	Pass under	
188	WP1.110	Bridge	33°51'054"S150°51'004"E	Pass over	45
189	WP1.111	Bridge	33°52'039"S150°50'053"E	Pass over	160
191	WP1.112	Bridge	33°52'047"S150°50'036"E	Pass over	70
191.5	WP1.113	Bridge	33°53'008"S150°50'031"E	Pass under	
192	WP1.114	Bridge	33°53'008"S150°50'016"E	Pass over	60
192.5	WP1.115	Bridge	33°53'047"S150°50'016"E	Pass under	
193	WP1.116	Bridge	33°53'056"S150°50'017"E	Pass over	80
193.5	WP1.117	Bridge	33°54'019"S150°50'027"E	Pass under	
195	WP1.118	Bridge	33°55'008"S150°50'048"E	Pass over	85
196	WP1.119	Bridge	33°55'033"S150°51'012"E	Pass over	150
197	WP1.120	Bridge	33°55'055"S150°51'049"E	Pass over	200
198	WP1.121	Bridge	33°56'023"S150°52'015"E	Pass over	85
200	WP1.122	Bridge	33°56'041"S150°52'044"E	Pass over	175
200.5	WP1.123	Bridge	33°56'050"S150°52'044"E	Pass under	
201	WP1.124	Turn right	33°56'060"S150°52'043"E	Stay on Hume Motorway	
201.5	WP1.125	Bridge	33°57'008"S150°52'043"E	Pass over	130
202	WP1.126	Bridge	33°57'025"S150°52'044"E	Pass over	260
202.5	WP1.126	Bridge	33°58'003"S150°52'036"E	Pass under	
203	WP1.127	Bridge	33°58'024"S150°52'032"E	Pass under	

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
204	WP1.128	Bridge	33°59'012"S150°52'025"E	Pass over	50
206	WP1.129	Bridge	33°59'021"S150°51'025"E	Pass over	30
206.5	WP1.130	Bridge	34°0'011"S150°51'014"E	Pass under	
208	WP1.131	Bridge	34°0'049"S150°50'022"E	Pass under	
210	WP1.132	Bridge	34°1'029"S150°49'043"E	Pass under	
211	WP1.133	Bridge	34°1'043"S150°49'031"E	Pass under	
212	WP1.134	Bridge	34°2'004"S150°49'031"E	Pass under	
212.5	WP1.135	Bridge	34°2'049"S150°49'033"E	Pass under	
214	WP1.136	Bridge	34°3'013"S150°49'019"E	Pass under	
215	WP1.137	Bridge	34°3'044"S150°48'031"E	Pass over	60
217	WP1.138	Bridge	34°5'001"S150°47'008"E	Pass under	
220	WP1.139	Bridge	34°5'021"S150°46'015"E	Pass over	85
221	WP1.140	Bridge	34°6'025"S150°46'007"E	Pass under	
223	WP1.141	Bridge	34°7'015"S150°45'045"E	Pass under	
226	WP1.142	Bridge	34°8'024"S150°45'019"E	Pass over	195
227	WP1.143	Bridge	34°10'058"S150°44'036"E	Pass under	
232	WP1.144	Bridge	34°11'033"S150°43'016"E	Pass under	
234	WP1.145	Bridge	34°11'051"S150°42'048"E	Pass over	265
234.5	WP1.146	Bridge	34°12'041"S150°42'031"E	Pass under	
237	WP1.147	Bridge	34°12'054"S150°41'027"E	Pass over	260
237.5	WP1.148	Bridge	34°12'054"S150°41'013"E	Pass under	
240	WP1.149	Bridge	34°13'047"S150°40'009"E	Pass under	
240.5	MP 1&4	Merging Point	34°13'059"S150°39'054"E	Merge with Route from Pass over Port Kembla	

7.4 Picture report

Picture report illustrates only critical or typical obstacles on route.

**Yellow arrows indicate driving direction.*

Distance	0.0 km	WP1.1	Coordinates	32°54'003"S151°46'011"E
Newcastle – Port gate				
 				

Distance	0.07 km	WP1.3	Coordinates	32°54'002"S151°45'013"E
Turn right				
 				

Distance	0.09 km	WP1.4	Coordinates	32°54'002"S151°45'013"E
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Turn right



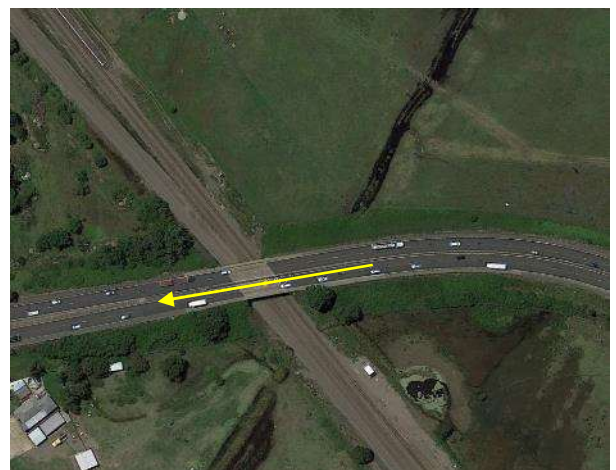
Distance	12.5 km	WP1.8	Coordinates	32°48'038"S151°41'004"E
-----------------	----------------	--------------	--------------------	--------------------------------

Typical bridge along the route to pass under



Distance	15 km	WP1.9	Coordinates	32°48'042"S151°40'018"E
-----------------	--------------	--------------	--------------------	--------------------------------

Typical bridge along the route to pass over



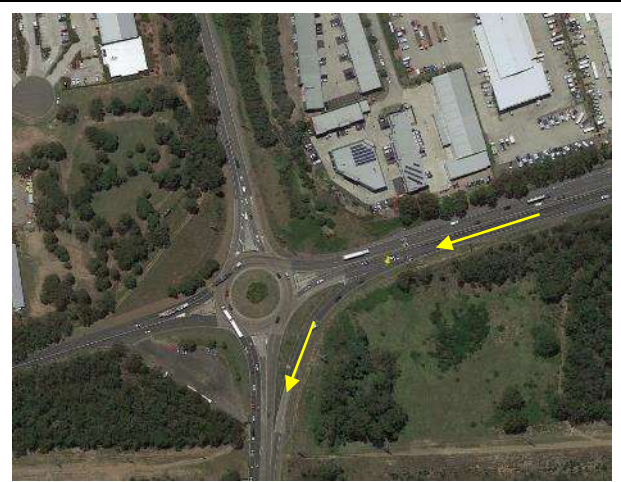
Distance	9,25 km	WP1.11	Coordinates	32°48'048"S151°38'058"E
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Turn left – Drive towards A1 Sydney / B68 Kurri Kurri



Distance	10,4 km	WP1.12	Coordinates	32°50'019"S151°38'013"E
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Roundabout – Turn left onto Pacific Motorway / M1 Wallsend Sydney

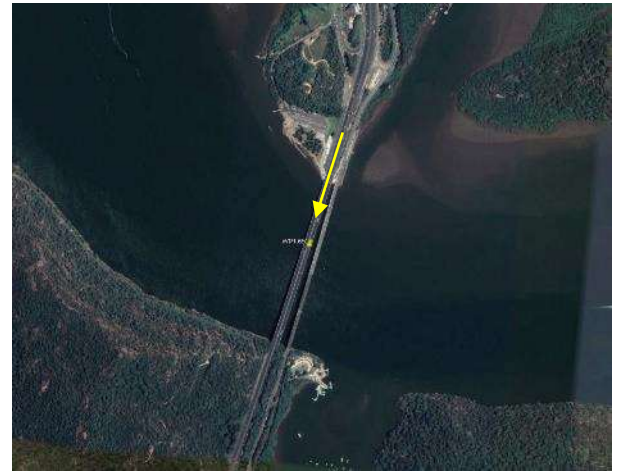


Distance	107 km	WP1.60	Coordinates	33°25'039"S151°15'014"E
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Bridge (Mooney Mooney Bridge) – Span: 470m



Distance	123 km	WP1.65	Coordinates	33°33'027"S151°11'060"E
Bridge (Hawkesbury River) – Span: 620m				



Distance	136 km	WP1.74	Coordinates	33°45'033"S151°7'004"E
Turn left (subject to Tunnel dimensions)				



Distance	193 km	WP1.124	Coordinates	33°56'060"S150°52'043"E
Turn right – Stay on Hume Motorway towards Campbelltown, Canberra				



8.2 Elevation profiles

Along the route to Dinawan site the max. inclination was determined with 4.8%. Along the route to Wagga Wagga site the max. inclination was determined with 4.9%. Subject to the actual transport configuration, the transformer might need further prime mover.



Figure 9 - Elevation profile / Geelong - Dinawan site

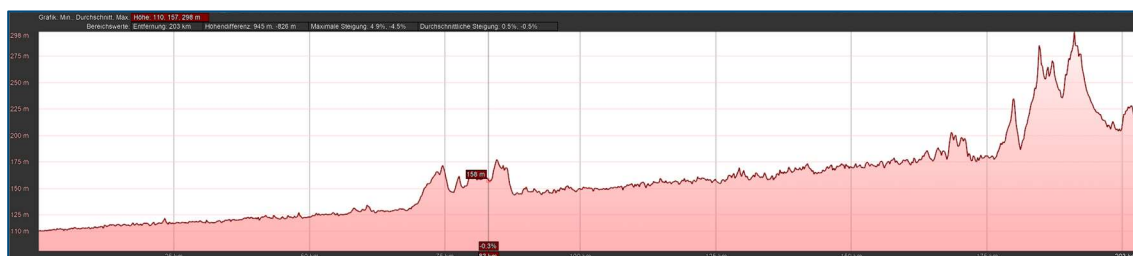


Figure 10 - Elevation profile / Dinawan site - Wagga Wagga site

8.3 Table of occurrences

Table 5 - Table of occurrences / Geelong – Dinawan & Wagga Wagga site

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
0	WP2.1	Exit Port on Seabeach Parade	38°5'022"S144°22'031"E		
0,6	WP2.2	Turn Left to St Georges Rd	38°5'010"S144°22'029"E		
1	WP2.3	Turn Right to Station St, Roundabout	38°5'005"S144°22'007"E		
1.5	WP2.4	Roundabout	38°4'034"S144°22'010"E		
2	WP2.5	Cross intersection to Purnell Rd	38°4'034"S144°22'010"E		
3	WP2.6	Turn Right to Bacchus Marsh (Geelong) Rd	38°4'027"S144°21'036"E		
3.5	WP2.7	Roundabout	38°4'001"S144°21'036"E		
5	WP2.8	Bridge	38°3'034"S144°21'034"E	Pass over	50
6	WP2.9	Roundabout	38°2'053"S144°21'034"E		
49	WP2.10	Railway	37°41'013"S144°26'003"E		
49.5	WP2.11	Roundabout	37°41'013"S144°26'003"E		

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
50.5	WP2.12	Roundabout	37°40'032"S144°26'010"E		
51	WP2.13	Roundabout	37°40'027"S144°26'013"E		
52	WP2.14	Bridge	37°39'049"S144°26'023"E	Pass over	100
53	WP2.15	Roundabout	37°39'032"S144°26'035"E		
70,6	WP2.16	Follow Grisborne Rd	37°30'050"S144°28'055"E		
81,4	WP2.17	Hamilton St	37°29'013"S144°34'045"E		
82,7	WP2.18	Follow Melbourne Rd, Roundabout	37°29'016"S144°35'030"E		
84,3	WP2.19	Turn Left, Enter Calder (Alternative) Fwy	37°29'035"S144°36'030"E		
85.5	WP2.20	Bridge	37°29'015"S144°36'031"E	Pass over	250
86	WP2.21	Bridge	37°28'055"S144°36'020"E	Pass under	
87	WP2.22	Bridge	37°28'024"S144°35'039"E	Pass over	60
89.5	WP2.23	Bridge	37°27'026"S144°34'044"E	Pass over	40
93	WP2.24	Bridge	37°26'008"S144°32'056"E	Pass over	60
94.5	WP2.25	Bridge	37°25'027"S144°32'038"E	Pass over	100
96	WP2.26	Bridge	37°24'052"S144°32'045"E	Pass under	
96.5	WP2.27	Bridge	37°24'039"S144°32'048"E	Pass over	100
98	WP2.28	Bridge	37°23'027"S144°32'049"E	Pass under	
99	WP2.29	Bridge	37°22'055"S144°33'005"E	Pass over	130
100	WP2.30	Bridge	37°22'046"S144°33'006"E	Pass over	50
101	WP2.31	Bridge	37°21'043"S144°32'060"E	Pass under	
102	WP2.32	Bridge	37°20'060"S144°33'008"E	Pass under, Alternative: Exit and Enter	
103	WP2.33	Bridge	37°20'048"S144°33'010"E	Pass over	30
108	WP2.34	Bridge	37°19'014"S144°31'042"E	Pass under	
111	WP2.35	Bridge	37°17'039"S144°30'022"E	Pass under, Alternative: Exit and Enter	
112	WP2.36	Bridge	37°17'025"S144°30'004"E	Pass over	50
113	WP2.37	Bridge	37°17'013"S144°29'054"E	Pass over	80
115	WP2.38	Bridge	37°16'013"S144°28'047"E	Pass over	70
116	WP2.39	Bridge	37°15'026"S144°28'024"E	Pass under	
118	WP2.40	Bridge	37°14'031"S144°27'055"E	Pass under, Alternative: Exit and Enter	
123	WP2.41	Bridge	37°13'021"S144°25'013"E	Pass over	80

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
127	WP2.42	Bridge	37°11'032"S144°24'024"E	Pass under, Alternative: Exit and Enter	
131	WP2.43	Bridge	37°9'025"S144°24'003"E	Pass over	40
133	WP2.44	Bridge	37°8'014"S144°23'027"E	Pass over	60
137	WP2.45	Bridge	37°6'030"S144°22'033"E	Pass over	120
141	WP2.46	Bridge	37°5'033"S144°19'052"E	Pass under	
147	WP2.47	Bridge	37°2'059"S144°17'037"E	Pass over	100
147.5	WP2.48	Bridge	37°2'050"S144°17'016"E	Pass over	50
151	WP2.49	Bridge	37°1'007"S144°15'053"E	Pass over	50
153	WP2.50	Bridge	37°0'048"S144°15'020"E	Pass over	50
154	WP2.51	Bridge	37°0'035"S144°15'008"E	Pass under	
154.5	WP2.52	Bridge	37°0'026"S144°15'004"E	Pass under	
155	WP2.53	Bridge	37°0'013"S144°15'001"E	Pass under	
155.5	WP2.54	Bridge	37°0'006"S144°15'000"E	Pass over	70
156	WP2.55	Bridge	36°59'010"S144°15'019"E	Pass over	30
163	WP2.56	Bridge	36°55'028"S144°13'026"E	Pass over	30
168	WP2.57	Overhead bridge	36°53'8.35"S144°12'44.57"E	Pass under	
169	WP2.58	Overhead bridge	36°52'58.98"S144°12'43.43"E	Pass under	
171	WP2.59	Overhead wire	36°51'29.32"S144°13'26.57"E	Pass under	
172	WP2.60	Overhead wire	36°51'1.95"S 144°13'43.63"E	Pass under	
173.5	WP2.61	Overhead wire	36°50'15.64"S144°14'12.85"E		
176	WP2.62	Overhead wire	36°49'12.58"S144°14'15.79"E		
184	WP2.63	Bendigo, City	36°45'34.58"S144°16'42.42"E	overhead clearance 4.3m, because of tram power wires	
195	WP2.64.1	Huntly, City	36°39'57.40"S144°19'55.85"E	overhead wires, clearance tbc.	
198	WP2.64.2	Turn right, stay on Midland HWY	36°39'0.01"S144°21'4.13"E		
213	WP2.65	Goornog, City	36°36'53.39"S144°30'22.18"E	overhead wires, clearance tbc.	
229	WP2.66	Turn right, stay on Midland HWY	36°29'48.44"S144°36'25.13"E		
237	WP2.67	Bridge	36°29'10.50"S144°40'53.00"E	Pass over	30
250	WP2.68	Bridge	36°27'25.40"S144°47'19.96"E	Pass over	35

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
263	WP2.69	Bridge	36°27'10.62"S 144°56'43.55"E	Pass over	
263.5	WP2.70	Bridge	36°27'9.93"S 144°56'48.53"E	Pass over	15
264	WP2.71	Bridge	36°27'6.42"S 144°57'13.06"E	Pass over	
265	WP2.72	Bridge	36°27'2.95"S 144°57'37.62"E	Pass over	
267	WP2.73	Stanhope, City	36°26'49.77"S 144°59'11.83"E	overhead wires, clearance tbc.	
271	WP2.74	Bridge	36°26'29.86"S 145° 1'34.33"E	Pass over	20
278	WP2.75	Bridge	36°25'49.01"S 145°6'31.22"E	Pass over	22
281	WP2.76	Bridge	36°25'34.60"S 145° 8'8.05"E	Pass over	
283	WP2.77	Bridge	36°25'20.49"S 145° 9'48.18"E	Pass over	
286	WP2.78	Railway crossing	36°25'6.44"S 145°11'31.85"E		
286.5	WP2.79	Bridge	36°25'3.49"S 145°11'52.05"E	Pass over	25
289	WP2.80	Roundabout	36°24'50.59"S 145°13'22.62"E		
291	WP2.81	Bridge	36°24'36.39"S 145°15'2.96"E	Pass over	15
294	WP2.82	Bridge	36°24'17.86"S 145°17'12.82"E	Pass over	
298	WP2.83	Bridge	36°23'54.44"S 145°19'53.10"E	Pass over	
301	WP2.84	Mooroopna, City	36°23'42.14"S 145°21'20.63"E	overhead wires, clearance tbc.	
305	WP2.85	Turn left on Fryers St.	36°22'45.61"S 145°23'44.93"E		
306	WP2.86	Turn left on Goulburn Valley HWY	36°22'44.26"S 145°23'59.21"E		
307	WP2.87	Shepperton, City	36°21'59.99"S 145°24'8.65"E	overhead wires, clearance tbc.	
310	WP2.88	Turn right, stay on Hwy	36°20'12.94"S 145°24'7.93"E		
323	WP2.89	Bridge	36°13'38.51"S 145°25'54.55"E	Pass over	
327	WP2.90	Bridge	36°10'54.25"S 145°25'54.53"E	Pass over	
331	WP2.91	Wunghnu, City	36° 9'18.44"S 145°25'54.43"E	overhead wires, clearance tbc.	
350	WP2.92	Bridge	35°58'31.03"S 145°25'54.46"E	Pass over	
353	WP2.93	Bridge	35°57'0.40"S 145°25'54.42"E	Pass over	
355	WP2.94	Turn right on Murray Valley Hwy	35°55'31.47"S 145°25'54.20"E		
360	WP2.95	Strathmerton, City	35°55'31.41"S 145°28'33.83"E	overhead wires, clearance tbc.	

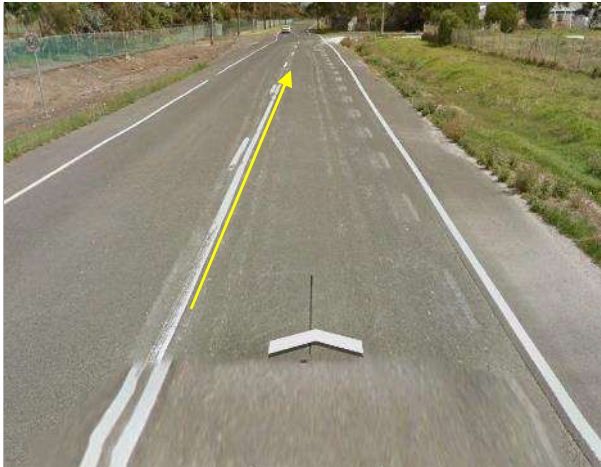
Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
366	WP2.96	Bridge	35°55'31.64"S 145°32'36.15"E	Pass over	
368	WP2.97	Yarroweyah, City	35°55'31.60"S 145°33'34.37"E	overhead wires, clearance tbc.	
370	WP2.98	Bridge	35°55'31.78"S 145°35'0.75"E	Pass over	
370.5	WP2.99	Turn left on Goulburn Valley Hwy	35°55'31.64"S 145°35'22.27"E		
373	WP2.100	Bridge	35°54'29.18"S 145°34'47.29"E		
383	WP2.101	Bridge	35°49'39.70"S 145°33'5.92"E	Pass over	15
384	WP2.102	Bridge	35°49'8.14"S 145°33'22.50"E	Pass over	90
384.5	WP2.103	Bridge	35°48'48.29"S 145°33'31.65"E	Pass over	195
385	WP2.104	Roundabout, further on Newell Hwy	35°48'36.08"S 145°33'33.25"E		
389	WP2.105	Bridge	35°46'35.28"S 145°33'25.54"E	Pass over	
394	WP2.106	Bridge	35°44'10.54"S 145°31'53.41"E	Pass over	
395	WP2.107	Bridge	35°43'26.47"S 145°31'56.35"E	Pass over	
398	WP2.108	Bridge	35°42'7.71"S 145°32'32.74"E	Pass over	
401	WP2.109	Bridge	35°40'30.04"S 145°33'24.22"E	Pass over	
406	WP2.110	Finley, City	35°38'22.49"S 145°34'45.24"E	overhead wires, clearance tbc.	
406.5	WP2.111	Bridge	35°37'55.82"S 145°34'53.56"E	Pass over	36
409	WP2.112	Bridge	35°36'40.83"S 145°35'38.50"E	Pass over	
422	WP2.113	Bridge	35°30'26.78"S 145°38'59.77"E	Pass over	
439	WP2.114	Bridge	35°21'52.72"S 145°43'7.71"E	Pass over	
440.5	WP2.115	Turn left, stay on Hwy	35°21'20.05"S 145°43'17.77"E		
441.5	WP2.116	Jerilderie, City	35°21'22.94"S 145°43'45.55"E	overhead wires, clearance tbc.	
443	WP2.117	Bridge	35°21'26.70"S 145°44'45.97"E	Pass over	52
456	WP2.118	Turn left onto Kidman Way	35°15'5.60"S 145°48'22.39"E	Mergpoint with Port Kembla-Wagga Wagga site route	
468	WP2.119	Bridge	35° 9'16.83"S 145°46'43.21"E	Pass over	
469	WP2.120.1	Bridge	35° 8'53.73"S 145°46'21.79"E	Pass over	58
479	WP2.120.2	Entrance Dinawan site	35° 3'31.07"S 145°47'28.81"E	End of Route	

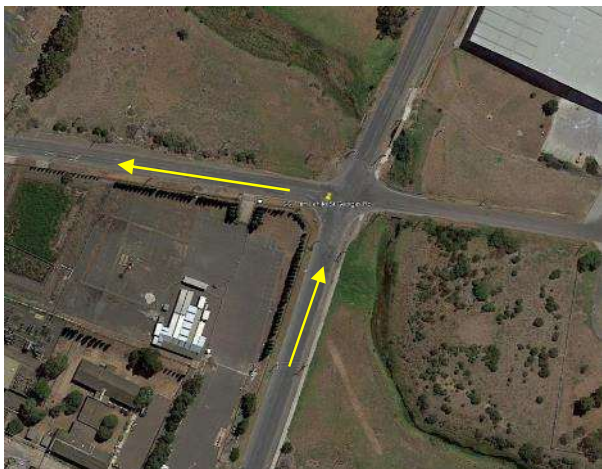
Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
456/ 1	WP2.121	Mergepoint, stay on Newell Hwy	35°15'5.13"S 145°48'23.10"E	Mergpoint with Route to Wagga Wagga site	
462	WP2.122	Bridge	35° 9'2.67"S 146° 2'23.44"E	Pass over	
517	WP2.123	Bridge	34°56'25.92"S 146°18'4.73"E	Pass over	38
546	WP2.124	Turn right, stay on Newell Hwy	34°45'45.76"S 146°32'5.88"E		
547	WP2.125	Turn right onto Sturt Hwy	34°45'45.03"S 146°32'36.12"E		
554	WP2.126	Bridge	34°48'40.45"S 146°34'51.15"E	Pass over	50
567	WP2.127	Bridge	34°54'52.33"S 146°38'4.81"E	Pass over	
599	WP2.128	Bridge	35° 1'11.20"S 146°55'45.93"E	Pass over	50
637	WP2.129	Turn right onto Olympic Hwy	35° 7'19.23"S 147°19'5.73"E		
640	WP2.130	Bridge	35° 8'45.50"S 147°18'38.53"E	Pass over	150
645	WP2.131	Turn left onto Dunns Rd	35°10'20.95"S 147°16'32.91"E		
652	WP2.132	Turn left onto Plumpton Rd	35°10'59.19"S 147°21'26.45"E		
653	WP2.133	Turn right onto Gregadoo Rd	35°10'40.66"S 147°21'30.50"E		
657	WP2.134	Turn right onto Mitchell Rd	35°10'59.22"S 147°23'57.27"E		
658	WP2.135	Turn Right onto Ashford Rd.	35°11'45.80"S 147°23'50.44"E		
659	WP2.136	Turn right onto Wagga Wagga site	35°12'1.29"S 147°23'45.32"E	End of Route	

8.4 Picture report

Picture report illustrates only critical or typical obstacles on route.

***Yellow arrows indicate driving direction.**

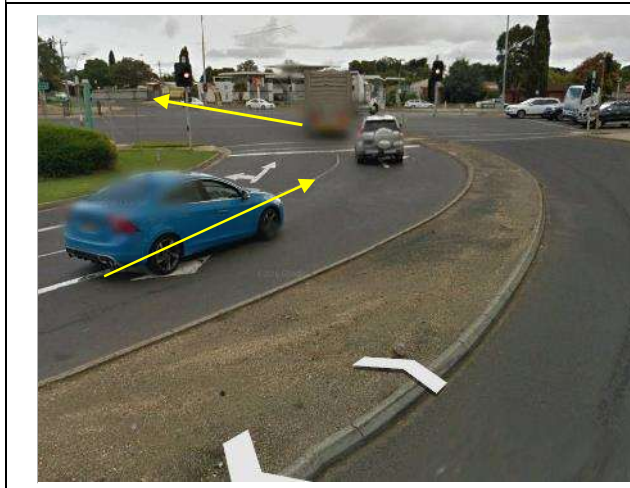
Distance	0.0 km	WP2.1	Coordinates	38°5'022"S144°22'031"E
Geelong Port Exit				
				

Distance	0,6 km	WP2.2	Coordinates	38°5'010"S144°22'029"E
Turn left onto St Georges Rd				
				

Distance	1,0 km	WP2.3	Coordinates	38°5'005"S144°22'007"E
Turn right onto Station St, Roundabout				



Distance	2,0 km	WP2.5	Coordinates	38°4'034"S144°22'010"E
Cross intersection to Purnell Rd				



Distance	3,1 km	WP2.6	Coordinates	38°4'027"S144°21'036"E
Turn right onto Bacchus Marsh (Geelong) Rd				



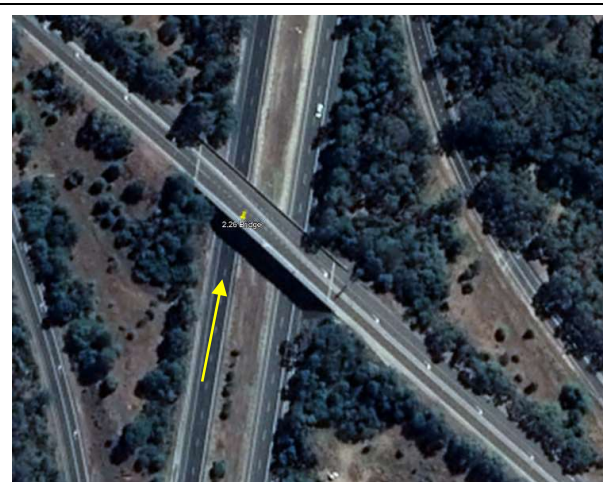
Distance	49.5 km	WP2.11	Coordinates	37°41'013"S144°26'003"E
Typical Roundabout and Railroad crossing along route.				



Distance	84,3 km	WP2.19	Coordinates	37°29'035"S144°36'030"E
Turn left onto Calder (Alternative) Fwy				



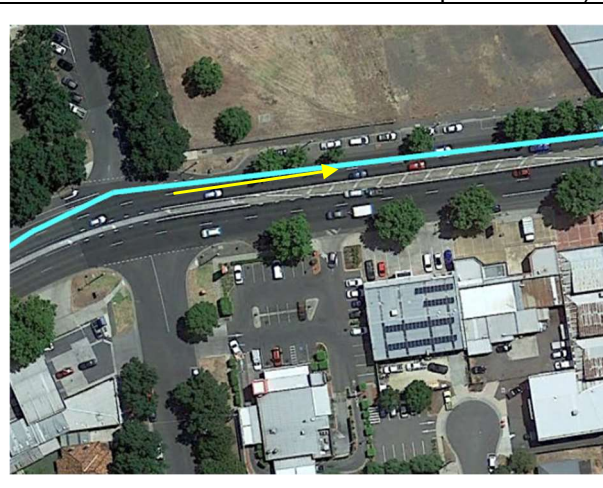
Distance	96 km	WP2.26	Coordinates	37°24'052"S144°32'045"E
Overhead bridge (clearance tbc.)				



Distance	99 km	WP2.29	Coordinates	37°22'055"S144°33'005"E
Typical Bridge along route to pass over.				



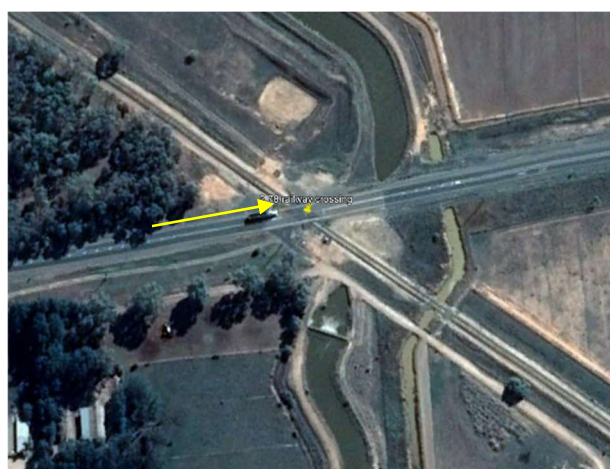
Distance	184km	WP2.63	Coordinates	36°45'34.58"S144°16'42.42"E
Typical overhead wires in cities along the route (Overhead clearance 4.3m because of tram power wires)				



Distance	229km	WP2.66	Coordinates	36°29'48.44"S144°36'25.13"E
Turn right and stay on Midland Hwy				



Distance	286km	WP2.78	Coordinates	36°25'6.44"S 145°11'31.85"E
Railway crossing				



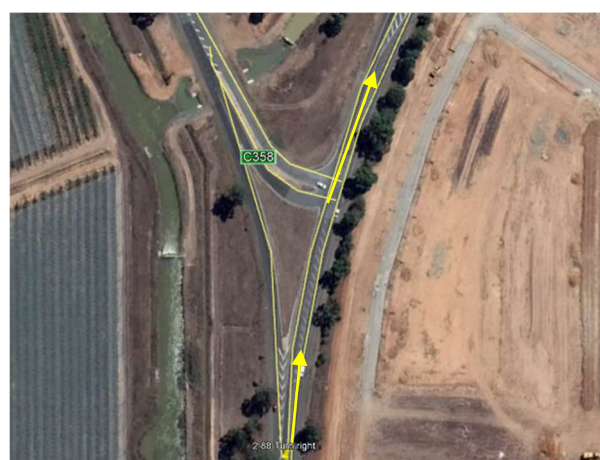
Distance	305km	WP2.85	Coordinates	36°22'45.61"S 145°23'44.93"E
Turn left onto Freyer St.				



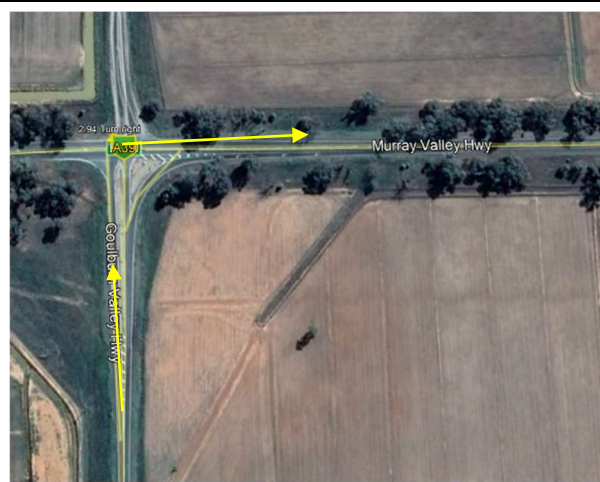
Distance	306km	WP2.86	Coordinates	36°22'44.26"S 145°23'59.21"E
Turn left onto Goulburn Valley Hwy				



Distance	310km	WP2.88	Coordinates	36°20'12.94"S 145°24'7.93"E
Turn right and stay on Goulburn Valley Hwy				



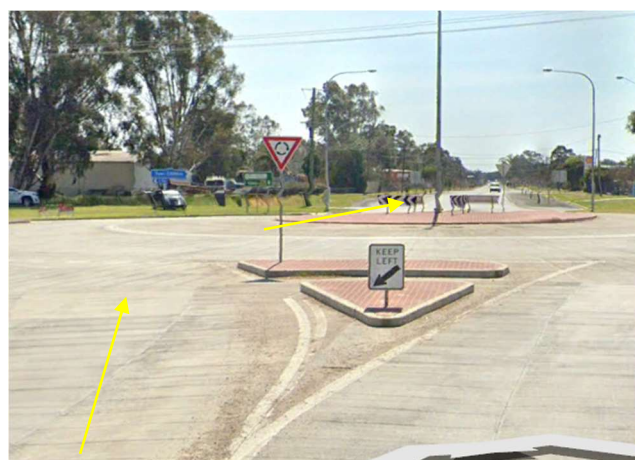
Distance	355km	WP2.94	Coordinates	35°55'31.47"S 145°25'54.20"E
Turn right onto Murray Valley Hwy				



Distance	355km	WP2.99	Coordinates	35°55'31.64"S 145°35'22.27"E
Turn left onto Goulburn Valley Hwy				



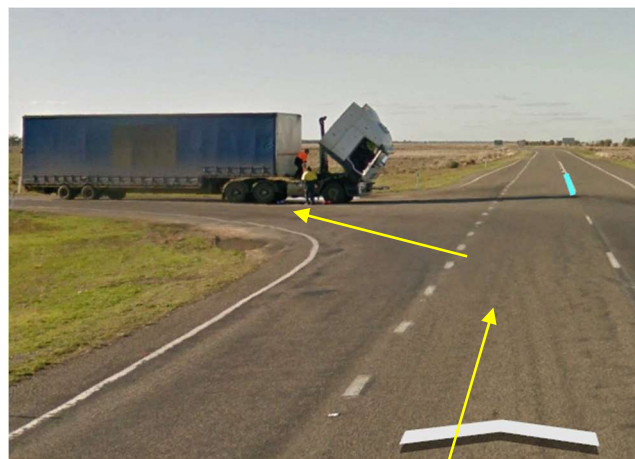
Distance	385km	WP2.104	Coordinates	35°48'36.08"S 145°33'33.25"E
Roundabout, leave at 2 nd exit				



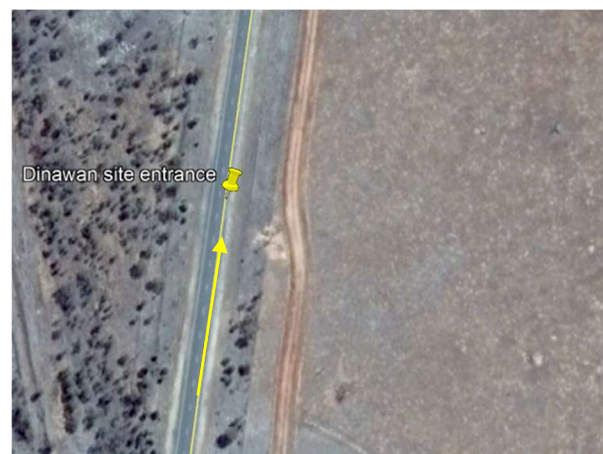
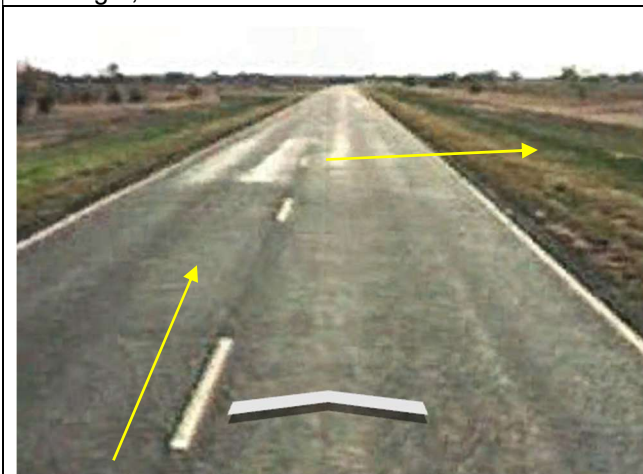
Distance	440.5km	WP2.115	Coordinates	35°21'20.05"S 145°43'17.77"E
Turn right onto Newell Hwy				



Distance	456km	WP2.118	Coordinates	35°15'5.60"S 145°48'22.39"E
Turn left onto Kidman Way				



Distance	479km	WP2.120.2	Coordinates	35° 3'31.22"S145°47'28.81"E
Turn right, Dinawan site entrance				



Distance	456km	WP2.121	Coordinates	35° 3'31.22"S145°47'28.81"E
Turn right, Dinawan site entrance				



Distance	546km	WP2.124	Coordinates	34°45'45.76"S 146°32'5.88"E
Turn right, stay on Hwy				



Distance	547km	WP2.125	Coordinates	34°45'45.03"S 146°32'36.12"E
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Turn right onto Sturt Hwy



Distance	637km	WP2.129	Coordinates	35° 7'19.23"S 147°19'5.73"E
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Turn right onto Olympic Hwy



Distance	645km	WP2.131	Coordinates	35°10'20.95"S 147°16'32.91"E
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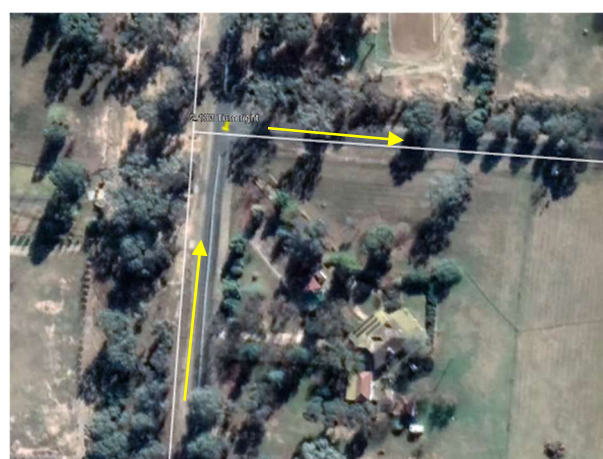
Turn left onto Dunns Rd



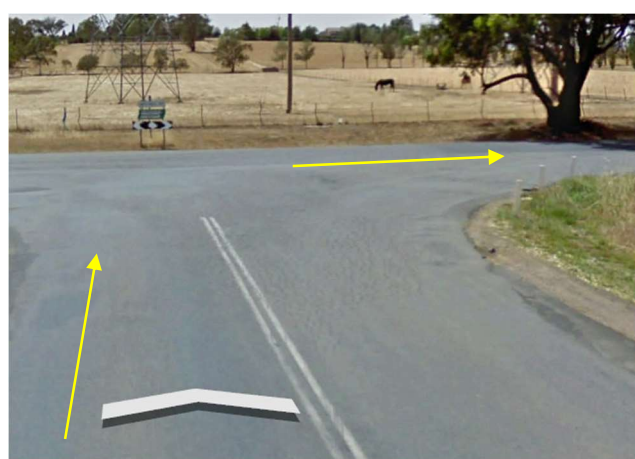
Distance	652km	WP2.132	Coordinates	35°10'59.19"S 147°21'26.45"E
Turn left onto Plumpton Rd				



Distance	653km	WP2.133	Coordinates	35°10'40.66"S 147°21'30.50"E
Turn right onto Gregadoo Rd				



Distance	657km	WP2.134	Coordinates	35°10'59.22"S 147°23'57.27"E
Turn right onto Mitchell Rd.				



Distance	658km	2.135	Coordinates	35°11'45.80"S 147°23'50.44"E
Turn right onto Ashford Rd				



Distance	659km	2.136	Coordinates	35°12'1.29"S 147°23'45.32"E
Turn right, Wagg Wagga site entrance				



8.5 Conclusion Route 2 Geelong – Dinawan & Wagga Wagga site

The route is generally feasible in view of overall cargo envelope, however will be subject to final permitting conditions and final transport solution. Further investigation will be required into determining the final transport configuration, especial regarding the transport height and the overhead bridge clearance. Performing a full physical route survey of the proposed routes is mandatory to verify the findings within this report and proposed routes.

9.3 Table of occurrences

Table 6 - Table of occurrences / Adelaide – Dinawan site

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
0	WP3.1	3.1 Port Exit	34°50'5.82"S138°30'051"E		
0,5	WP3.2	3.2 Turn onto Port Motorway	34°50'16.24"S138°31'021"E		
2,75	WP3.3	3.3 Exit Port Motorway	34°50'2.25"S138°32'039"E		
3	WP3.4	3.4 Enter Port Motorway	34°50'1.34"S138°33'002"E		
4.5	WP3.5	3.5 Bridge	34°49'58.39"S138°33'046"E	Pass under	
8,8	WP3.6	3.6 Enter Port Wakefield Rd	34°48'50.87"S138°35'049"E		
20,8	WP3.7	3.7 Enter Northern Expressway	34°42'36.13"S138°34'032"E		
21	WP3.8	3.8 Bridge	34°42'18.21"S138°34'024"E	Alternative: Exit Wakefield Rd using incorrect entry lane earlier	
23	WP3.9	3.9 Bridge	34°41'31.35"S138°35'016"E	Pass over	50
25	WP3.10	3.10 Bridge	34°41'4.63"S138°36'002"E	Pass under	
26	WP3.11	3.11 Bridge	34°40'44.82"S138°37'025"E	Pass under, Alternative Exit and Enter	
31.5	WP3.12	3.12 Bridge	34°39'46.20"S138°39'024"E	Pass under, Alternative Exit and Enter	
34.5	WP3.13	3.13 Bridge	34°38'010"S138°40'021"E	Pass under, Alternative Exit and Enter	
37	WP3.14	3.14 Bridge	34°36'057"S138°40'051"E	Pass over	80
37.5	WP3.15	3.15 Bridge	34°36'052"S138°40'055"E	Pass over	70
38	WP3.16	3.16 Bridge	34°36'034"S138°41'015"E	Pass over	50
41	WP3.17	3.17 Bridge	34°35'057"S138°43'037"E	Pass over	50
44	WP3.18	3.18 Bridge	34°34'047"S138°44'015"E	Pass under	
45,2	WP3.19	3.19 Enter Main North Rd	34°34'023"S138°44'047"E		
85,7	WP3.20	3.20 Enter Barrier Highway	34°13'051"S138°44'029"E		
154	WP3.21	3.21 Turn Left, Barrier Highway	33°40'052"S138°56'028"E		
156	WP3.22	3.22 Turn Left to Copperhouse Rd (Bypass)	33°40'035"S138°55'058"E	Rest Spot on West Street	

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
158	WP3.23	3.23 Return to Barrier Highway	33°40'004"S138°55'014"E		
333	WP3.24	3.24 Example of smaller bridges along Barrier Highway	32°29'044"S139°46'011"E		
355	WP3.25	3.25 Rest Spot	32°25'053"S139°59'028"E	Rest Spot	
505,2	WP3.26	3.26 Turn Right to Creedon St	31°57'055"S141°26'001"E		
506	WP3.27	3.27 Turn Left to Ryan St	31°58'028"S141°26'031"E		
507	WP3.28	3.28 Turn Right to Gypsum St	31°58'015"S141°26'057"E		
508	WP3.29	3.29 Bridge	31°58'025"S141°27'007"E	Pass over	50
508.5	WP3.30	3.30 Roundabout	31°58'042"S141°27'028"E		
509	WP3.31	3.31 Turn Right, Roundabout	31°58'053"S141°27'037"E		
702	WP3.32	3.32 Bridge	33°34'047"S141°45'004"E	Pass over	150
765	WP3.33	3.33 Turn Left	34°6'023"S141°55'009"E		
766	WP3.34	3.34 Rest Point, Turn Right	34°6'015"S141°55'032"E		
769	WP3.35	3.35 Bridge	34°6'027"S141°55'032"E	Pass over	120
773	WP3.36	3.36 Turn left	34°6'035"S141°59'018"E		
776	WP3.37	3.37 Bridge	34°6'011"S142°0'001"E	Pass over	100
798	WP3.38	Roundabout	34°10'15.14"S142°10'51.40"E		
798.5	WP3.39	Buronga, City	34°10'14.76"S142°11'0.24"E	overhead wires, clearance tbc.	
802	WP3.40	Gol Gol, City	34°10'48.44"S142°13'21.46"E	overhead wires, clearance tbc.	
871	WP3.41.1	Turn left onto Morris Rd	34°34'9.60"S 142°43'50.87"E		
871.5	WP3.41.2	Turn right onto Bertram Rd	34°33'55.24"S142°43'53.27"E		
872	WP341.3	Turn left ont Sturt Hwy	34°34'0.94"S 142°44'42.72"E		
951	WP3.42	Balranald Shire, City	34°38'19.44"S143°33'43.34"E	overhead wires, clearance tbc.	
951.5	WP3.43	Turn right, stay on Hwy	34°38'35.17"S 143°34'3.96"E		
952	WP3.44	Bridge	34°38'47.09"S143°33'56.47"E	Pass over	150
961	WP3.45	Bridge	34°41'58.32"S143°35'25.63"E	Pass over	50
1023	WP3.46	Bridge	34°38'27.90"S144°15'26.09"E	Pass over	
1026	WP3.47	Bridge	34°37'57.32"S144°17'30.82"E	Pass over	
1041	WP3.48	Bridge	34°36'31.42"S144°26'28.85"E	Pass over	

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
1041	WP3.49	Bridge	34°36'32.17"S144°26'35.20"E		
1047	WP3.50	Bridge	34°37'1.56"S144°30'50.27"E		
1072	WP3.51	Bridge	34°31'43.40"S144°44'42.26"E		
1072	WP3.52	Bridge	34°31'38.53"S144°44'50.98"E		
1079	WP3.53	Bridge	34°31'12.09"S144°49'30.02"E		
1079.5	WP3.54	Bridge	34°31'14.46"S144°50'2.23"E		
1080	WP3.55	Roundabout, leave at 2 nd exit onto Moama St	34°31'14.25"S144°50'27.28"E		
1080.5	WP3.56	Hay South, City	34°31'13.32"S144°50'37.13"E		
1086	WP3.57	Bridge	34°31'6.57"S144°53'44.58"E		
1116	WP3.58	Bridge	34°30'35.12"S145°12'44.02"E		
1130	WP3.59	Bridge	34°28'33.25"S145°21'24.97"E		
1134	WP3.60	Bridge	34°28'20.27"S145°23'32.51"E		
1194	WP3.61	Turn right onto Kidman Way	34°35'36.17"S145°59'28.79"E		
1251	WP3.62	Dinawan site entrance	35°3'31.20"S145°47'28.60"E	Mergepoint with route 2	

9.4 Picture report

Picture report illustrates only critical or typical obstacles on route.

***Yellow arrows indicate driving direction.**

Distance	0.0 km	WP3.1	Coordinates	34°50'5.82"S138°30'051"E
Adelaide Port Exit				
 				

Distance	0.5 km	WP3.2	Coordinates	34°50'16.24"S138°31'021"E
Turn left onto Port Motorway				
 				

Distance	8.8 km	WP3.6	Coordinates	34°48'50.87"S138°35'049"E
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Turn left onto Port Wakefield Rd towards A1 Paralowie, Waterloo Corner



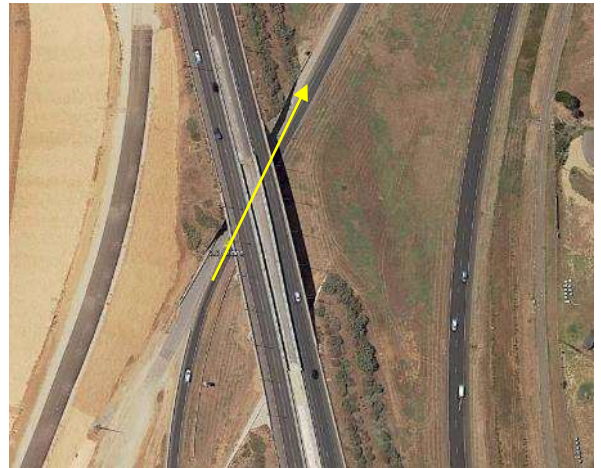
Distance	20.8 km	WP3.7	Coordinates	34°42'36.13"S138°34'032"E
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Turn left onto Northern Expressway



Distance	21 km	WP3.8	Coordinates	34°42'18.21"S138°34'024"E
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Typical Bridge along the route to pass under.



Distance	45.2 km	WP3.19	Coordinates	34°34'023"S138°44'047"E
Turn left onto Main North Rd towards B82 Gawler, Clare/Burra				



Distance	85.7 km	WP3.20	Coordinates	34°13'051"S138°44'029"E
Turn right onto Barrier Highway towards Riverton				



Distance	154 km	WP3.21	Coordinates	33°40'052"S138°56'028"E
Turn left onto Barrier Highway				



Distance	156 km	WP3.22	Coordinates	33°40'035"S138°55'058"E
Turn left onto Copperhouse Rd (Bypass)				



Distance	158 km	WP3.23	Coordinates	33°40'004"S138°55'014"E
Return onto Barrier Highway				



Distance	333 km	WP3.24	Coordinates	32°29'044"S139°46'011"E
Typical Bridge along the route to pass over.				



Distance	505,2 km	WP3.26	Coordinates	31°57'055"S141°26'001"E
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Turn right onto Creedon St



Distance	506 km	WP3.27	Coordinates	31°58'028"S141°26'031"E
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Turn left onto Ryan St

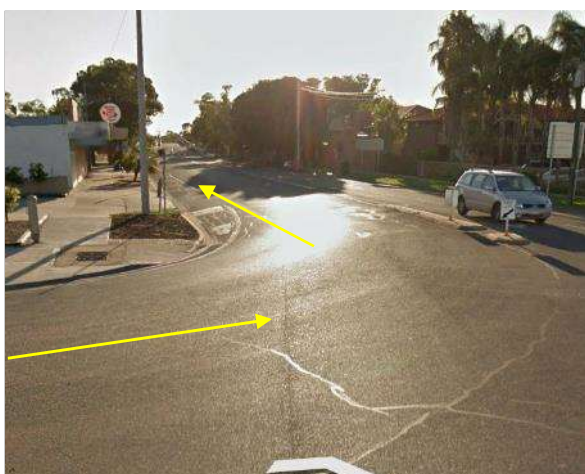


Distance	507 km	WP3.28	Coordinates	31°58'015"S141°26'057"E
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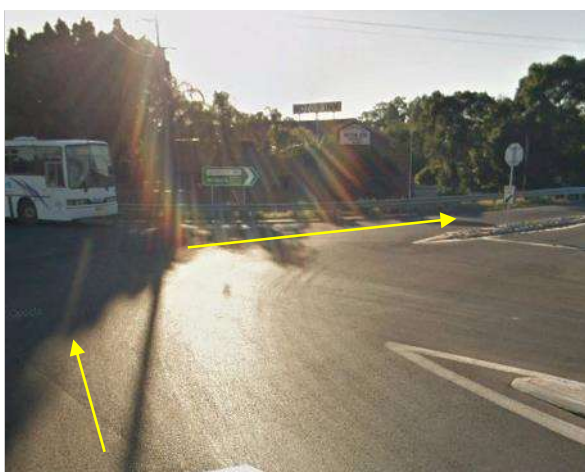
Turn right onto Gypsum St



Distance	765 km	WP3.33	Coordinates	34°6'023"S141°55'009"E
Turn left onto B79 towards Mildura, Euston				



Distance	766 km	WP3.34	Coordinates	34°6'015"S141°55'032"E
Turn right towards Mildura				



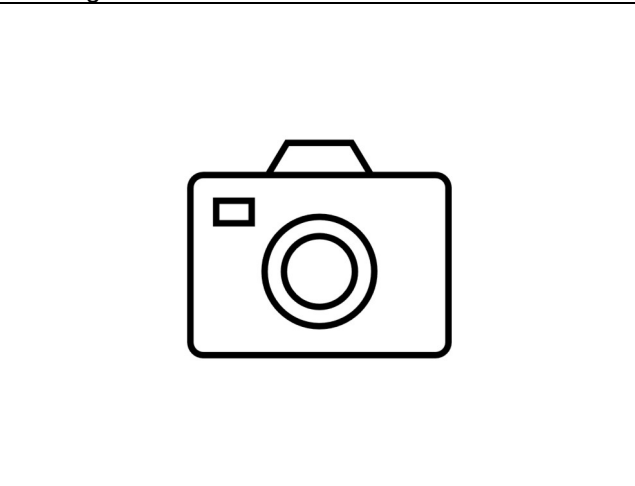
Distance	798 km	WP3.38	Coordinates	34°10'15.14"S142°10'51.40"E
Roundabout, leave at 1 st exit onto Sturt Hwy				



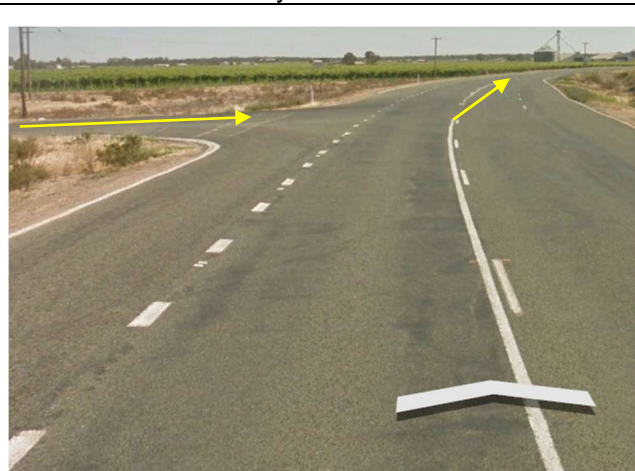
Distance	871 km	WP3.41.1	Coordinates	34°34'9.60"S 142°43'50.87"E
Turn left onto Morris Rd				



Distance	871.5 km	WP3.41.2	Coordinates	34°33'55.24"S 142°43'53.27"E
Turn right onto Bertram Rd				



Distance	872 km	WP3.41.3	Coordinates	34°34'0.94"S 142°44'42.72"E
Turn left onto Sturt Hwy				



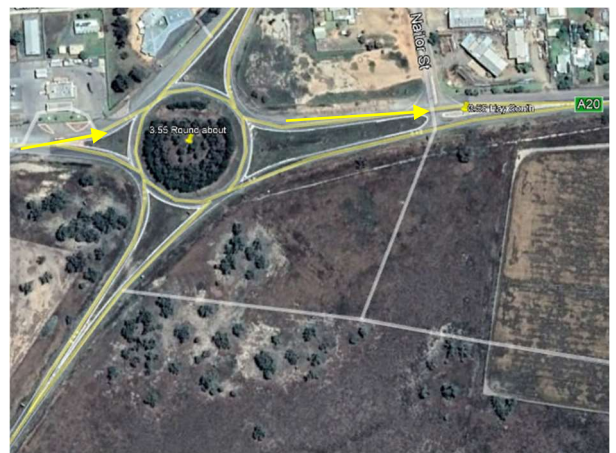
Distance	951 km	WP3.42	Coordinates	34°38'19.44"S143°33'43.34"E
Balranald Shire, Typical overhead wires in cities along the route				



Distance	951.5km	WP3.43	Coordinates	34°38'35.17"S 143°34'3.96"E
Turn right onto Stirt Hwy				



Distance	1080 km	WP3.55	Coordinates	34°31'14.25"S144°50'27.28"E
Roundabout leave at 2 nd exit onto Moama St				



Distance	1194 km	WP3.61	Coordinates	34°35'36.17"S145°59'28.79"E
Turn left onto Kidman Way				



Distance	1251 km	WP3.62	Coordinates	35°3'31.20"S145°47'28.60"E
Turn left, Dinawan site entrance & Mergepoint with route 2				



The route is merging with the route coming from Geelong port at the Dinawan site entrance. For further details of route up to Wagga Wagga site, please refer to Route 2 Geelong – Wagga Wagga site

9.5 Conclusion Route 3 Adelaide – Dinawan & Wagga Wagga site

The route is generally feasible in view of overall cargo envelope, however will be subject to final permitting conditions and final transport solution. Further investigation will be required into determining the final transport configuration, especial regarding the transport height and the overhead bridge clearance. Performing a full physical route survey of the proposed routes is mandatory to verify the findings within this report and proposed routes.

10. Port Kembla –Wagga Wagga site

10.1 Route Overview

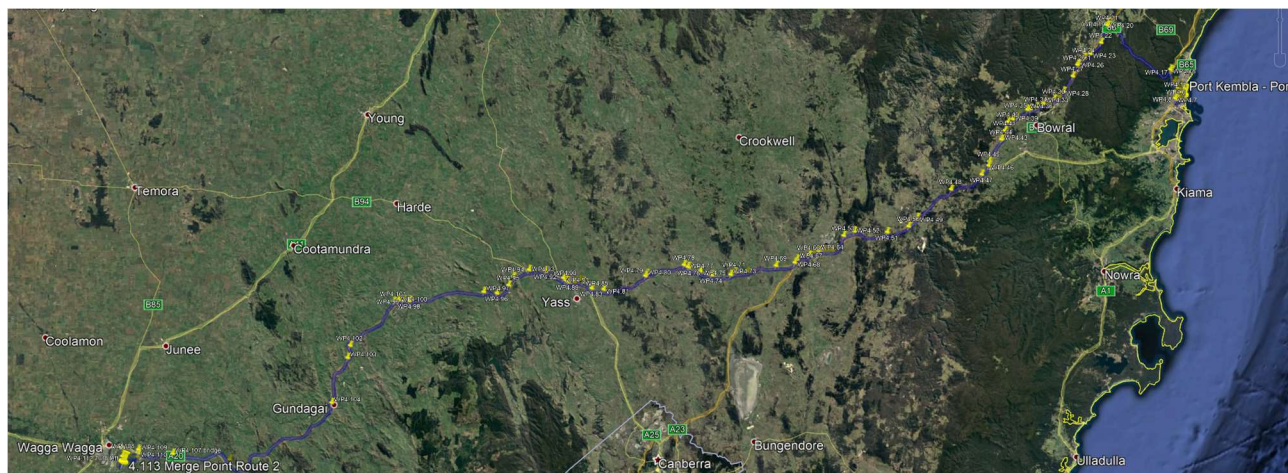


Figure 13 - Route overview / Port Kembla – Wagga Wagga site

Above figure is showing the route from port of Geelong towards the Mergpoint with Route 2. This Route has a total distance of 417km. For a detailed route overview, please refer to the provided .kml file.

10.2 Elevation profile

Along the route the max. inclination was determined with 9,1%. Subject to the actual transport configuration, the transformer might need further prime mover.

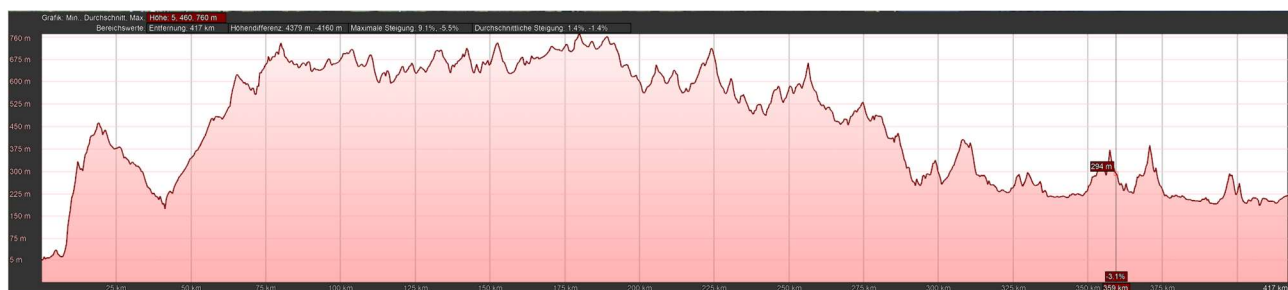


Figure 14 - Elevation profile / Port Kembla – Mergpoint Route 2

10.3 Table of occurrences

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
0	WP4.1	Port Gate	34°26'035"S150°53'014"E		
0.13	WP4.2	Turn left	34°26'033"S150°53'012"E	onto B65 / Springhill Rd	
0.5	WP4.3	Bridge	34°26'038"S150°52'050"E	Pass over	75
1	WP4.4	Bridge	34°26'041"S150°52'041"E	Pass over	35
1.2	WP4.5	Turn right	34°26'044"S150°52'039"E	onto Masters Rd / towards Figtrees, M1 Nowra, Sydney	
2	WP4.6	Bridge	34°26'037"S150°52'010"E	Pass over	35

Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
2.5	WP4.7	Bridge	34°26'028"S150°51'057"E	Pass over	70
3	WP4.8	Bridge	34°26'017"S150°52'001"E	Pass under	
3.5	WP4.9	Bridge	34°26'006"S150°52'008"E	Pass under	
4	WP4.10	Bridge	34°25'045"S150°52'004"E	Pass under	
4.5	WP4.11	Bridge	34°25'026"S150°52'009"E	Pass under	
5	WP4.11	Bridge	34°25'013"S150°52'020"E	Pass under	
6	WP4.12	Bridge	34°24'056"S150°52'052"E	Pass under	
6.5	WP4.13	Bridge	34°24'051"S150°52'056"E	Pass under	
7	WP4.14	Bridge	34°24'037"S150°52'058"E	Pass under	
7.5	WP4.15	Bridge	34°24'032"S150°52'059"E	Pass under	
9	WP4.16	Bridge	34°23'044"S150°52'001"E	Pass under	
13	WP4.17	Turn left	34°21'059"S150°51'032"E	onto Picton Rd / towards B88 Picton, M31 Hume MWY	
13.5	WP4.18	Bridge	34°21'050"S150°51'020"E	Pass over	35
39,2	WP4.19	Turn left	34°13'050"S150°40'006"E	onto Hume Motorway / towards M31 Goulburn	
40	WP4.20	Merging Pass overint	34°14'001"S150°39'059"E	merge with route from Newcastle	
41	WP4.21	Bridge	34°14'018"S150°39'046"E	Pass over	310
47	WP4.22	Bridge	34°16'055"S150°38'018"E	Pass over	10
51.5	WP4.23	Bridge	34°18'035"S150°36'007"E	Pass under	
53.5	WP4.24	Bridge	34°19'011"S150°34'051"E	Pass over	75
54	WP4.25	Bridge	34°19'028"S150°34'026"E	Pass over	20
56	WP4.26	Bridge	34°20'001"S150°33'044"E	Pass over	22
56.5	WP4.26.1	Bridge	34°20'015"S150°33'031"E	Pass over	50
60.5	WP4.27	Bridge	34°21'059"S150°32'025"E	Pass under	
66	WP4.28	Bridge	34°24'018"S150°30'025"E	Pass under	
67	WP4.29	Bridge	34°25'002"S150°29'033"E	Pass over	65
69	WP4.30	Bridge	34°25'022"S150°28'033"E	Pass under	
71	WP4.31	Bridge	34°25'054"S150°27'033"E	Pass over	190
71.5	WP4.32	Bridge	34°25'056"S150°26'051"E	Pass over	120
72.5	WP4.33	Bridge	34°25'058"S150°26'027"E	Pass over	240
75	WP4.34	Bridge	34°26'024"S150°24'058"E	Pass under	
76.5	WP4.35	Bridge	34°26'041"S150°23'055"E	Pass over	45
77	WP4.36	Bridge	34°26'047"S150°23'014"E	Pass over	45
81	WP4.37	Bridge	34°27'044"S150°21'018"E	Pass over	65
81.5	WP4.38	Bridge	34°27'055"S150°20'058"E	Pass over	105

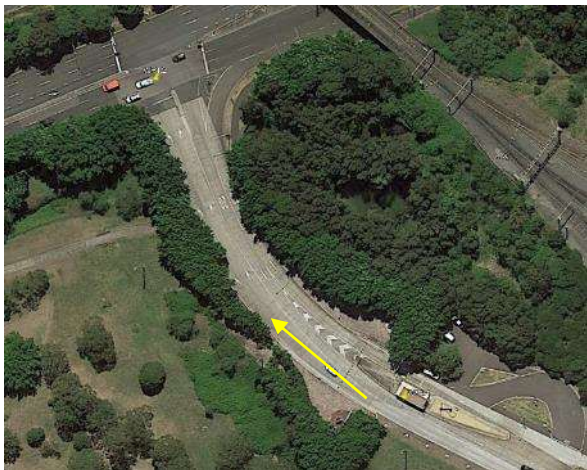
Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
83	WP4.39	Bridge	34°28'007"S150°20'016"E	Pass over	45
84	WP4.40	Bridge	34°28'030"S150°19'026"E	Pass over	200
87.5	WP4.41	Bridge	34°29'050"S150°18'042"E	Pass over	30
88	WP4.42	Bridge	34°29'056"S150°18'042"E	Pass over	25
91	WP4.43	Bridge	34°31'004"S150°18'005"E	Pass over	40
91.5	WP4.44	Bridge	34°31'012"S150°17'053"E	Pass over	50
98	WP4.45	Bridge	34°34'030"S150°15'013"E	Pass over	95
99	WP4.46	Bridge	34°35'012"S150°15'001"E	Pass under	
102	WP4.47	Bridge	34°36'029"S150°13'037"E	Pass under	
113	WP4.48	Bridge	34°38'030"S150°7'032"E	Pass over	70
127	WP4.49	Bridge	34°42'036"S150°0'043"E	Pass over	120
130	WP4.50	Bridge	34°43'050"S149°58'054"E	Pass under	
137	WP4.51	Bridge	34°44'028"S149°54'043"E	Pass over	65
147	WP4.52	Bridge	34°43'058"S149°48'027"E	Pass over	55
150	WP4.53	Bridge	34°44'034"S149°46'021"E	Pass under	
156	WP4.54	Bridge	34°46'041"S149°44'002"E	Pass under	
156.5	WP4.55	Bridge	34°46'040"S149°43'041"E	Pass over	80
157	WP4.56	Bridge	34°46'037"S149°43'025"E	Pass over	90
157.5	WP4.57	Bridge	34°46'037"S149°43'016"E	Pass over	65
158	WP4.58	Bridge	34°46'035"S149°43'008"E	Pass over	110
158.5	WP4.59	Bridge	34°46'035"S149°42'056"E	Pass over	120
159	WP4.60	Bridge	34°46'035"S149°42'036"E	Pass over	75
159.2	WP4.61	Bridge	34°46'034"S149°42'029"E	Pass over	60
159.5	WP4.62	Bridge	34°46'033"S149°42'024"E	Pass over	40
161	WP4.63	Bridge	34°46'034"S149°41'018"E	Pass under	
161.5	WP4.64	Bridge	34°46'035"S149°41'014"E	Pass under	
162	WP4.65	Bridge	34°46'047"S149°40'022"E	Pass over	50
163	WP4.66	Bridge	34°47'012"S149°39'027"E	Pass over	65
167	WP4.67	Bridge	34°47'044"S149°37'004"E	Pass over	50
168	WP4.68	Bridge	34°48'012"S149°36'036"E	Pass under	
174	WP4.69	Bridge	34°48'027"S149°32'058"E	Pass over	25
184	WP4.70	Bridge	34°48'060"S149°27'025"E	Pass over	40
187	WP4.71	Bridge	34°48'057"S149°24'056"E	Pass over	25
188	WP4.72	Bridge	34°49'015"S149°24'015"E	Pass over	20
188.5	WP4.73	Bridge	34°49'015"S149°24'015"E	Pass over	6
194	WP4.74	Bridge	34°49'007"S149°20'034"E	Pass over	55
197	WP4.75	Bridge	34°48'022"S149°18'026"E	Pass over	75
200	WP4.76	Bridge	34°47'040"S149°16'024"E	Pass over	50
200.5	WP4.77	Bridge	34°47'033"S149°16'005"E	Pass over	55
202	WP4.78	Bridge	34°47'010"S149°15'024"E	Pass under	

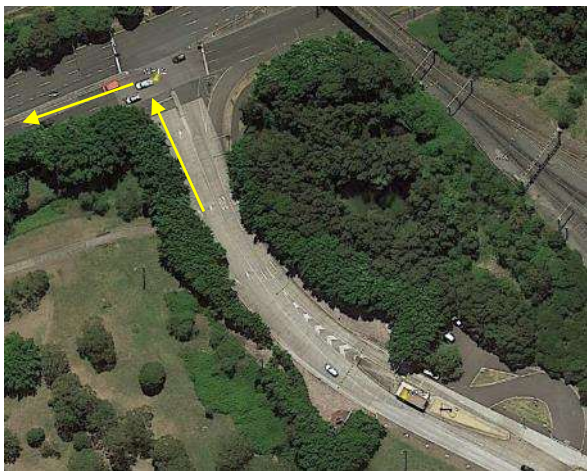
Distance (km)	Waypoint	Occurrence / Location	Coordinates	Remarks	Span (m)
214	WP4.79	Bridge	34°48'010"S149°8'013"E	Pass over	70
215	WP4.80	Bridge	34°48'028"S149°7'054"E	Pass over	50
229	WP4.81	Bridge	34°49'060"S148°59'047"E	Pass over	50
232	WP4.82	Bridge	34°49'042"S148°57'024"E	Pass under	
232.5	WP4.83	Bridge	34°49'042"S148°57'024"E	Pass under	
234	WP4.84	Bridge	34°48'046"S148°56'031"E	Pass under	
235	WP4.85	Bridge	34°48'030"S148°55'051"E	Pass under	
235.5	WP4.86	Bridge	34°48'022"S148°55'031"E	Pass over	70
236	WP4.87	Bridge	34°48'017"S148°55'012"E	Pass over	55
238	WP4.88	Bridge	34°48'030"S148°54'016"E	Pass under	
241	WP4.89	Bridge	34°48'021"S148°52'058"E	Pass over	80
241.5	WP4.90	Bridge	34°48'008"S148°52'038"E	Pass under	
242	WP4.91	Bridge	34°47'044"S148°52'013"E	Pass over	60
248	WP4.92	Bridge	34°46'25.25"S148°48'56.61"E	Pass over	35
254	WP4.93	Stay on Hwy	34°45'59.29"S148°45'45.02"E		
258	WP4.94	Bridge	34°46'52.75"S148°42'39.24"E	Pass over	
261	WP4.95	Bridge	34°48'7.69"S148°41'37.16"E	Pass over	
265	WP4.96	Bridge	34°49'12.92"S148°39'16.55"E	Pass over	35
270	WP4.97	Bridge	34°48'49.05"S148°36'45.90"E	Pass over	55
292	WP4.98	Bridge	34°49'11.66"S148°22'24.52"E	Pass over	125
294	WP4.99	Bridge	34°49'0.08"S148°21'13.11"E	Pass over	18
296	WP4.100	Bridge	34°48'55.79"S148°20'18.34"E	Pass over	20
297	WP4.101	Bridge	34°49'4.94"S148°19'21.90"E	Pass over	55
317	WP4.102	Bridge	34°55'23.98"S148°10'17.70"E	Pass under	
321	WP4.103	Bridge	34°57'16.46"S148° 9'35.14"E	Pass over	45
336	WP4.104	Bridge	35° 4'6.50"S148° 5'42.90"E	Pass over	1128
372	WP4.105	Bridge	35°13'5.61"S147°47'40.23"E	Pass over	85
378	WP4.106	Bridge	35°11'33.95"S147°44'59.41"E	Pass over	105
396	WP4.107	Bridge	35° 9'48.82"S147°34'3.93"E	Pass over	
407	WP4.108	Turn left onto Elizabeth Ave	35° 8'39.29"S147°27'30.05"E		
408	WP4.109	Overhead wire	35° 8'52.10"S147°27'27.72"E	Clearance tbc.	
408.5	WP4.110	Overhead wires	35° 9'9.64"S147°27'24.45"E	Clearance tbc.	
410	WP4.111	Turn right onto Inglewood Rd	35° 9'48.54"S 147°27'13.35"E		
414	WP4.112	Turn left onto Mitchell Rd	35° 9'28.07"S 147°24'14.56"E		
417	WP4.113	Mergepoint with Route 2	35°10'58.82"S 147°23'57.35"E	End of Route	

10.4 Picture report

Picture report illustrates only critical or typical obstacles on route.

***Yellow arrows indicate driving direction.**

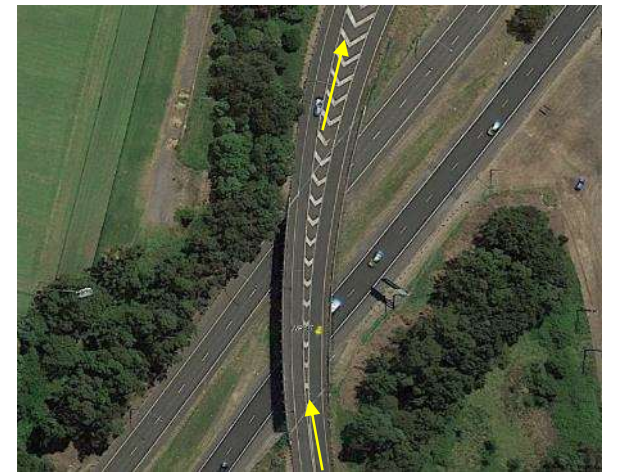
Distance	0.0 km	WP4.1	Coordinates	34°26'035"S150°53'014"E
Port Kembla – Port Exit				
 				

Distance	0.13 km	WP4.2	Coordinates	34°26'033"S150°53'012"E
Turn left onto B65, Springhill Rd				
 				

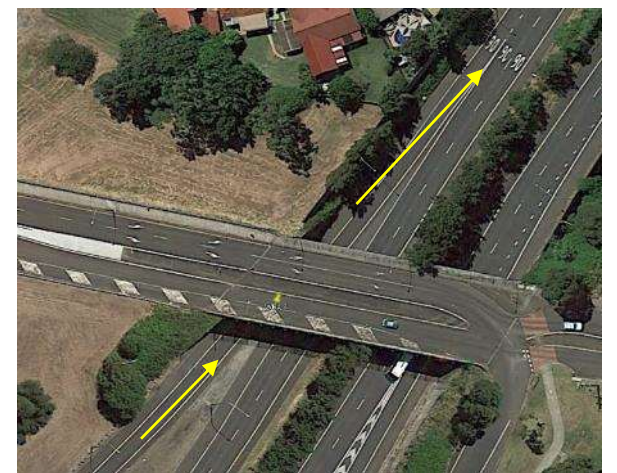
Distance	1.18 km	WP4.5	Coordinates	34°26'044"S150°52'039"E
Turn right onto Masters Rd towards Figtree, M1 Nowra, Sydney				



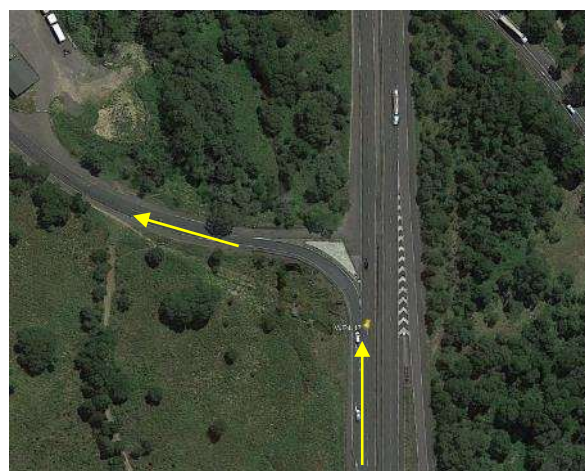
Distance	2.5 km	WP4.7	Coordinates	34°26'028"S150°51'057"E
Typical Bridge along route to pass over.				



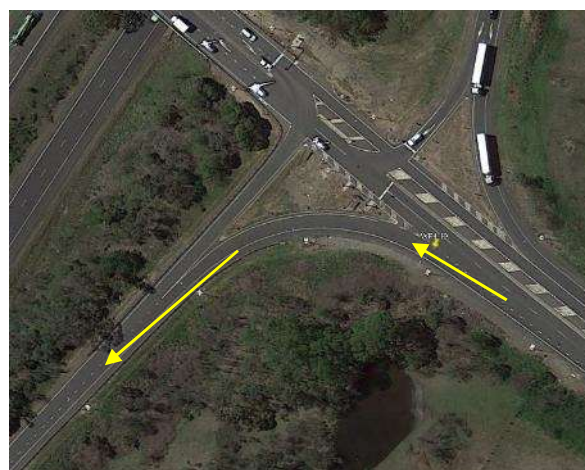
Distance	4.8 km	WP4.8	Coordinates	34°26'017"S150°52'001"E
Typical Bridge along route to pass under.				



Distance	13 km	WP4.17	Coordinates	34°21'059"S150°51'032"E
Turn left onto Picton Rd towards B88 Picton, M31 Hume MWY				



Distance	39.2 km	WP4.19	Coordinates	34°13'050"S150°40'006"E
Turn left onto Hume Motorway towards M31 Goulburn				



Distance	41 km	WP4.21	Coordinates	34°14'018"S150°39'046"E
Bridge to pass over, Span: 310m				



Distance	336 km	WP4.104	Coordinates	35° 4'6.50"S148° 5'42.90"E
Pass over Sheahn Bridge - Span: 1128m				



Distance	407 km	WP4.108	Coordinates	35° 8'39.29"S147°27'30.05"E
Turn left onto Elizabeth Ave				



Distance	410 km	WP4.111	Coordinates	35° 9'48.54"S147°27'13.35"E
Turn right onto Inglewood Rd				



Distance	414 km	WP4.112	Coordinates	35°9'28.07"S147°24'14.56"
Turn left on Mitchell Rd				
				

The route is merging with the route coming from Geelong port at Mitchell RD WP4.113. For further details of route up to Wagga Wagga & Dinawan site, please refer to Route 2 Geelong – Wagga Wagga & Dinawan site

10.5 Conclusion Roue 4 Port Kembla to Wagga Wagga and Dinawan site

The route is generally feasible in view of overall cargo envelope, however will be subject to final permitting conditions and final transport solution. Further investigation will be required into determining the final transport configuration, especial regarding the transport height and the overhead bridge clearance. Performing a full physical route survey of the proposed routes is mandatory to verify the findings within this report and proposed routes.

11. Turning Simulations

The following turning simulations shows the most critical turns of all routes. These simulations based on available information about the considered transport solution and road dimensions.

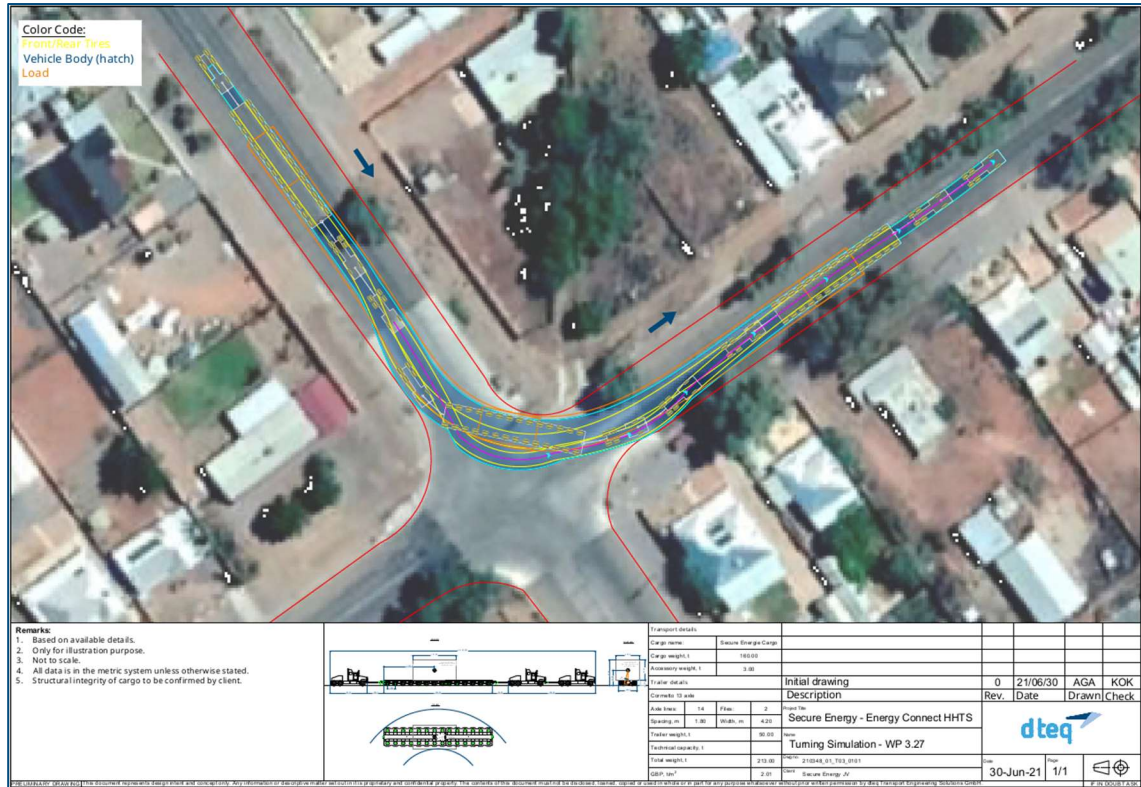


Figure 15 - Turning Simulation WP3.27

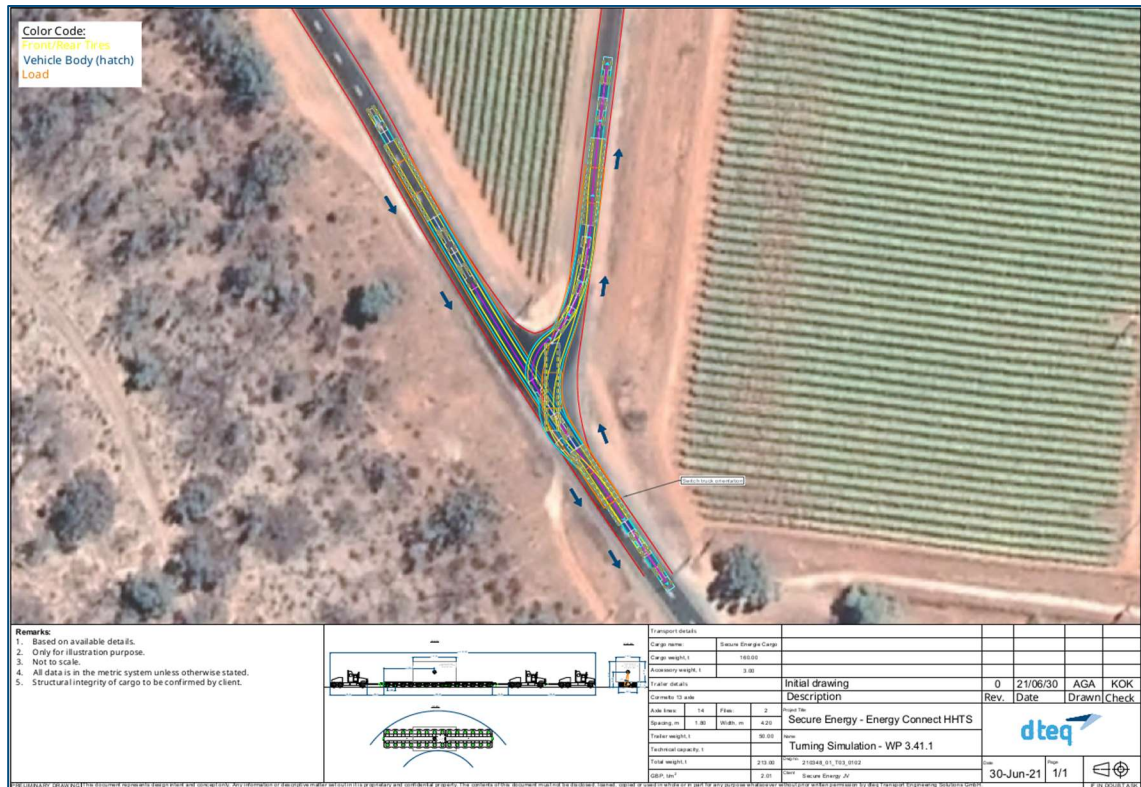


Figure 16 - Turning Simulation WP3.41.1

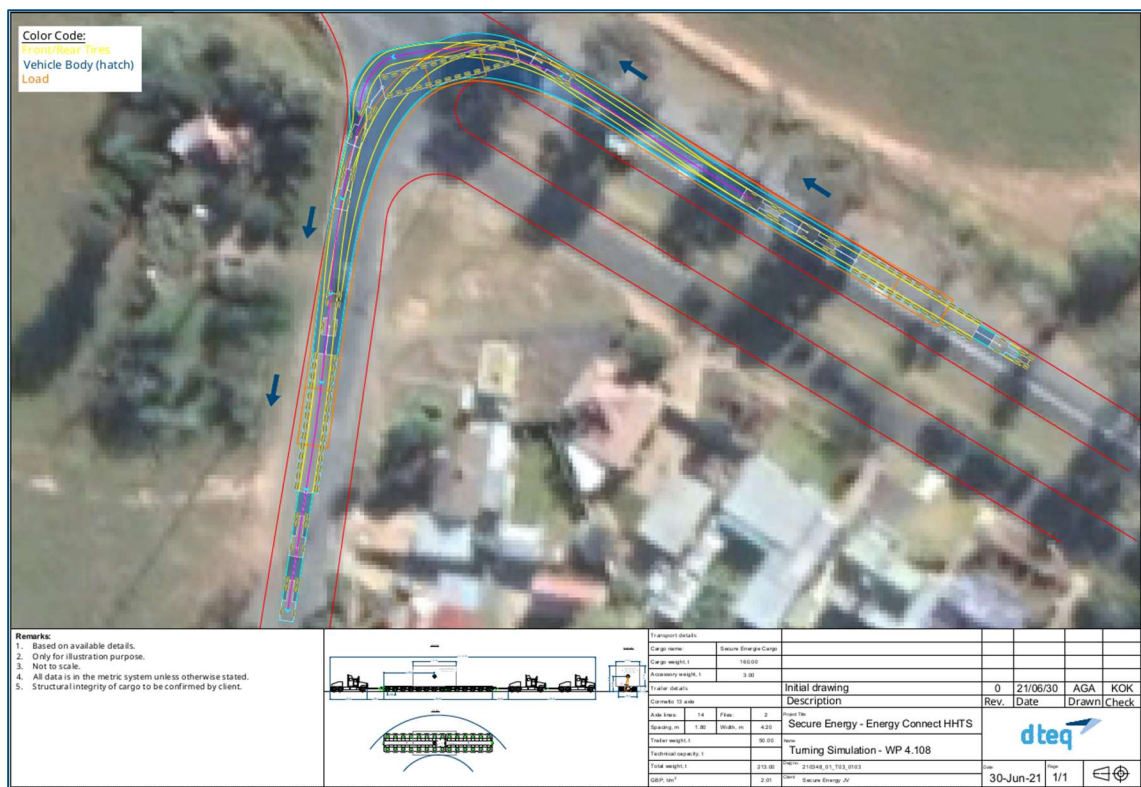


Figure 17 - Turning Simulation WP4.108

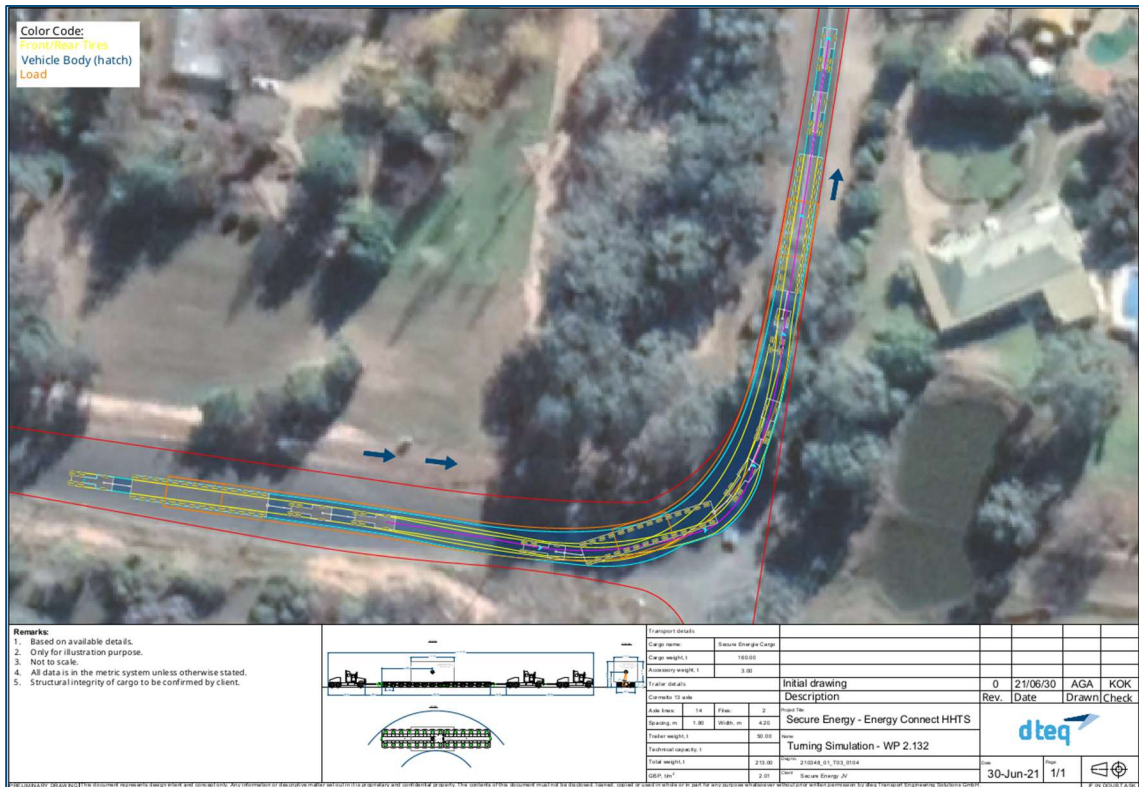


Figure 18 - Turning Simulation WP2.132



Figure 19 - Turning Simulation WP2.133

12. Approvals & Regulations

Due to the nature of the transport movements along with the various states and council areas crossed, the below stakeholders will require engagement and approvals to proceed with transport movements.

- NHVR
- RMS (Roads and Maritime Services)
- NSW Police Service
- SA Police Service
- Regional Councils
- Power Authorities
- Rail Authorities
- Telephone Authorities

As part of the transport management plan and permitting approval process, deugro and its nominated heavy haulage operator shall engage the above for all approval processes.

13. Summary

The routes are generally feasible in view of overall cargo envelope, however, will be subject to final permitting conditions and final transport solution. Further investigation will be required into determining the final transport configuration, especial regarding the transport height and the overhead bridge clearance. Performing a full physical route survey of the proposed routes is mandatory to verify the findings within this report and proposed routes.

The most suitable route, based on the findings of this desktop study, we deem route 4 due to it is the shortest route of 417km length while passing a minimum of residential areas.

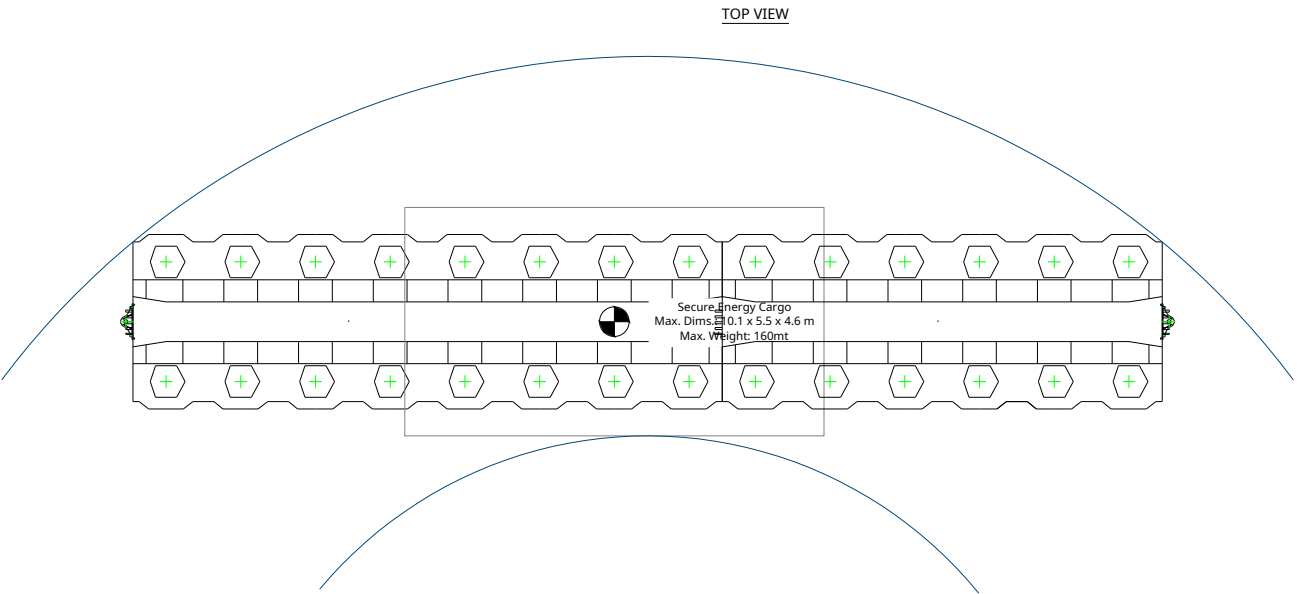
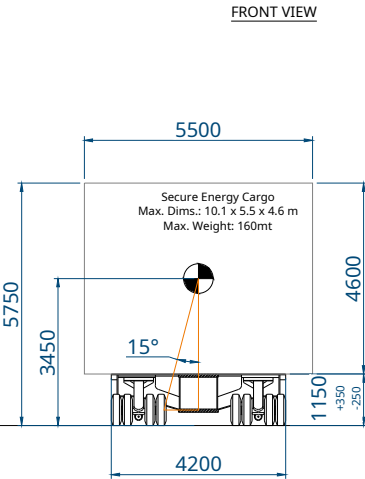
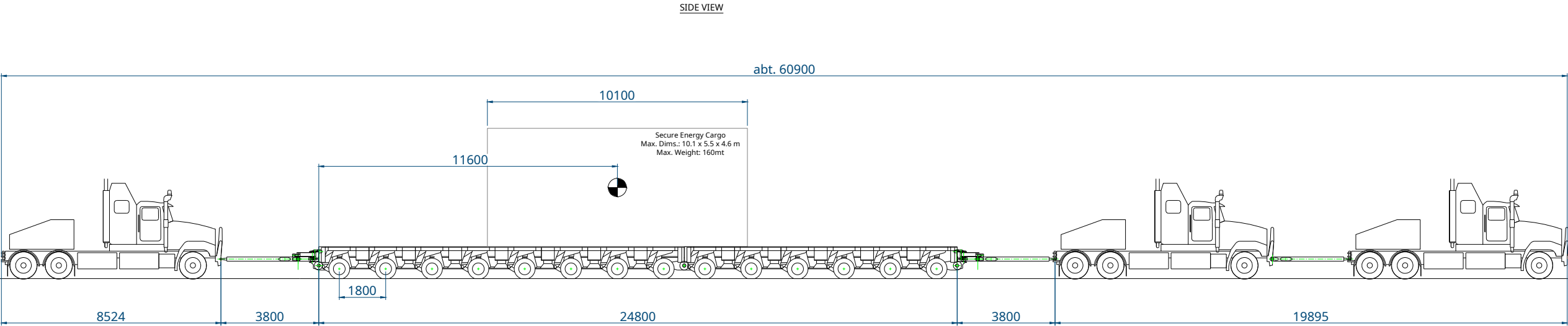
All routes contain the similar kind of obstacles such as bridges, overhead wires, and roundabouts, which must be rechecks by conducting a physical survey and final verification by permit of the respective authorities.

14. List of Appendices

Appendix	Description / Remarks
A	Transport Solution
B	Swept Path Drawing

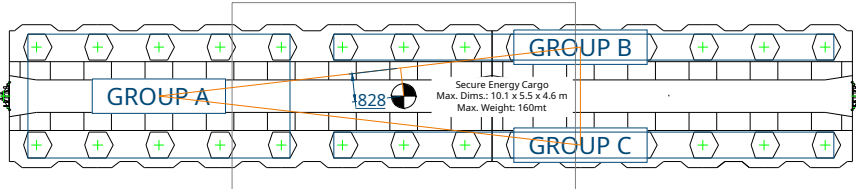
Table 7 – List of Appendices

Appendix – A



Remarks:

1. Based on available details.
2. Only for illustration purpose.
3. Not to scale.
4. All data is in the metric system unless otherwise stated.
5. Structural integrity of cargo to be confirmed by client.
6. Reference drawing: N/A
7. CoG to be assumed centered.
8. Trailer details are subject to hauliers approval.



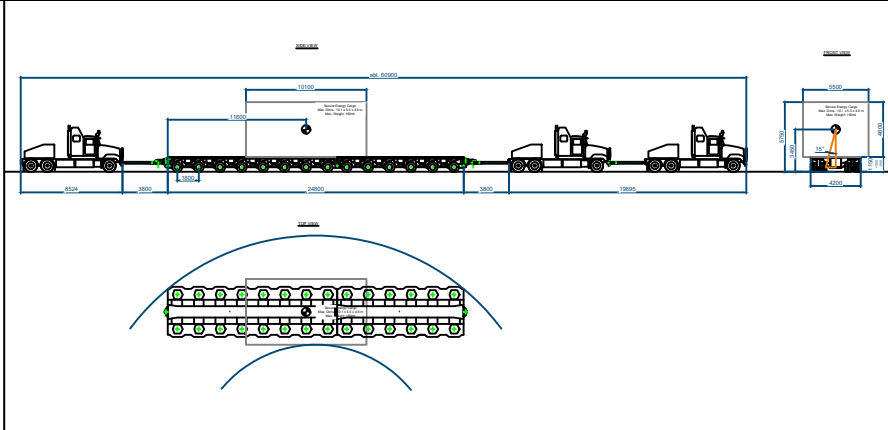
Transport details									
Cargo name:		Secure Energie Cargo							
Cargo weight, t		160.00							
Accessory weight, t		3.00							
Trailer details				Initial drawing		0	21/06/22	FTH	KOK
Cormetto 13 axle				Description		Rev.	Date	Drawn	Check
Axle lines:	14	Files:	2	Project Title					
Spacing, m	1.80	Width, m	4.20	Secure Energy - Energy Connect HHTS					
Trailer weight, t		50.00		Name		Transport Solution			
Technical capacity, t									
Total weight, t		213.00		Dwg no.		210348_01_T01_0101		Date	Page
GBP, t/m²		2.01		Client		Secure Energy JV		22-Jun-21	1/1
									

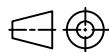
Appendix – B



Remarks:

1. Based on available details.
2. Only for illustration purpose.
3. Not to scale.
4. All data is in the metric system unless otherwise stated.
5. Structural integrity of cargo to be confirmed by client.



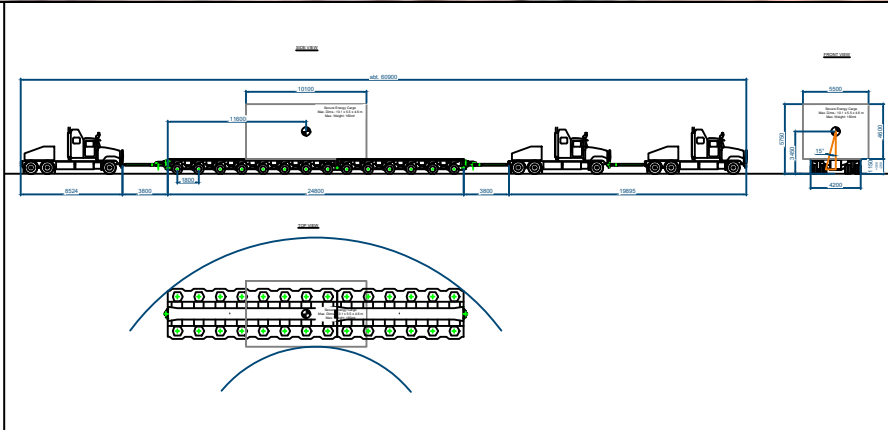
Transport details									
Cargo name:		Secure Energie Cargo							
Cargo weight, t		160.00							
Accessory weight, t		3.00							
Trailer details				Initial drawing		0	21/06/30	AGA	KOK
Cormetto 13 axle				Description		Rev.	Date	Drawn	Check
Axle lines:	14	Files:	2	Project Title					
Spacing, m	1.80	Width, m	4.20	Secure Energy - Energy Connect HHTS					
Trailer weight, t		50.00		Name					
Technical capacity, t				Turning Simulation - WP 3.27					
Total weight, t		213.00		Dwg no. 210348_01_T03_0101		Date		Page	
GBP, t/m²		2.01		Client Secure Energy JV		30-Jun-21		1/1	
									

Color Code:
Front/Rear Tires
Vehicle Body (hatch)
Load



Remarks:

- 1. Based on available details.
- 2. Only for illustration purpose.
- 3. Not to scale.
- 4. All data is in the metric system unless otherwise stated.
- 5. Structural integrity of cargo to be confirmed by client.



Transport details									
Cargo name:		Secure Energie Cargo							
Cargo weight, t		160.00							
Accessory weight, t		3.00							
Trailer details				Initial drawing		0	21/06/30	AGA	KOK
Cormetto 13 axle				Description		Rev.	Date	Drawn	Check
Axle lines:	14	Files:	2	Project Title					
Spacing, m	1.80	Width, m	4.20	Secure Energy - Energy Connect HHTS					
Trailer weight, t		50.00		Name					
Technical capacity, t				Turning Simulation - WP 3.41.1					
Total weight, t		213.00		Dwg no. 210348_01_T03_0102		Date		Page	
GBP, t/m²		2.01		Client Secure Energy JV		30-Jun-21		1/1	
									

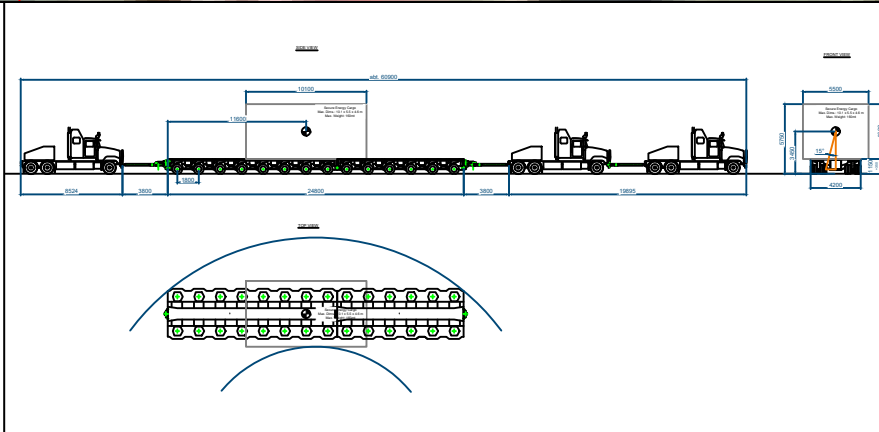


Color Code:
 Front/Rear Tires
 Vehicle Body (hatch)
 Load

The image displays a simulation of a vehicle's path and load distribution on a road. The road is shown in an aerial view, with a vehicle's trajectory marked by a series of colored lines. The vehicle's body is represented by a blue hatch pattern, and the load is indicated by orange lines. The simulation shows the vehicle's path as it moves along the road, with the load distribution changing as the vehicle's position and orientation change. The vehicle is shown in a curved path, with the load distribution shifting towards the outer side of the curve. The simulation also shows the vehicle's path as it moves along the road, with the load distribution changing as the vehicle's position and orientation change. The vehicle is shown in a curved path, with the load distribution shifting towards the outer side of the curve.

Remarks: 1. Based on available details. 2. Only for illustration purpose. 3. Not to scale. 4. All data is in the metric system unless otherwise stated. 5. Structural integrity of cargo to be confirmed by client.
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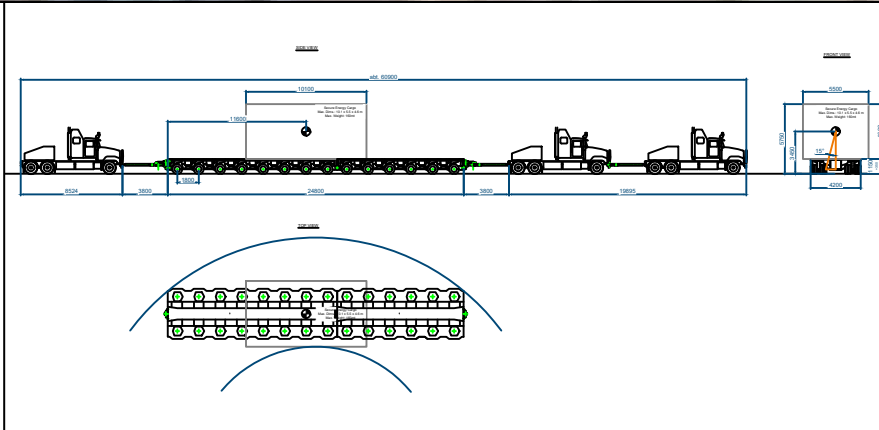
- | |
|--|
| Remarks: <ol style="list-style-type: none">1. Based on available details.2. Only for illustration purpose.3. Not to scale.4. All data is in the metric system unless otherwise stated.5. Structural integrity of cargo to be confirmed by client. |
|--|

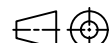


Transport details									
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Cargo weight, t		160.00							
Accessory weight, t		3.00							
Trailer details				Initial drawing		0	21/06/30	AGA	KOK
Cormetto 13 axle				Description		Rev.	Date	Drawn	Check
Axle lines:	14	Files:	2	Project Title					
Spacing, m	1.80	Width, m	4.20	Secure Energy - Energy Connect HHTS					
Trailer weight, t		50.00		Name					
Technical capacity, t				Turning Simulation - WP 4.108					
Total weight, t		213.00		Dwg no. 210348_01_T03_0103		Date		Page	
GBP, t/m²		2.01		Client Secure Energy JV		30-Jun-21		1/1	
									

An aerial photograph of a road with a vehicle simulation overlay. The road is a two-lane road with a dashed white center line. The simulation shows a vehicle's path with yellow dashed lines for the front/rear tires, a blue hatched area for the vehicle body, and orange lines for the load. The vehicle is moving from the bottom left towards the top right, following the curve of the road. A blue arrow indicates the direction of travel. The surrounding area is mostly green with some trees and a small building on the right. A legend in the top left corner defines the color code: Front/Rear Tires (yellow), Vehicle Body (hatch) (blue), and Load (orange).

1. Based on available details.
2. Only for illustration purpose.
3. Not to scale.
4. All data is in the metric system unless otherwise stated.
5. Structural integrity of cargo to be confirmed by client.



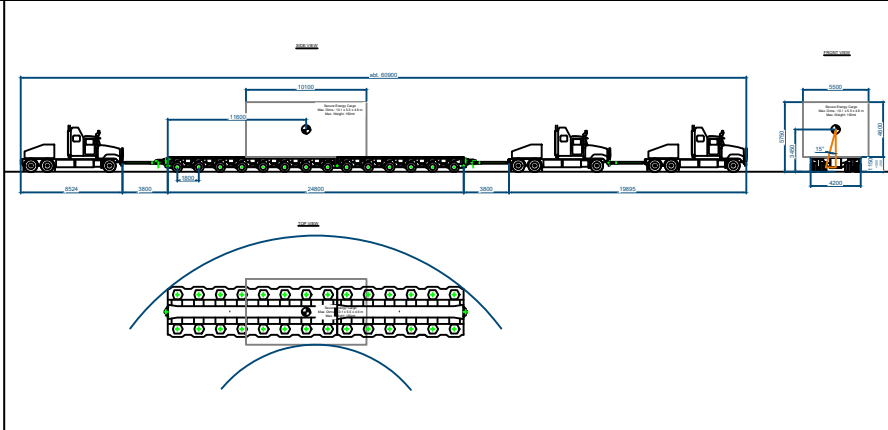
Transport details									
Cargo name:		Secure Energie Cargo							
Cargo weight, t		160.00							
Accessory weight, t		3.00							
Trailer details				Initial drawing	0	21/06/30	AGA	KOK	
Cornetto 13 axle				Description	Rev.	Date	Drawn	Check	
Axle lines:	14	Files:	2	Project Title					
Spacing, m	1.80	Width, m	4.20	Secure Energy - Energy Connect HHTS					
Trailer weight, t		50.00		Name					
Technical capacity, t				Turning Simulation - WP 2.132					
Total weight, t		213.00		Dwg no. 210348_01_T03_0104	Date	Page			
GBP, t/m²		2.01		Client Secure Energy JV	30-Jun-21	1/1			

Color Code:
Front/Rear Tires
Vehicle Body (hatch)
Load



Remarks:

- 1. Based on available details.
- 2. Only for illustration purpose.
- 3. Not to scale.
- 4. All data is in the metric system unless otherwise stated.
- 5. Structural integrity of cargo to be confirmed by client.



Transport details									
Cargo name:		Secure Energie Cargo							
Cargo weight, t		160.00							
Accessory weight, t		3.00							
Trailer details				Initial drawing		0	21/06/30	AGA	KOK
Cormetto 13 axle				Description		Rev.	Date	Drawn	Check
Axle lines:	14	Files:	2	Project Title Secure Energy - Energy Connect HHTS					
Spacing, m	1.80	Width, m	4.20						
Trailer weight, t		50.00		Name Turning Simulation - WP 2.133					
Technical capacity, t									
Total weight, t		213.00		Dwg no. 210348_01_T03_0104		Date		Page	
GBP, t/m²		2.01		Client Secure Energy JV		30-Jun-21		1/1	
									

Appendix F Department of Planning and Environment (Biodiversity and Conservation Division) – Detailed response

Table F-1 Response to Department of Planning and Environment (Biodiversity and Conservation Division) submission

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
Flooding					
1 – Issues (Flooding)	The qualitative flood risk assessment completed as part of the EIS does not fully satisfy the submitted BCD environmental assessment requirements related to flooding.	The BCD is of the view that the flood assessment is consistent with the general nature of the Secretary's environmental assessment requirements (SEARs) but does not address the Department's environmental assessment requirements related to flooding. However, BCD is of the view that the flood impacts of the project are likely to be minor and BCD acknowledge that the infrastructure design has not progressed to a stage where site-specific flood impact can be assessed consistent with the Department's requirements. As such, BCD recommend a condition of approval that requires the completion of quantitative modelling and assessment during the detailed design stage for infrastructure located in floodplain areas, with the aim to reduce any identified flood impact to an acceptable level of risk to the satisfaction of BCD.	Pre-construction	Complete quantitative flood modelling and assessments in the detailed design phase for infrastructure located in floodplain areas, with the aim of reducing flood impacts to acceptable levels of risk.	The SEARs issued for the proposal require 'an assessment of the potential flooding impacts and risks of the project', which has been addressed in the Chapter 16 of the EIS and Technical paper 8 – Hydrology and flooding. As outlined in the EIS: - sections of the transmission line would be located in the floodplain. Footing connections at the base of each transmission line tower would be the only components of the tower within the floodplain, and would not significantly reduce floodplain storage or impede flow - any changes in flood behaviour would be localised in the vicinity of each tower. The design of each tower would be such that any flood behaviour changes would not affect their structural integrity and would account for flow direction and minimising erosion potential on the down-flow side - the proposed and upgraded substations are not located within flood prone land, and permanent impacts to flood behaviour are not anticipated. At the proposed Dinawan 330kV substation, drainage infrastructure would be designed to divert external runoff and to match overland flow conditions with the view of not worsening flood impacts downstream on property and infrastructure. Overall, the impact to flood levels from the proposal would only be localised and would not affect the large flood extents experienced around the waterways across the proposal. The proposal is not predicted to change the flood affectation on existing structures and infrastructure. As such, quantitative flood modelling to BCD satisfaction is not considered to be warranted. The assessment in the EIS addresses the SEARs and responds appropriately given the low risk level posed by the proposal to this matter.
Biodiversity					
1 – General Administration	The BDAR does not meet certification requirements of the BAM	The version control table at the front of the BDAR is not a surrogate for certification of the BDAR. There is no evidence that the Accredited Assessor (including name and accreditation number) has certified the BDAR to be true and correct under Section 6.15 of the BC Act 2016.	Pre-determination	1.1 BDAR must be certified by lead Accredited Assessor including a declaration statement signed and dated including BAM Accreditation number.	A declaration statement has been added to the Revised BDAR. This meets the specified requirements.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
2 – Introduction	Report terminology is inconsistent, and impacts have not been clearly or fully described. Glossary and Report terminology requires updating for consistency. There are inconsistencies between the glossary and report terminology throughout the BDAR. These inconsistencies impact the interpretation of the BDAR.	Terminology: To avoid misinterpretation of aspects of the assessment during post–approval planning and project implementation, it is critical that terminology is simple and clearly defined in one section of the BDAR, and then used consistently throughout. Assessment areas need to be consolidated, defined, and included in the Glossary. For example, some terms are not included in the glossary but described in Section 1.7 (page 10) – Report Terminology. Section 4.4 explains that “Vegetation mapping was completed over a 100–metre section of the proposal study area to inform avoidance measures during design development”. It is unclear if this 100–metre wide corridor is 50 metres either side of the proposed centreline. Section 1.4.4 describes a 1–kilometre wide corridor as the Proposal study area, and a Biodiversity Study Area as 200–metre–wide corridor for biodiversity surveys. Appendix 3 (figure A–3) shows a Native vegetation assessment area.	Pre-determination	2.1 Clarify terms used for the assessment in the glossary and use these consistently throughout the BDAR.	As part of the Revised BDAR, the terms have been reviewed and updated. The BDAR has been subject to additional technical review to ensure consistent use of the reviewed and updated terms throughout the report. Glossary terms provided in the BDAR have been expanded to include all key terms described and used in the report, including those provided in Section 1.7.
2 – Characterising Disturbance Areas		Characterising disturbance areas: The description of Disturbance Areas in Section 1.7 (page 11) is confusing. It is also partially duplicated in the description of the construction impact area. Revision of Disturbance Area descriptions is required, including specifying the machinery that will be used to remove trees and tall–growing shrubs. For example, the following do not appear to be identified in Disturbance Area A and included in the assessment, but should be considered: - temporary and permanent sediment and stormwater controls - stockpile locations for removed soil and vegetation (including root balls). Pushed trees and soil will result in total direct impact to biodiversity values, and these activities should be within the mapped direct impact zone. The method for soil removal and stockpiling must be in place before clearing commences for early works. - hazard trees (identification and removal) - gravel hardening of access tracks - RFS requirement for groundcover management (i.e. slashing). The assessed Area A should be revised if it is not large enough to contain these impacts.	Pre-determination	2.2 Fully describe the construction activities, including techniques and machinery, to inform the impact assessment.	Each of the disturbance area categories and construction impact area term definitions are updated in the Revised BDAR to provide clarity. It is noted that the construction impact area has the same meaning as the disturbance area and this is defined in the Revised BDAR. The disturbance area B definition identifies that there would only be ground disturbance in limited circumstances. These circumstances would be applicable only to areas which have trees that require removal as a result of an exceedance of a vegetation clearing requirement. In areas of lower growing vegetation there would be no ground disturbance as there would be no vegetation removal or disturbance. The Revised BDAR has assessed the impacts to disturbance area B on this basis. The areas assessed within the Revised BDAR are confirmed as being conservative, and appropriate for the works and methodologies as proposed. Construction works have been identified and assessed within the identified construction impact area and disturbance areas. The BDAR has assessed these areas for impacts. It is noted that some simplification of the construction methodology and the potential disturbance model has been required to allow for the assessment of the potential impacts for a very long infrastructure project in accordance with current assessment guidance and requirements. Environmental performance outcomes have been prioritised, with clear objectives to reduce biodiversity impacts as far as practicable.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
		It is misleading to state in both the EIS and BDAR that Disturbance Area B has no ground disturbance. Removal of the overstorey including root balls has ecological consequences for vegetation composition, structure, and functioning, and as fauna habitat. Activities for maintaining the reduced canopy will also have impacts on soils through compaction by vehicles reducing germination potential. The decision about what plants to remove during maintenance could further alter species composition and therefore habitat suitability for some species.			Transgrid notes that the proposed clearing and disturbance model for the proposal is likely to result in substantially improved biodiversity outcomes compared to a more traditional easement-wide full clearing approach which has historically been adopted for construction and operation of transmission lines. As stated in the EIS and the Revised BDAR, the assessment of potential impacts to biodiversity is conservative to allow for further refinement of the construction methodology. Further refinements may reduce impacts further where possible. It is not possible at this stage to confirm with certainty how clearing would occur (i.e. exact machinery to be used) in each location across the proposal, or the exact locations of sediment and erosion controls, stockpiles and all access tracks. This detail will be confirmed by the construction contractor following project approval, likely during site mobilisation, and will be based on the location-specific features and objectives. In developing the final construction methodology the construction contractor would avoid and minimise impacts to matters of biodiversity conservation significance, and disturbance overall, to the greatest extent practicable, as committed to in mitigation measure B1. While it is recognised that the final construction methodology might involve some changes to the extent and nature of actual disturbance (increases and decreases) compared to the indicative disturbance model presented in the EIS and BDAR, Transgrid anticipates that actual disturbance will be generally consistent with and potentially less than the assumptions in concept methodology. Any changes would be reviewed for consistency with the assessment conducted in the Revised BDAR. Vegetation removal techniques will be confirmed based on factors such as the nature of the vegetation present (type, structure and density), the specific clearing requirements, access, topography and any other sensitivities present (for example biodiversity and heritage values, and riparian zones). Clearing techniques may range from broad-scale clearing with slashers mounted on tractors and the use of excavators and specialist forestry equipment, to hand-based tools such a brush cutters to remove tall-growing shrubs or chainsaws to remove individual trees or limbs. It may be reasonable and feasible to leave root balls in situ to avoid additional ground disturbance. The specific vegetation removal method adopted would affect the associated level of disturbance. The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1. No broad generalisations can be drawn at this stage of project planning about the likely methods that will be adopted at any location.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
					Similarly, individual sediment and erosion controls will be developed on a site by site basis based on the site-specific conditions in accordance with the requirements of Managing Urban Stormwater Soils and Construction, Volume 1 (Landcom 2004), and Volumes 2A and 2C (DECCW, 2008) ('the Blue Book'). In doing so, the commitment in mitigation measure B1 would apply. It may be possible to install the required controls in a manner that does not result in any additional impacts to matters of biodiversity conservation significance. The same is true for stockpiles and any additional new access tracks.
					Transgrid anticipates that the construction contractor would install controls and carry out the 'full disturbance' activities in locations that are already indicated as Disturbance Area A, and that the areas indicated as Disturbance Area A are generally sufficient to accommodate these controls and activities. It is in the construction contractor's best interests to minimise the extent of disturbance to avoid the extent of restoration and rehabilitation activities required to avoid associated costs. Noting, as above, the expectation that actual disturbance will be generally consistent with and potentially less than the assumptions in concept methodology, Transgrid has committed, in mitigation measure B14 to record actual clearing and compare it against the prediction in the Revised BDAR. The offset liability for the proposal would be adjusted to reflect actual clearing. This commitment will account for any changes in impacts compared to the disturbance model presented and assessed in the Revised BDAR. Transgrid maintains the commitment to meeting all offset credit liabilities for the proposal.
2 – Operational activities	Operational activities for the life of the project have not been specified, including maintenance procedures.	Operational activities: Section 1.4 of the BDAR needs to include a description of operational activities. Operational impacts are part of the BAM assessment so the activity must be described to allow the biodiversity impacts to be characterised and linked to the biodiversity mitigation measures.	Pre-determination	2.3 Describe the operational activities for the life of the project, including specifying maintenance procedures that are identified in the assessment (mitigation and easement management).	Environmental performance outcomes have been prioritised, with clear objectives to reduce biodiversity impacts as far as practicable. This is applicable to both the construction and operational phases of the proposal. Transgrid notes that the proposed clearing and disturbance model for the proposal is likely to result in substantially improved biodiversity outcomes compared to the more traditional easement-wide full clearing approach historically adopted for transmission line construction and operation. Maintenance procedures for the operational phase of the proposal would be developed post approval to meet the Revised BDAR outcomes and in accordance with the requirements of the mitigation measures for the proposal. This is the same approach as adopted for the approved EnergyConnect – Western project. It is not possible to confirm the final detailed procedures at this stage in the proposal development.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
2 – Hazard trees	Treatment of hazard trees has not been clearly described and development consent will not authorise the clearing of trees outside the assessed footprint.	Hazard trees: Development consent will not include clearing of trees outside the assessed footprint. Any clearing recommended by a qualified arborist may only be cleared if it is assessed consistent with the BAM. Such clearing must be avoided and minimised or included in the assessment. It is unclear if Hazard Trees are included in Disturbance Area B. BCD understand that LiDAR data are flown for each of TransGrid's line proposals. We see no evidence that hazard trees or canopy intrusions have been identified and assessed for the proposal. In assessing other projects, BCD have established a level of understanding with TransGrid regarding the method and equipment used to remove trees, and how that impact is assessed. Such agreed approaches have not informed this assessment and will need to be addressed.	Pre-determination	2.4 Include identification and removal of hazard trees and assess the impacts according to the BAM.	A new disturbance area has been identified to cover hazard trees specifically. This is included in the Revised BDAR and assessment on the potential operational phase impacts in these areas provided. This area is defined in the glossary, Section 1.7.1 and discussed further in Section 4.3.6 of the Revised BDAR. This area assumes partial vegetation clearing restricted to operational phase. The vegetation clearing is limited to maintenance of hazard/high risk trees within 10 metres of the easement disturbance area B10 where trees within vegetated areas exceed defined height thresholds >20 metre in the 500kV transmission line section and >30 metres in the 330kV transmission line section for heights at the edge of the easement. These height criteria have been applied to PCT types along the proposal length and where a PCT has the potential for tree growth heights to exceed these levels an impact has been applied. Vegetation that is to be removed would have root balls retained and where practicable impacts will be restricted to pruning. No application of the new zone is required for areas of the easement separated by clearing or exiting easement.
2 – Changes to impact areas during detailed design	–	Changes to impact areas during detailed design: The discussion of mitigation in Section 10.2.1 indicates that the final design refinement phase will include additional survey in areas that were not previously subject to biodiversity survey. 'No access' polygons appear on survey results maps in appendices (e.g. Appendix B–5). Should the boundaries of disturbance areas A and B change, there is potential for harm to biodiversity that has not been assessed, or included in offset calculations, including MNES.	Pre-determination	2.5 Specify how offset calculations will be revised if there are changes to the assessed impact zones during the detailed design phase.	Transgrid recognises that there may be changes in the areas affected by the proposal during finalisation of the design and construction methodology but remains committed to avoiding impacts to matters of biodiversity conservation significance to the greatest extent practicable during the refinement process, as per Mitigation Measure B1. Transgrid anticipates that changes to the extent of clearing/disturbance would occur in areas that have already been subject to assessment in accordance with the BAM. In the unlikely event that a disturbance is proposed outside of the assessed area, the areas would be assessed in accordance with the requirements of the BAM, as committed to in Mitigation Measure B2. Given Transgrid's commitment in Mitigation Measure B1 aims to minimise impacts of the proposal, changes that require additional biodiversity assessment do not necessarily equate to an increase in overall impact overall. Transgrid would revise offset calculations using the same model adopted for the preliminary offset liability calculations carried out to inform the Revised BDAR. The construction contractor will record the extents of each the disturbance area based on actual clearing, which will then be overlaid on the mapping of biodiversity values to confirm revised offset credit liabilities through BAM–C calculations (in the same manner as they have occurred for the preliminary offset liability calculations). As Transgrid anticipates that actual disturbance will be generally consistent with and potentially less than the assumptions in concept methodology and indicative disturbance model, Transgrid also anticipates that the final offset calculations will be substantially the same as, or potentially less than, the calculations presented in the Revised BDAR, regardless of any changes in actual clearing.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
3 – Landscape Assessment	Landscape assessment is incomplete. Buffers require review for site-based application. Sources of information used to determine native vegetation and vegetation cover must be demonstrated.	A 500-metre linear buffer has been correctly applied to the powerline project footprint. The proposal includes various ancillary facilities such as substations, accommodation camps, compounds and laydown areas. Most of these ancillary facilities are not linear in nature and a 1500 metre site-based buffer for the landscape assessment should be applied to these facilities. The site-based calculations should be included as part of the total percentage native vegetation for each subregion case (powerline and ancillary facilities) and still be selected as a linear based assessment in the Calculator.	Pre-determination	3.1 Update landscape assessment buffers to include both site based and linear buffers as appropriate. Review percent native vegetation categories at completion.	Landscape assessment buffers have been updated in the Revised BDAR to include both site based and linear buffers.
		Tables in Section 3.1 list rivers, streams, and important and local wetlands. There is no assessment of the potential connectivity between the wetlands, rivers or creeks for waterbirds or threatened fauna that prey on waterbirds. The BDAR needs to use the landscape information to predict how threatened biodiversity relate to the landscape (e.g. waterbirds flying between rivers and lakes), which should then be used to inform the impact assessment. For example, we note the proximity of various Ramsar wetlands north and south of the proposed development and anticipate the line to have some effect on migration to, from and between these sites.	Pre-determination	3.2 Identify and provide a review of the potential waterbird movement areas that may be impacted by the proposal.	A detailed assessment of waterbird connectivity and movement has been completed to meet the specified requirements. This has been provided in section 3.1.3 of the Revised BDAR.
4 – Native vegetation	Outcomes of Category 1 land assessment, including land not accessed, are not justified. The BDAR does not discuss properties not accessed for field survey or the outcomes of the Category 1 assessment.	A table should be added to either Section 3 or 4.2 which details: - the total development area (in hectares) - the area (ha and %) that could be accessed and could not be accessed - for the area that could not be accessed – the area considered to be non-native vegetation or cropped land (Category 1) to the area of native vegetation.	Pre-determination	4.1 Update section 4.2 to include a table which states the area that could and could not be accessed. Where land could not be accessed, provide the comparison of area of native and non-native vegetation.	A new table has been added to end of section 4.2.5 of the Revised BDAR to satisfy the requirements. The table identifies the areas that could and could not be accessed. Where land could not be accessed. The table also provides the comparison of area of native and non-native vegetation.
		There is no discussion of the outcomes of the Category 1 assessment as it applies to the project. There is no discussion of how data were treated in the process of overlaying of spatial layers if it produced conflicting results. For example, where category 1 and category 2 land was mapped for the same vegetation polygon.	Pre-determination	4.2 Update section 4.2 to include assessment of conflicting land categorisation and how these areas were treated in the BAM.	The Revised BDAR has been updated to include additional text to clarify that native vegetation mapped by WSP took precedence over the desktop assessed Category 1 layer. In areas of conflicting results not subject to field surveys, native vegetation PCTs were assigned based on direction provided in comment 4.4 below.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
		There is no indication that BCD advice about the category 1 land assessment (9 November 2021) or PCT mapping on non-accessed properties (10 December 2021) has been considered. WSP's response on 10 December 2021 identified areas not included in the supplied vegetation dataset that may exist as non-woody or derived vegetation and identified conflicts in PCT allocation at the boundaries between field-verified polygons and non-accessed areas.	Pre-determination	4.3 Include a table in section 4.2 that outlines the area (ha) and percentage of total area of the subject land mapped as category 1 land for each subregion.	The Revised BDAR has been updated to include a table at the end of section 4.2.5 which outlines the area (ha) and percentage of total area of the subject land mapped as category 1 land for each subregion.
		The spatial data demonstrates that non-accessed lands are adjacent to areas where vegetation was verified by survey. Despite this, areas of non-accessed land with visibly similar vegetation have been allocated to different PCTs. We see no justification for that approach. Section 4 does not give any commentary on how assumptions about the non-accessed lands could influence the assessment, for example the implications of incorrect PCT allocation in the regional scale State-wide Vegetation Maps.	Pre-determination	4.4 Justify the allocation of PCTs in non-accessed lands when the allocation is different to the PCT on adjacent land verified during the field survey. Areas field verified are indicated by spatial data.	The Revised BDAR has been updated to clarify that non-accessed lands have been remapped via desktop assessment using aerial imagery, field verified mapping on adjoining lands and WSP specialist knowledge of PCT distribution. Text has been added to the Revised BDAR to describe this methodology in section 4.3.1.
5 – Native vegetation	Not all ancillary facility impacts have been included in the 'verified vegetation impacts' dataset. Some ancillary facilities have been included in the spatial data of ancillary facilities but not in the vegetation impacts spatial layer.	Most of the larger ancillary construction facilities, including substations, construction compounds and laydown areas have been identified and allocated to vegetation zones. However, other associated ancillary facilities, such as access roads, have been included in the spatial data of 'DisturbanceAreas_AncillaryFacilities_220208'. This means such ancillary works are not included in the 'ECO_WSP_PECe_FieldVerifiedVegetation_Impacts_212224' layer and are not considered as vegetation zones to be impacted. For example, the proposed laydown site adjacent to the Cobb Highway does not include impacted vegetation zones. Despite this, a 10-metre wide access road will cut through 6.5 kilometres of native vegetation to the laydown site from the proposed easement (see to map).	Pre-determination	5.1 Update vegetation zone mapping to include native vegetation associated with all ancillary facilities including new access tracks to laydown sites and accommodation camps.	The main ancillary facilities for the proposal were mapped by WSP during field survey (March 2022). For minor tracks, brake and winch sites etc. vegetation mapping was extrapolated using aerial imagery and WSP field verified vegetation mapping on adjacent properties (refer to section 4.3 of the Revised BDAR). Water points have been excluded from detailed and field validated mapping as a specific impact at each of these sites is not identified as part of the current scope of the proposal works. Vegetation clearing is assumed to not be required at these locations at this stage based on the current understanding of the scope of these works. Should vegetation clearing be required appropriate assessment would be required at the site to be impacted and biodiversity impacts assessed and addressed as required.
		Similarly, the accommodation camp on the Urana-Lockhart Road is mapped as PCT 0. However, there are many scattered trees across the entire camp site that have not been included in the scattered tree assessment for the Lower Slopes.	Pre-determination	5.2 Update the scattered tree assessment to capture all scattered trees for the Urana-Lockhart Road accommodation camp, and any other ancillary facilities with scattered trees where they are currently not assessed.	The Urana-Lockhart Road construction compound and accommodation camp has been removed from the proposal scope and therefore removed from the Revised BDAR assessment. Scattered trees have been reviewed across the entire proposal alignment as part of the Revised BDAR. All required updates have been included in Figure B-7, section 4.6 and the corresponding impact sections of the Revised BDAR.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
6 – Native vegetation	The vegetation integrity plots should adequately sample vegetation variability across a vegetation zone and be within relative proximity of the vegetation zone impacted, including within the subregion. The approach taken to define PCTs and assign plots to vegetation zones lacks clarity, is not consistent with the BAM, and lacks supporting evidence.	The approach taken to define PCTs and assign plots to vegetation zones lacks clarity, is not consistent with the BAM, and lacks supporting evidence including: - the extent of each PCT in the subject land is not documented - the abundance of key main species is not documented to support PCT selection - patch size is estimated in the South West Slopes bioregion and is not supported by maps - benchmark (BioNet Vegetation Classification) and local data (plots) may have been used to define PCTs but that evidence is not clear in the BDAR - the use of benchmark plots where the minimum number of plots has not been met is not discussed.	Pre-determination	6.1 Update PCT selections to include additional justification. For each BOAMS case, review how PCT was determined consistent with the BAM including evidence of source information (including plots) and endorsement from BCD.	The extent of each PCT in the subject land (construction impact area) has been included in section 12.2.11 of the Revised BDAR. In the Revised BDAR, further justifications have been added to Appendix B–2 including discussions around percent cover of dominant species (refer to Appendix B–4), additional characteristic species and VI plots sampled within each PCT. Patch size discussion has been provided in Section 4.3.3 of the Revised BDAR. In the Revised BDAR Section 4.3.5 and Table 4.9 provide the justification for individual plot use that occur outside the disturbance area vegetation zone, where plots have been used more than once or where benchmarks have been assumed. Further explanation on PCT detail is also provided in Appendix B–2 and B–4.
		BCD has reviewed a sample of vegetation zones mapped within the subject site against the relative location of individual vegetation plots that have been used to inform the zone's vegetation integrity score for a subregion. It was found that several zones had plots that were located outside the zone. The BDAR does not indicate which plots are within each zone or justify the use of individual plots that are a significant distance outside the zone. Section 4.3.3 states that some vegetation zones were being informed by plots located outside the subregion but does not specify which plots or provide specific justification for their use. The BDAR should include more detail about plot locations and should justify that location in consultation with BCD. This should include ensuring vegetation integrity (VI) plot location and the number of VI plots for each subregion are adequate and appropriate along the length of the project. The BDAR should include a plot justification table (as per the table to the right), indicating which plots are outside the vegetation zone, and plots that have been used more than once. Such tables should include the justifications agreed with BCD. This should be completed for all VI plots used in each subregion case in the Calculator.	Pre-determination	6.2 Include more detail about plot locations and justify them with BCD. This consultation should include plot locations and the number of plots for each subregion are adequate and appropriate along the length of the project.	The Revised BDAR has been updated to include text in section 4.3.4 to clarify that plots used that no longer fall within the proposal study area still fall within a large congruent vegetation community adjacent to the disturbance area. Additional text has also been added to the Revised BDAR to further clarify reasoning behind the use of surrogate plots and a plot use justification table has been added.
		Example headings for plot justification were provided in the submission.	Pre-determination	6.3 Prepare a plot justification table, indicating plots outside the vegetation zone and plots that have been used more than once.	A plot justification table has been added to section 4.3.4 of the Revised BDAR to address this requirement.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
7 – Native vegetation	High Threat Weeds are not discussed	Section 4.7 would benefit from a discussion of the High Threat Weeds recorded during field surveys. The discussion should describe the most commonly recorded species and percent cover at higher density locations and distribution.	Pre-determination	7.1 Include a general discussion around High Threat weeds and prepare a new table of all High Threat Weeds recorded and the plots identifier/s in which each species was recorded.	An assessment of High Threat Weeds has been completed including information about location and densities of the most common High Threat Weeds recorded. This is included in section 4.7 of the Revised BDAR.
8 – Native vegetation	Scattered tree assessments require review. The Scattered Tree module may not be applied when the: - scattered tree is itself a threatened species, or when candidate species credit species (flora or fauna) have been recorded using it - impact is likely to be serious and irreversible (SAII). Assumptions about use of scattered trees are not justified. Scattered trees are likely to have been missed in the assessment.	The scattered tree assessment has assumed that no candidate species credit species are likely to use recorded scattered trees for habitat. Similarly, the assessment assumes impacts on candidate communities are not serious and irreversible. There is no justification or reasoning provided for this assumption.	Pre-determination	8.1 Update the scattered tree assessment to capture all scattered trees for the Urana–Lockhart Road accommodation camp and any other ancillary facilities with scattered trees.	The Urana–Lockhart road compound has been removed from the proposal scope and as a result from the Revised BDAR. A review of scattered trees at other ancillary facilities was undertaken and additional scattered trees have been included in section 4.6, Figure B–7 and corresponding impact sections of the Revised BDAR.
		Mapping of scattered trees is at a coarse level (maps cover 100km areas). No spatial data has been provided to verify the number of scattered trees being impacted.	Pre-determination	8.2 Provide scattered tree spatial data for verification.	A separate GIS data package is submitted to the department to address this requirement.
		Review of the Category 1 land mapping indicates many scattered trees are not mapped as Category 2 and are likely to not been assessed. This is particularly so in the east of the project footprint. It is likely that a significant number of scattered trees have been missed in the assessment.	Pre-determination	8.3 Provide justification and reasoning for the assumption that no candidate species credit species would be using the scattered trees for habitat.	In the Revised BDAR, additional justification and reasoning has been provided for the assumption that no candidate species credit species would be using the scattered trees for habitat. This is included in section 9.1.5 of the Revised BDAR.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
		–	Pre-determination	8.4 Provide justification and reasoning for the assumption that impacts on scattered trees are not likely to be SAIL.	The assessment in the Revised BDAR has been updated to include additional paddock trees following Category 1 revision and trees not captured by native vegetation extent layer. The scattered tree module has not been applied to any tree species that is listed as threatened nor have any candidate threatened species been recorded or assumed to present. Furthermore, of the recorded or assumed threatened candidate fauna species credit species, one is listed as an SAIL entity being <i>Pedionomus torquatus</i> (Plains Wanderer). This species does not use trees for any of its habitat requirements and as such does not preclude the use of the scattered trees assessment module. Several recorded scattered trees derive from vegetation types (PCTs) that form part of the SAIL threatened ecological community listed as White Box–Yellow Box–Blakely's Red Gum Grassy Woodland and Derived Native Grassland. The occurrence of these scattered do not form part of a functional ecosystem or meet the final determination requirements of the threatened ecological community. Refer to section 9.1.5 to further information.
9 – Threatened species	The threatened species survey effort lacks evidence and is not consistent with the BAM. Candidate threatened species included and excluded in the BDAR do not match the Calculator credit reports.	Several species have been excluded as candidate or predicted species in the Calculator but their justification for exclusion has not been included in section 5.4.1.3 or section 5.4.2.3 of the BDAR. Similarly, some species excluded in the BDAR have been included in the credit reports and have been recorded as 'surveyed'. For example, <i>Amphibromus fluitans</i> has been added to the Murrumbidgee subregion in the BDAR but has not been added in the related case in the Calculator (00026670).	Pre-determination	9.1 Complete a thorough review of predicted and candidate species surveys, including justification of candidate inclusion and exclusion for each subregion.	As part of the preparation of the Revised BDAR, a review as required has been undertaken. It is clarified that the <i>Amphibromus fluitans</i> has been removed from inclusion for the Murrumbidgee subregion as it was an error not supported by Appendix C.1.
	There are conflicts in the reported survey effort, which is likely to be lower than prescribed by the BAM. The mapped effort (BDAR Appendix C5) does not match the described method (Appendix C3) and does not cover all vegetation zones.	The survey effort mapped in Appendix C5 does not align with the method described in Appendix C3. The survey effort does not cover the whole vegetation zone. It is likely that the survey effort is below that prescribed. For example, Section 5.5.2.3 describes the two-phase grid-based systematic survey approach used. However, survey locations have not been provided or shown on maps. This prevents a review of the method applied. There is no evidence relating to how a list of fauna species to be targeted by the survey effort was defined. That evidence should include the survey effort for each candidate target fauna species, the survey personnel and experience, and limitations to the survey effort.	Pre-determination	9.2 Review the survey effort for candidate species and associated PCTs to ensure survey effort is consistent with the BAM. **There is no comment 9.3 – there is a typo in the detailed section of response (pg. 22)	As part of the preparation of the Revised BDAR survey effort has been reviewed for all candidate species and updates have been made to section 5.5.2, section 5.6.2, section 5.6.4, Appendix C–3 – Appendix C–8 of the Revised BDAR. Further details provided in section 5.5.2 and section 5.5.3 for justification of use of specific methods. A detailed breakdown of survey effort for each candidate species can be found in Appendix C–3 and Appendix C–4 of the Revised BDAR.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
10 – Threatened species	The polygons representing species credit species lack clarity and rigour. It is not explained why vegetation zones with associated PCTs have been excluded from species polygons. Some species polygons for species assumed to occur within the subject site do not conform with BAM s6.4.1.30. If there is no survey, species must be assumed to occur if an associated PCT occurs on site or be excluded with an expert report. Areas of known and assumed presence species polygons in the spatial data do not match the BOAMS case data. The fauna candidate species polygons are poorly justified and decisions about lack of suitable habitat are not supported by evidence.	Section 6.4.1.3 of the BAM states that where a species is assumed to be present on the subject land the assessor must use either an expert report to delineate the species polygon, or the species polygon must encompass the entire vegetation zone/s in which the candidate species is predicted to occur. Several species polygons do not conform with this section of the BAM. Species occurrence has been omitted for numerous species with an associated PCT occurring where survey was not undertaken due to lack of access. For example, Property HO15 has no access but contains PCT 170 in the Southern Olary Plains bioregion. That PCT is an associated PCT for <i>Acacia acanthoclada</i> and <i>Atriplex infrequens</i>, amongst others. If there is no survey, species must be assumed present when an associated PCT occurs on site. In addition, the areas of known and assumed presence species polygons in the spatial data does not match the BOAMS case data. For example, there is 46.33 hectares of known <i>Maireana cheelii</i> species polygon and 323 hectares of assumed presence species polygon in the spatial data (256.37 in disturbance areas A and B4, and B10). However, there is only 109.7 ha entered in the BOAMS case data. The flora species polygon data does not match any specific vegetation zones in the spatial data set.	Pre-determination	10.1 Conduct a consistency review of associated PCTs land where species polygons have not been prepared targeted surveys have not been completed, or where no access was granted.	As part of the preparation of the Revised BDAR assessment has been undertaken to identify areas in which species polygons were not correctly/ consistently applied. Further justification has now been included in section 5.6.2 of the Revised BDAR as required. Assumed species presence polygons and species polygons have been adjusted accordingly and are reflected in Figure C–7. Property H015 has since been surveyed and field data is available and used in the Revised BDAR and as a result the comment no longer applies. Further explanation of calculations is provided in section 5.6.2 (each species is considered to only be impacted in Disturbance A and BOAMS case should reflect this).

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
		Section 5.2 of the BAM establishes that for each candidate species with an associated PCT/vegetation zone, the assessor must justify why each candidate species may or may not occur for each part of the vegetation zone. The fauna candidate species polygons are poorly justified. For example, Major Mitchell's Cockatoo occurs across the development area from the Hay Plain to Buronga and the Little Eagle in most parts of the alignment. Nesting habitat could be anywhere with trees. Despite this, the extent of species polygon is not justified and cannot be interpreted from the supplied spatial data. Many of the excluded vegetation zones have associated PCTs that potentially provide suitable habitat for the candidate species. No justification or evidence has been provided to support the absence of suitable habitat within these vegetation zones, or parts of these zones, nor to exclude these zones from species polygons. We note that the lack of nearby BioNet Atlas records is not justification for a vegetation zone's exclusion from a species polygon in full or part, particularly given the relative paucity of threatened species records within the region, and the low frequency of threatened species survey that has occurred historically.	Pre-determination	10.2 Update the GIS spatial data for each candidate species and each associated PCT to include outcomes of survey and assumed presence where no surveys were completed (due to no access or other constraints) and provide justification for each candidate species associated PCT polygons for exclusion (in part or in full).	Additional justification and polygon locations for each candidate flora species discussed in section 5.6.2 and reflected in Figure C–7 in the Revised BDAR. Threatened species polygons have been updated accordingly in areas where survey effort lacks or methodology does not meet BAM requirements. Refer to section 5.5.2 for detailed descriptions of survey methodology of the Revised BDAR. Species polygons for each candidate fauna species updated to reflect PCTs associated with species habitat as listed in BOAMs. Species polygons excludes condition classes for PCTs missing habitat requirements (i.e. derived native grasslands for breeding habitat for threatened entities requiring large tree hollows for nesting). Polygons also exclude distributional limits, specific habitat requirements not present and areas with no evidence of occupation following targeted surveys.
			Pre-determination	10.3 Update assumed presence species polygons after completion of the above tasks.	For Flora, a revised assessment has been completed and reflected in Figure C–7 of the Revised BDAR. For Fauna, a revised assessment has been completed and reflected in Figure C–8 of the Revised BDAR.
11 – Matters of National Environmental Significance	The potential association between Plains Mallee–Box Woodland CEEC and PCT 173 has not been considered.	BCD requires further information to complete the MNES assessment. As described throughout this response, potential impacts to threatened species and communities, including EPBC-listed entities, have not been adequately considered. Further detail is required about measures to mitigate, monitor, and manage impacts. Residual impacts of the development have been underestimated. BCD will provide separate advice about MNES assessment following the Response to Submissions (RTS). This point is also relevant to the assessment of native vegetation. Section 7.1.1.4 associates the EPBC-listed 'Plains Mallee Box Woodland' CEEC with PCT 170. The CEEC listing advises that it may also be associated with PCT 173, but this has not been discussed. There are records for the dominant <i>Eucalyptus porosa</i> in and around the western end of the study area. We acknowledge that the listing's author was involved with the project fieldwork, however Table 7–12 should also include PCT 173 and demonstrate how patches of PCT 173 conform to the listing where it was recorded (see PCT identification). It appears that PCT 173 was not considered when sandplain mallee vegetation VI plots were assigned to a PCT. The justification for not including this PCT should be included in the BDAR, particularly for the eastern extent of mallee in the project area.	Pre-determination	11.1 Include a justification for the absence of PCT 173 in the project area. If present, include an assessment of PCT 173 against the EPBC-listed Plains Mallee Box Woodland CEEC and provide evidence about how patches of PCT 173 within the survey area conform to the listing advice.	Additional text has been included into Appendix B–2 of the Revised BDAR to further clarify selection of PCT 170 over PCT 173 including reference to section 7.1.1.5 to further discuss the Plains Box Mallee TEC.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
	Assessment of the Mallee Bird Community of the Murray Darling Depression Bioregion requires detailed consideration.	The Mallee Bird Community of the Murray Darling Depression Bioregion was listed as Endangered under the EPBC Act on 7 December 2021. While this community has been briefly addressed in section 4.10, it has not been considered under MNES.	Pre-determination	11.2 Include the EPBC listed Mallee Bird Community of the Murray Darling Depression Bioregion within Section 7 of the BDAR. Assess the impacts on the Mallee Bird Community of the Murray Darling Depression Bioregion and provide detail.	Additional assessment has been undertaken and included in section 7.1.1.3 in the Revised BDAR. Significance assessments are also included in Appendix D–1 of the Revised BDAR to address this matter.
12 – Avoid and minimise impacts	Avoid and minimise measures have not been adequately addressed. The BDAR does not demonstrate avoidance and minimisation of prescribed impacts associated with connectivity, or that uncertain impacts associated with bird collision have been avoided. Specific measures for clearing have not been provided to support statements that biodiversity impacts, including impacts to Plains–wanderer habitat, will be avoided and minimised during construction and maintenance. The criteria for constraints presented in the EIS (section 3.3.1.2) are flawed regarding protected areas and legislative responsibilities.	We do not consider that an appropriate effort has been made to avoid and minimise biodiversity impacts, particularly uncertain impacts associated with bird collision, direct impacts to threatened flora and prescribed impacts associated with connectivity. For example, discussion of underground options has not been considered at any location, including high risk areas that involve a considerable credit liability. <u>Constraints criteria:</u> The criteria for constraints presented in the EIS (section 3.3.1.2) are flawed regarding protected areas and legislative responsibilities. Protection levels in NSW are implemented through gazettal and management under the NSW National Parks and Wildlife Act 1974; Nature Reserves have the highest level of protection (IUCN category Ia), followed by National Parks (IUCN category II), State Conservation Areas (IUCN category IV), and so on. This hierarchy of legislative protections is not reflected in the constraint tiers of the EIS. Crown Land reserved for conservation or with conservation values, such as Travelling Stock Routes, should also be recognised and avoided.	Pre-determination	12.1 Provide a detailed analysis of the risk of collision to fauna, including identifying areas of highest risk, and how they are being avoided or minimised.	A detailed analysis of the risk of collision to fauna, including identifying areas of highest risk, and how they are being avoided or minimised is provided in Section 9.2 and Appendix E of the Revised BDAR to address this matter. <u>Constraints criteria</u> As outlined in Section 3.3 of the EIS, the constraints were grouped into three categories to enable a broad scale identification and assessment of preliminary corridors for the alignment. Ecological constraints were considered across Tier 1 (areas that must be avoided, such as World Heritage Areas), Tier 2 (areas to be avoided wherever possible) and Tier 3 (areas where impacts should be minimised and mitigated). The majority of protected areas (such as National parks, State conservation areas, nature reserves, wilderness protection areas, etc) were grouped into Tier 2. It would not be possible to achieve avoidance of these areas in all instances given the landscape that the proposal passes through, and once the presence of other non–ecological constraints had been considered. It is acknowledged that Crown Land, including Travelling Stock Reserves, were not identified as a constraint in the broad landscape assessment of the preliminary corridors. In most cases, these follow road corridors or property boundaries and cannot be avoided. Nevertheless, other ecological values were considered across Tier 2 and 3, including threatened flora/fauna records and expert advice, vegetation mapping, State Forests, and large, intact areas of moderate or better quality woodland vegetation. This is considered suitable for a corridor selection process and reflects the scale of the proposal. Further, these values continued to be considered throughout the corridor refinement process and selection of the proposed alignment (as outlined in Chapter 3 of the EIS, and discussed in Section 8.1 of the Revised BDAR). This included further assessment of alignment options and where informed by biodiversity investigations (where available). Overall, the alignment selection process is considered appropriate. The selected alignment provides an appropriate outcome that balances the range of environmental and social constraints, as well as property and engineering requirements.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
		<u>Hazard Trees and Overhanging Canopy</u> Development consent will not include clearing of trees outside the assessed development footprint. Any clearing recommended by a qualified arborist may only be cleared if it is assessed consistent with the BAM. Such clearing must be avoided and minimised or included in the assessment. The final design refinement phase will include additional survey in areas that were not previously subject to biodiversity survey (Section 10.2.1). 'No access' polygons appear on survey results maps in appendices (e.g. Appendix B–5). However, it is not clear what happens if there are changes to the boundaries of disturbance areas A and B that result in different harm within the areas that were surveyed. There is the potential for harm to biodiversity that has not been included in offset calculations.	Pre-determination	12.2 Ensure that all avoid and minimise measures proposed in the BDAR are documented in Table 10–1, and that they are feasible and achievable.	The Revised BDAR includes an additional category of disturbance area – hazard/high risk trees and has assessed a conservative impact level for this activity across the full proposal alignment in specific defined locations. As identified above Transgrid anticipates that changes in the extent of clearing/disturbance would occur in areas that have already been subject to assessment in accordance with the BAM. In the unlikely event that a disturbance is proposed outside of the assessed area, the areas would be assessed in accordance with the requirements of the BAM, as committed to in Mitigation Measure B2. Given Transgrid's commitment in Mitigation Measure B1 aims to minimise impacts of the proposal, changes that require additional biodiversity assessment do not necessarily equate to an increase in overall impact overall. Transgrid would revise offset calculations using the same model adopted for the preliminary offset liability calculations carried out to inform the Revised BDAR. The construction contractor will record the extents of each the disturbance area based on actual clearing, which will then be overlaid on the mapping of biodiversity values to confirm revised offset credit liabilities through BAM–C calculations (in the same manner as they have occurred for the preliminary offset liability calculations). As Transgrid anticipates that actual disturbance will be generally consistent with and potentially less than the assumptions in concept methodology and indicative disturbance model, Transgrid also anticipates that the final offset calculations will be substantially the same as, or potentially less than, the calculations presented in the Revised BDAR, regardless of any changes in actual clearing.
		<u>Avoidance Measures</u> Table 8–1 should include ensuring that maintenance protocols meet vegetation maintenance commitments made during the RTS period. Required outcomes must be detailed in the revised BDAR, including an interpretation of how they are reflected in Environmental Management Plans and operational protocols. BCD acknowledge that a tiered approach to locating the proposal has been used during the scoping phase to demonstrate that biodiversity impacts have been avoided and minimised at a landscape scale. Unfortunately, the approach does not reflect the legislative and land management protections in NSW. Specific clearing measures that avoid and minimise impacts during construction and maintenance have not been provided. <u>Collision risk</u> There needs to be a demonstrated effort to understand and mitigate the collision risk for a range of species. The revised BDAR should provide an analysis that:	Pre-determination	12.3 In the revised BDAR, detail required vegetation maintenance outcomes, including an interpretation of how they are reflected in EMPs and operational protocols.	The Revised BDAR has set the outcomes to be achieved. These outcomes are applicable to construction and operational phases of the proposal. A detailed risk assessment of collision to fauna, including identifying areas of highest risk, and how they are being avoided or minimised is provided in Section 9.2 and Appendix E of the Revised BDAR. <u>Avoidance Measures</u> Transgrid will develop vegetation maintenance protocols for the proposal accordingly. This might include updating existing Transgrid maintenance procedures/guides or creating new bespoke maintenance procedures/guides specifically for the proposal. Transgrid will make a decision regarding exactly how these requirements will be captured in maintenance system for the proposal prior to the commencement of operation of the infrastructure. Regardless, the new or updated vegetation maintenance procedures/guides will be implemented for the proposal to ensure that the vegetation maintenance outcomes that Transgrid has committed to in the EIS (as amended in response to the submissions received) are achieved.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
		- is not limited to the four species selected in the BDAR - identifies areas of highest risk for fauna collision - discusses in detail, those species that will be most at risk with reference to relevant literature - specifies strategies that could be implemented to minimise the impact of collision. Areas with high risk potential for fauna collision include (but are not limited to): - riparian areas and wetlands – Murrumbidgee River crossing, Yanga National Park, Abercrombie Creek, Yanco Creek, Colombo Creek, The Gums TSR, rice-growing areas around Coleambally, Lake Cullivel, irrigation delivery infrastructure and farm dams. Threatened species most at risk in these areas are likely to include Brolga, White-bellied Sea-eagle, Australasian Bittern, Painted Snipe, various migratory waterbirds - areas important to Regent Parrot including the Murrumbidgee River crossing which has potential as a nesting colony area, and movement corridors north of Euston between breeding areas on the Murray River and mallee vegetation to the north – the Grey-headed Flying-fox colony at Wagga Wagga. The impact of raptors predating fauna attempting to cross the easement needs to be considered. Raptors are known to adopt high voltage powerline towers as nesting sites and use the elevated towers as vantage points. This is likely to increase predation on fauna that navigates the existing easement, especially when the proposed easement is close and parallel. Means of preventing raptors from nesting or perching on towers need to be considered as a viable means of minimising impact, particularly in high risk areas. Although measures that minimisation collision have been mentioned, including diverters, they are not described or discussed in detail. Diverters of a particular style may be more effective for minimising collision risks at specific locations and should be considered further in the BDAR. <u>Plains-wanderer habitat construction methods</u> Table 8–1 states that impact to Plains-wanderer habitat will be minimised by using bespoke construction methods to prevent clearing vegetation in the centre line between towers. There is no information to assess whether this measure is feasible or achievable, and it has not been detailed in Table 10–1. <u>Vegetation clearance and maintenance outcomes and commitments</u> Avoidance measures in Table 8–1 include ‘ensuring that maintenance protocols meet vegetation maintenance commitments made during the RTS period’.			Section 10.2 outlines the many mitigations measures that specifically address avoidance and minimisation of impacts during construction and maintenance. <u>Collision Risk</u> Further refinement and analysis was undertaken to identify bird species at risk of collision with the proposed alignment. Additional species have been included in assessment including those associated with wetland habitat, such as the Brolga. Areas of high risk for collision, like Lake Cullivel, have been identified and additional measures, bird flappers, have been included in section 9.2.2, section 9.2.5 and Appendix E–5. The impact of predation is not well-known and cannot be accurately incorporated into impact calculations. However the approach to conservatively providing additional species and ecosystem credits is considered to address any potential additional impacts of species predation. <u>Plains-wanderer habitat construction methods</u> As outlined in Section 10.2 a Plains-wanderer specific protocol would be developed to ensure that all project staff are aware of the sensitivities around this critically endangered species and to ensure that all specific requirements in relation to protection, avoidance, management and observation of individual Plains-wanderers are considered, in association with BCD staff. This protocol will be implemented during all proposal activities in Plains-wanderer habitat. In circumstance where a tree that would exceed the vegetation clearing requirements is identified within one of the biodiversity conservation zones relating to the Plains-wanderer habitat areas then this tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place) using methods that minimise potential impact to key habitat and to ensure avoidance of impact to bird individuals. This would occur under supervision of an ecologist. Refer to section 10.2.4 for further information. <u>Vegetation clearance and maintenance outcomes and commitments</u> Section 10.2 of the Revised BDAR outlines the many mitigations measures that specifically address vegetation clearance and maintenance outcomes and commitments.

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		Specific measures for minimising the impact of tree and large shrub removal to surrounding vegetation (including groundcover and cryptogamic crusts) have not been detailed. The post-approval BMP is not necessarily prepared by an ecologist who understands the intricacies of the BAM and partial impact assessment. BCD are not confident that avoid and minimise will be implemented without more detail about construction and maintenance methods. Required outcomes must be detailed in the revised BDAR, including an interpretation of how they are reflected in Environmental Management Plans (EMPs) and operational protocols.			
13 – Assessment of impacts	The assessment of direct impacts on native vegetation and threatened species habitats is inconsistent. Determination of vegetation integrity decline in the Disturbance Area B4 and B10 requires review. Prescribed impacts are underestimated and lack any species-specific evidence-based justification for lack of impacts. Credits for direct impacted scattered trees do not match BOAMS case data. Impact areas do not match the supplied spatial data.	<u>Credits for direct impacted scattered trees do not match BOAMS case data</u> For some subregions, the BOAMS case data does not match the data in the Tables. For example, in Section 9.1.5 the number of credits for the Lower Slopes subregion in Table 9–16 does not match the data in the Calculator. In addition, the Swift Parrot is recorded as a present candidate species in the Lower Slopes subregion scattered trees case. In accordance with Appendix B of the BAM, the scattered tree module cannot be applied if candidate species credit species are recorded using scattered paddock trees.	Pre-determination	13.1 Revise the nine BOAMS cases to better reflect the spatial data so that BCD can test and repeat the calculations to validate the reliability of the Calculators.	BOAMS cases have been reviewed as part of the Revised BDAR and updated to correctly correspond with calculations. A GIS data package is provided separately to the department for use to address this matter.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
		<u>Determination of vegetation integrity decline in the Disturbance Area B4 and B10 requires review.</u> BCD request a review of the Composition, Structure and Function conditions score assumptions including the percent reduction thresholds. Some of the assumptions and justifications for calculation of vegetation integrity scores, and how they have been applied to PCTs, is not well documented or justified. For example, the assumption that high threat weeds will not increase from the existing rates requires justification and review. Disturbance areas B4 and B10 have identified that 'trees would be removed and may result in temporary ground disturbance'. It is unclear when areas of temporary ground disturbance in B4 and B10 have been applied and to each PCT and vegetation zone and species credit species polygons. While in some cases this partial disturbance may be temporary for some species, partial impacts to threatened flora in small, localised populations may still result in changes to runoff, pooling of water, soil disturbance and seed banks that could result in the complete loss of the local occurrence of threatened flora species. We understand from Snowy 2.0 Transmission Connection that it is unrealistic to expect future maintenance contractors to target particular plant species. However, the BDAR requires information specifying and identifying tall-growing species (or any plants realistically perceived to be tall growing) and how their removal will impact vegetation communities and threatened species habitats, including threatened fauna feed sources.	Pre-determination	13.2 Consult with BCD to further develop agreed partial impact definitions for Composition, Structure and Function and the application of partial impacts in the B4 and B10 disturbance areas.	The approach proposed for the proposal is consistent with the approach proposed and approved for the EnergyConnect (NSW – Western Section) project. This was discussed with BCD on the 4 April in relation to the ongoing adoption of this approach and rationale for doing this. It was identified that the same approach was to be consistently taken forward. See below for discussion points from 4 April meeting. The updated assessment in the Revised BDAR has been undertaken to apply a consistent approach taken with BDAR EnergyConnect (NSW –Western Section) for all PCTs: - Justification was provided in Section 9.1.1. Now updated to reflect additional vegetation formations. - Precautionary approach applied to Grassy Woodlands to include same level of reduction as previous agreed for BDAR EnergyConnect – NSW Western Section. - Grassy Woodlands sampling of existing easements could not provide informative justification (weeds edge effects consistently high/ seasonality). - HTW cannot be increased beyond start condition score. - The proposed reduction by 30% understorey composition and structure is overly conservative and accommodates for changes in HTW.
		The agreed outcomes of discussions and workshops with BCD are not documented in the BDAR. The agreed reduction in VI score for PCTs that were assessed for EnergyConnect (Western) need to be detailed and justified. For those PCTs not assessed for EnergyConnect (Western), BCD recommended using field data from adjacent, existing transmission easements to justify the partial impact scores in the remaining ecosystems. This does not appear to have been done. For example, multiple records of the threatened flora <i>Pimelea serpyllifolia</i> susp. <i>serpyllifolia</i> occur in the proposed Disturbance Areas A, B4 and B10. If there are any records in the parallel powerline easement, the construction and operation of the powerline in that location may provide evidence that a localised population can persist within the existing operational area. Comparison of BAM VI plot data from the proposed powerline and the existing parallel powerline should be used to justify partial reductions in VI scores wherever possible.	Pre-determination	13.3 Document and explain with supporting references why specific percent reductions in VI scores were chosen, including supporting assessments or literature to support assumptions.	The reduced VI scores applied and agreed to PEC West have been carried into PEC East. This includes justification and references – refer to section 9.1.1. For PEC East specific PCTs field surveys were found to be uninformative from existing easements due to high levels of disturbance and seasonality of annual exotics. A conservative approach was applied and previously agreed adjustments for mallee and PEC West PCTs have been applied to PEC East specific PCTs.

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		Disturbance associated with tree removal and subsequent ecological changes was discussed in detail over several months by BCD and WSP during preparation of the proponent’s Response to Submissions for Project EnergyConnect (Western). The BDAR does not report the relevant evidence or agreed position to justify scoring of future vegetation integrity for the PCTs that are also impacted by the current proposal. Unless a dedicated rehabilitation and weed control program is developed and implemented, native vegetation in disturbance areas described as ‘temporary’ is unlikely to return to its Pre-development vegetation integrity. The likely success of rehabilitation must be demonstrated using evidence from literature or monitoring programs in similar PCTs. The boundaries of each disturbance zone would need to be clearly identified for machinery operators during construction and operation. The BDAR should describe how this will be achieved.	Pre-determination	13.4 Document the discussions with BCD and agreed outcomes for future vegetation integrity scores of PCTs that are also impacted by Project EnergyConnect (Western).	The methodology is consistent with the assessment utilised for the EnergyConnect (NSW – Western Section) project – refer to previous comment and section 9.1.1 within the Revised BDAR.
		<u>Areas of impacts to TECs in subregions do not match BOAMS case data.</u> There are multiple inconsistencies between the impact areas in Table 9–8 and the BOAMS case data. BCD reviewed a subset of the subregion data and identified the following inconsistencies: Southern Olary Plain subregion – PCT 22 is not selected as the Allocasuarina leuhmannii woodland TEC in the Calculator; Murrumbidgee subregion – PCT 23 is selected as Acacia melvillei shrubland in the Calculator, but no impact areas are listed in Table 9–8; Murrumbidgee subregion – areas of impact to Myall Woodland TEC area in Table 9–8 do not match areas in the Calculator; Murrumbidgee subregion – Sandhill Pine Woodland TEC area in Table 9–8 does not match areas in the Calculator. This is not a full list of all inconsistencies for Table 9–8 and the BOAMS case data. BCD only reviewed a sample of all subregion data and TECs.	Pre-determination	13.5 Complete a consistency review of all subregion data to ensure TECs are correctly identified in each related case and impact areas in Table 9–8 and BOAMS data are consistent and correct.	Areas of impact for each TEC has been updated within Table 9.8 of the Revised BDAR and BOAMS cases. However it is noted that the calculator does not allow select PCTs to be selected as a TEC. An example of this is PCT 22 where the vegetation type cannot be assigned to the corresponding TEC that being Buloke woodland. An email was sent to BOAM help desk to try to rectify this issue but to date no reply has been provided.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
		<u>Credits for direct impacted scattered trees do not match BOAMS case data.</u> For some subregions, the BOAMS case data does not match the data in the Tables. For example, in Section 9.1.5 the number of credits for the Lower Slopes subregion in Table 9–16 does not match the data in the Calculator. In addition, the Swift Parrot is recorded as a present candidate species in the Lower Slopes subregion scattered trees case. In accordance with Appendix B of the BAM, the scattered tree module cannot be applied if candidate species credit species are recorded using scattered paddock trees.	Pre-determination	13.6 Conduct a review of all Tables in s9.1.5 of the BDAR to ensure they are consistent with the outputs for each subregion scattered tree assessment.	A review of all tables in section 9.1.5 of the Revised BDAR has been complete and are consistent with BOAMS cases and GIS data.
		<u>Impact areas do not match the supplied spatial data</u> Threatened flora and fauna impact areas in the report tables do not match the spatial data, nor do the direct and indirect combined totals match those presented in the species credit offset tables. The submission did not include all required spatial data. Although spatial data supporting the final BDAR was provided after request from BCD, it is still incomplete. Supplied datasets were ambiguously labelled and did not allow easy replication of maps or confirmation of area calculations.	Pre-determination	13.7 Ensure data presented in the BDAR is consistent with spatial data.	A review of all data provided in the Revised BDAR has been completed to ensure consistency with spatial data.
			Pre-determination	13.8 Provide shapefiles with areas that correspond exactly with what is presented in the BDAR tables and each related case in BOAMS.	As part of the process of updating the Revised BDAR, spatial data has been reviewed and a separate data package including shapefiles with areas that correspond exactly with what is presented in the BDAR tables and each related case in BOAMS is provided to the department.
			Pre-determination	13.9 Provide all spatial and digital data (excluding jpegs) required by BAM Appendix K at the time of submission of the revised BDAR. Vegetation zones must be clearly identified as per BAM–C and the BDAR and be attributed to species polygon data.	The spatial data used for the Revised BDAR has been updated and a separate package is provided to the department for reference and use.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
14 – Impact assessment	There is no justification for indirect credit ratios and species selected for indirect impact offsets. The use of additional biodiversity credits to offset the loss of indirect impacts as result of bird strike and EMF may be appropriate, however the BDAR does not provide any evidence-based justification for applying 10% to impacted habitat in the Calculator. There is no evidence to support the selection of areas of indirect impact for the small group of selected species. The list of species is not representative of those expected to occur. The type and severity of indirect impact is likely to vary for different species and should be assessed accordingly.	While the use of additional biodiversity credits to offset the loss of indirect impacts as result of bird strike and EMF is considered appropriate, the BDAR does not provide any evidence based justification for the application and use of the 10 percent impacted habitat in the Calculator. Indirect impacts should be considered for both ecosystem and species credit species with surrogates for each impacted species clearly outlined and justified in the BDAR. The selection of areas of indirect impact for the small group of selected species lacks evidence. For example, Regent Parrot does not occur east of Four Corners. A polygon denoting impact for this species would need to run west of Balranald. Little Eagle occurs throughout the development area, and as such risk would exist throughout the development area wherever there are trees. Potential surrogate species include, but are not limited to: • Square-tailed Kite in riverine habitats • Brolga (recorded nesting in natural and artificial wetlands on both sides of the alignment) • Australasian Bittern which routinely flies between rice-growing areas near Coleambally and the south-west coast of Victoria. The type and severity of other indirect impact is likely to vary for different species and should be assessed accordingly. This assessment will require identification of the species at risk, locations of high and moderate risk and the behaviour that will put them at risk. This can then inform how mitigation may be achieved.	Pre-determination	14.1 Update the indirect impact assessment to use evidence-based justification for any proposed additional biodiversity offsets.	The indirect impact assessment has applied a consistent approach to that approved for the EnergyConnect (NSW – Western Section) BDAR for species impacts. In addition further consideration of the potential indirect impacts on species unique to this proposal, EnergyConnect (NSW – Eastern Section), has been provided in the revised BDAR. This assessment includes a detailed risk assessment of species likelihood of being impacted by line strike, combined with the identification of high risk areas based on the connectivity assessment. In areas of increased likelihood on an impact all species with high risk have been assessed. Mitigation has been identified and tailored to these locations to further mitigate risk to these species. Additional offset liability is proposed for high-risk ecosystem species (Brolga, GHFF etc). This liability is calculated as 10% of the ecosystem credit liability generated on extent of PCTs associated with species habitat within high-risk collision zones. 10% is considered conservative given the likelihood of impacts to a species potentially being <1%. The Revised BDAR includes this approach in the revised assessment.
	–	–	Pre-determination	14.2 Prepare a table of ecosystem and species credit species likely to require additional indirect impact offsets including identification of at-risk species, behaviours, and locations. For each species, provide justification for the use of any surrogate species entered in the Calculator.	See above

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
	Trampling of threatened flora is addressed for species that were not recorded in the project area but is not considered for threatened plants that were recorded. The assessment should consider impacts other than trampling that are likely to occur due to removal of mallee trees, such as changes to factors such as shading, soil disturbance and runoff, to the range of flora species present.	<u>Trampling of threatened flora species (<i>Austrostipa nullanulla</i> and <i>Atriplex infrequens</i>)</u> These two species are mentioned in the text but they were not recorded in the survey results or spatial data. In addition, indirect impacts through trampling for other threatened flora species recorded during surveys are not addressed. Indirect impacts to threatened flora species are likely to extend beyond trampling and impacts to known local populations should be considered regarding their habitat preference and microhabitats and how these will be impacted at each known flora location. For example, <i>Pimelea serpyllifolia subsp. serpyllifolia</i> is a candidate for SAI with a very high sensitivity to loss (biodiversity risk weighting of 3). The recorded area of occupancy is 1.7 ha in the BDAR and BOAMS case, but only 0.75 hectares in the species polygon spatial data. Removal of mallee trees from the B4 and B10 zone is likely to have indirect impacts to this species through changes to factors such as shading, soil disturbance, and runoff.	Pre-determination	14.3 Review indirect impacts to known threatened flora populations. Consider if extra assessment of direct or indirect impacts is required, and if subsequent additional offset requirements and/or adaptive management strategies for uncertain impacts are needed.	The Revised BDAR includes additional information to address this matter in Table 9.22 of section 9.2.1.
15 – Prescribed impacts	Prescribed impacts are underestimated. The treatment of prescribed impacts underestimates the important terrestrial and aerial connectivity north and south of the line.	Mapping of rocky habitats, connectivity features and other prescribed impacts in accordance with section 6 of the BAM is required. Post construction, State connectivity mapping should provide indicative locations of any proposed fauna connectivity enhancement features, and these should be included as part of a fauna connectivity strategy to be prepared prior to project approval. This will allow for more comprehensive understanding of the coverage and adequacy of fauna connectivity measures across the subject land.	Pre-determination	15.1 Pre-construction and post–construction fauna connectivity states should be spatially represented within the BDAR in accordance with Section 6.1.3 of the BAM. The post–construction fauna connectivity state should provide indicative locations of any proposed fauna features to be installed.	Fauna connectivity states are provided spatially in accordance with Section 6.1.3 of the BAM in section 9.3 of the Revised BDAR to address this matter.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
	There is no explanation of the limited list of threatened species assessed for prescribed connectivity impacts. This assessment should be expanded to identify all threatened species with the potential to be impacted, include a discussion of mobility, abundance, range, and other relevant life history factors, and specify methods of mitigation. Offsets should be proposed for all residual prescribed impacts to connectivity.	From review of Appendix E2 and Table 9–24 the number and indicative location of any fauna connectivity measures within the subject land and assessment area is not clear. Mapping of any connectivity features as per s6.1.3 and any other prescribed impacts has not been supplied in the BDAR. BCD request that prescribed impacts including connectivity across the project site for both Pre-construction and post-construction states should be spatially represented in the BDAR. This will provide a better understanding of the potential impact of the proposed development, particularly the impact to connectivity between large tracts of native woodland vegetation such as riverine and mallee habitats in the Southern Olary Plains, Lachlan, and Murrumbidgee subregions.	Pre-determination	15.2 Prescribed impacts to connectivity for threatened species should be revised to include all threatened species likely to be affected by the proposed development.	Fauna connectivity is provided including indicative locations of any proposed fauna mitigation features to be installed in Section 9.3 of the Revised BDAR to address this matter.
	The impacts of co-locating the transmission parallel to an existing transmission line have not been adequately addressed. The assessment does not include an analysis of impacts in accordance with section 8.3.3 (b) of the BAM. There is no explanation of how the co-location of powerlines has minimal connectivity impacts to fauna.	Prescribed connectivity impacts on all threatened species with the potential to be impacted should be identified, discussed, and mitigated in the BDAR. Offsets should be proposed for all residual prescribed impacts to connectivity. Table 9–24 (c) states that the proposal would result in a highly permeable structure for biodiversity, and connectivity is expected to remain largely unaffected for all species. However, the table does not specifically discuss any prescribed connectivity features of species. For example, the impact of co-locating the transmission line parallel to an existing transmission line has not been adequately addressed. The assessment does not include an analysis of impacts in accordance with section 8.3.3 (b) of the BAM including predicting consequences of impacts for the persistence of the threatened entities identified, taking into account mobility, abundance, range and other relevant life history factors. The BDAR provides no justification that co-locating powerlines has minimal connectivity impacts on fauna. Discussion of potential impact and proposed methods of mitigation should be expanded to include all threatened species likely to be impacted due to prescribed impacts, including but not limited to:	Pre-determination	15.3 Avoidance and mitigation measures should be proposed which contribute to the recovery of the entities that could be impacted by prescribed impacts.	A detailed discussion of the impacts of the proposal on connectivity including potential impacts associated with collocation is provided in section 9.3 of the Revised BDAR to address this matter.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
		• Regent Parrot • Major Mitchell’s Cockatoo • raptors such as Little Eagle and Square-tailed Kite • Brolga • woodland birds and mallee bird specialists including smaller passerines such as Hooded Robin, Chestnut–Quail–thrush and Southern Scrub–robin • reptiles. The assessment should include a new table for each relevant prescribed impact that address each of the assessment criteria for each prescribed impact. An example is provided in the submission. The BDAR should be updated to discuss proposed prescribed impact avoidance measures and measures proposed to contribute to the recovery of the entities outlined above. We suggest that Table 9–24 explicitly identifies if any residual prescribed impacts to the connectivity of threatened species are likely to occur after the proposed avoidance and mitigation measures are implemented. If prescribed impacts cannot be adequately avoided or mitigated, the residual offset obligation should be increased, or other conservation measures applied consistent with section 7.14(4) of the BC Act and section 6.1(2)(b) of the Biodiversity Conservation Regulation 2017 (BC Regulation). The treatment of prescribed impacts underestimates the important terrestrial and aerial connectivity north and south of the line. We anticipate the clearing will result in a gap greater than 100 metres in some locations. This is likely to involve an interruption to movement likely to impact breeding and life cycles.			

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	The analysis of the increased likelihood of vehicle strike during construction and operation/ maintenance does not include mitigation or avoidance.	A method for the calculation of residual impacts should be developed in consultation with BCD. This may include development of an adaptive management plan in accordance with s8.5 of the BAM in conjunction with the potential calculation of additional biodiversity credits in accordance with s8.6 of the BAM. The BDAR should build on the literature in Appendix E of the BDAR and develop a risk matrix or similar in consultation with BCD, to identify those ecosystem and species credit species at higher risk of residual impacts. We anticipate a significant increase in avian collisions, electrocution and electro-magnetic effects that interfere with bird navigation and predation. For example, we note seven Ramsar wetlands within 100 km of the line (NSW Central Murray Forests, Fivebough and Tuckerbil Swamps, Barmah Forest (Vic), Gunbower Forest (Vic), Hattah-Kulkyne Lakes (Vic), Kerang Lakes (Vic), Lake Albacutya (Vic). We see no evidence relating to the impact of the proposal on species associated with these wetlands. Other wetlands near the proposal include, Colombo Creek, Yanco Creek, Murrumbidgee River, Lake Gol Gol, Lake Cullivel, Lake Benanee, and Lake Albert (Wagga). We anticipate that the movement and life cycles of species associated with these wetlands to be impacted. We see no evidence relating to those effects. Examples include Southern Myotis, White-bellied Sea Eagle, nesting Brolgas, and Magpie Goose.	Pre-determination	15.4 Residual prescribed impacts to the connectivity of threatened species which are likely to occur after the proposed avoidance and mitigation measures are implemented should be identified.	Consistent with the approved approach to the EnergyConnect (NSW – Western Section) project, no monitoring and/or adaptive management to assess changes in VI scores for direct and/or indirect/prescribed impacts are proposed. Rather a conservative application of BAM upfront is provided to avoid the need for adaptive management and monitoring post approval. Monitoring of performance outcomes is not feasible or reasonable across approximately 500 kilometres of alignment for the following key reasons: • Survey effort (carcass surveys are not repeatable) • Existing land management practices may impact the conditions as the proposal operational area is on land accessible to landholders. • There are significant issues with extrapolating across seasonal and wet/dry conditions.
		We acknowledge the analysis of the increased likelihood of vehicle strike during construction, operation and maintenance but note there is no treatment of mitigation or avoidance. We see no evidence that partial clearing in B4 and B10 disturbance areas mitigates the interruption of connectivity either side of the line. We anticipate various indirect impacts associated with interrupted connectivity. We anticipate that these impacts will be ongoing with the potential to become compounded over time.	Pre-determination	15.5 If residual prescribed impacts are identified, measures for offsetting residual prescribed impacts should be proposed in accordance with Section 7.14(4) of the BC Act and Section 6.1(2)(b) of the BC Regulation 2017.	Residual prescribed impacts have been identified and measures for mitigation and offsetting residual prescribed impacts proposed in Section 10 of the Revised BDAR.
16 – Mitigation and management of impacts	Mitigation and management measures require further detail.	For example, Section 10.2 of the BDAR states that the impact assessment is conservative to limit the need for ongoing monitoring and management actions. However, the partial reduction in future VI scores is untested, and any loss of VI below that score has not been offset. Specific construction and operation measures will be needed to ensure vegetation integrity is maintained at the stated partial impact scores. Measures to mitigate impact to connectivity include fauna connectivity structures. However, the number and indicative location of any fauna connectivity structures and proposed mitigation devices to deter birds from bird strike or EMF are not specified in Appendix E2 and Table 9–24.	Pre-determination	16.1 Provide specific mitigation measures and detail according to BAM s8.4 and the BAM Stage 2 Operational Manual.	All mitigation approaches are provided with consideration of consistency with the Transgrid EnergyConnect (NSW – Western Section) project and revised if applicable for location conditions. Specific locations of proposed mitigation measures are included in Section 9.2, 9.3 and Appendix E of the Revised BDAR. Additional fauna connectivity mitigation measures, including areas of proposed connectivity mitigation measures, can be found in Figure 9.3–9.5. Bird flapper locations can be viewed in Appendix E–5.

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	There is not enough detail about measures to mitigate, monitor and manage impacts to have confidence that the calculated credit requirement will sufficiently offset residual impacts of the development. The success of impact mitigation will depend entirely on how well post-approval construction and operation management plans are implemented. It is difficult to determine likely success because these plans have not been prepared. The mitigation and management measures outlined in the BDAR do not provide enough information to inform the post-approval plans and are likely to underestimate the potential harm. The risk of mitigation failure has not been addressed nor monitoring actions to determine if the measures have failed. BAM Section 8.4 outlines the requirements for a mitigation strategy which provides the level of detail that BCD expect to see in the BDAR.	The risk of mitigation failure has not been addressed nor monitoring actions to determine if the measures have failed. For example, the design elements presented appear to be based on standard approaches that do not reflect the local conditions or vegetation communities within the project area. The potential for overland floodwater to move across the riverine plains carrying construction sediment into Plains-wanderer or other threatened species habitat has not been addressed. Avoidance measures in Table 8–1 include ensuring that maintenance protocols meet vegetation maintenance commitments made during the RTS period. However, there is no detail about the desired vegetation maintenance outcomes and how they relate to vegetation integrity scores of the assessed zones. There is also no link between this section and measures in Table 10–1. Required outcomes must be detailed in the revised BDAR, including an interpretation of how they are reflected in EMPs and operational protocols. The BAM Operational Manual Stage 2 includes guidance about the level of detail that is expected for a BDAR to minimise impacts that cannot be avoided and includes examples of reasonable measures to minimise impacts. For all remaining impacts, mitigation strategies should be implemented. BAM Section 8.4 outlines the requirements for a mitigation strategy which provides the level of detail that BCD expect to see in the BDAR. Table 10–1 lists measures to avoid impacts and relies on mapped 'biodiversity exclusion zones'. Those zones (Measure B11) are developed during detailed design and restricted activity in areas of 'high biodiversity conservation significance' (Measure B1, B19) during construction and operation. Measure B20 is to develop and implement maps and guidance around these measures, however this needs to be more specific with relevant information collated in the BDAR. There is no detail to assess whether the measures are achievable, or if techniques can be carried out within Transgrid's protocols. For example, constraints on machinery not to be used for safety reasons.	Pre-determination	16.2 Provide further detail about measures to mitigate, monitor and manage potential impacts, including risk of failure. This detail should be prepared to ensure that the calculated credit requirement will sufficiently offset residual impacts of the development.	All mitigation approaches are provided with consideration of consistency with the Transgrid EnergyConnect (NSW – Western Section) project. Additional detail on the specific locations proposed mitigation measures is also provided to inform the CEMP and BMP. Given the timing of the proposed construction, seasonal variability associated with monitoring and scale of the project, monitoring and adaptive management of the proposals impacts to inform additional credit liabilities is not reasonable or feasible. To address uncertainties the calculated credit requirements have been based on conservative assumptions and are likely to overestimate credit impacts.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
			Pre-determination	16.3 Identify criteria and prepare maps of zones/areas mentioned in Table 10–1 (Measure B20) that inform detailed design and future construction and operational management plans – biodiversity exclusion zones (Measure B11) and areas of high biodiversity conservation significance (Measure B1, B19, B20).	All mitigation approaches are provided with consideration of consistency with the Transgrid EnergyConnect (NSW – Western Section) project. Additional detail on the specific locations proposed mitigation measures is also provided to inform the CEMP and BMP. Biodiversity exclusion zones have been identified in B11 as; - identified Plains-wanderer habitat - identified threatened flora populations and - PCTs in disturbance area B that are not of a growth form height that would ever require management. Areas of high biodiversity conservation significance are described in B19 and 22-24 and 26
		–	Pre-determination	16.4 Interpret the vegetation integrity scores of the assessed zones to produce specific vegetation maintenance outcomes and specify how these are to be implemented in EMPs and operational protocols.	Approaches adopted in the EnergyConnect – Western Section Transgrid project have been applied to this project as relevant to local conditions to enable consistency in approach and delivery. Change to this detail is not proposed.
	–	–	Pre-determination	16.5 Prepare a Preliminary Connectivity Strategy prior to project approval to be further developed and finalised during detailed design (in consultation with BCD), establishing the objectives for managing and mitigating fauna connectivity during project design and construction. It should provide the framework for the continued development of the design and management measures into subsequent phases of the project.	The Revised BDAR has been updated to include further detail on the connectivity strategy including high level objectives of connectivity strategy and maps linking to minimum requirements and locations for mitigation. Refer to section 9.3, Figure 9.3–9.5 and Appendix E–5. This additional detail includes clear identification of minimum high–risk areas for specific mitigation including: - Connectivity management zones (maintaining vegetation to 10 m in height) in areas of identified regional corridors - Bird divertors and or similar within 1km of any area of high–risk bird movement - Squirrel Glider connectivity mitigation.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
17 – Impact summary	SAIL candidates have not been adequately assessed. The SAIL assessment of threatened flora and TECs lacks clarity and does not address all assessment criteria. For example, the SAIL assessment for <i>Pilularia novae-hollandiae</i> includes information that is conflicting, is confused by assumed presence species polygons, and has not addressed the key threat to the species (drainage of swamps). It is difficult accurately assess the impacts to this SAIL species when the impacts are misrepresented in the BDAR and the spatial data. The BDAR states impacts to threatened flora candidates for SAIL will be avoided through design refinements and provides actions based on general principles. There are no details regarding how the actions will be applied at the known locations of SAIL candidate flora.	The SAIL assessment of candidate threatened flora lacks clarity and does not address all assessment criteria. The SAIL assessment for <i>Pilularia novae-hollandiae</i> states that ‘The proposal will avoid direct removal of the nine gilgai depressions that contain the recorded individuals of <i>Pilularia novae-hollandiae</i>.’ The assessment also states that ‘the proposal will impact 0.32 hectares of occupied habitat’, and ‘the proposal will affect some habitat, but no individuals of the species will be directly impacted’. In addition, the spatial data includes assumed presence species polygons for this species as well as known habitat species polygons. It is difficult to make an accurate assessment of the impacts to this candidate SAIL species when the impacts are not consistently represented in the BDAR and in the spatial data.	Pre-determination	17.1 Provide clarification in the spatial data and BDAR as to the impacts to <i>Pilularia novae-hollandiae</i> and <i>Pimelea serpyllifolia</i> subsp. <i>serpyllifolia</i> and update the SAIL assessment to address assessment criteria in accordance with section 6.7 (2) (a–d) of the BC Regulation 2017.	The Revised BDAR has been updated in section 11.1.2 to provide further clarification as required to address the matter.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
		The records of between 180–450 individuals within the study area may represent a genetically distinct population of this SAI candidate. An impact to this population could represent a significant loss to a species which meets Principle 3 of clause 6.7 of the BC Regulation, being representative of a species which has a very limited geographic distribution. No assessment regarding how the project may impact the persisting population has been made, including fragmentation. We note that some records occur on both the northern and southern side of the disturbance areas. In addition, the Threatened Biodiversity Data Collection lists drainage of swamps as the number one threat to this species. Assessment criteria 4b(iv) requires the assessor to consider these threats in relation the remaining subpopulation. Ground disturbance in proximity to this population has the potential to change hydrology, runoff and increase other introduced species. The threats to this species have not been addressed in the assessment. The BDAR indicates that avoidance of <i>Pilularia novae-hollandiae</i> and <i>Pimelea serpyllifolia</i> subsp. <i>serpyllifolia</i> will be maximised through design refinements. The design refinements listed in section 10.2 and Table 10–1 of the BDAR are generic and include careful track design and micro siting of tower pads. However, the BDAR does not specifically detail how this will be applied at the known locations of floral candidate SAI entities. Impacts to <i>Pimelea serpyllifolia</i> subsp. <i>serpyllifolia</i> habitat has been assessed considering the population's geographic extent in South Australia and Victoria. However, assessment criteria 4b(i) specifically refers to the geographic distribution of this species in NSW and has therefore not been accurately addressed.	Pre-determination	17.2 Review all SAI assessments to include accurate areas to be impacted and review against each assessment criteria.	The Revised BDAR has been updated in section 11.1.2 to provide further clarification as required to address the matter.

Issue	Summary	Detailed comments	Timing	Recommended action	Transgrid response
18 – Biodiversity Offset Strategy	A package to deliver the Biodiversity Offset Strategy is to be defined in consultation with BCD before project determination. The BDAR must be consistent with the BAM before the calculation of an offset fund security bond.	The Biodiversity Offset Strategy requires further detail so that a Biodiversity Offset Package can be prepared. BCD does not support using the current credit liability as the basis for the bond calculation. The BDAR must be consistent with the BAM before the calculation of an offset fund security bond.	Pre-construction	18.1 The revised BDAR should describe a package of measures to offset and mitigate the impacts on biodiversity. The Biodiversity Offset Package should be developed in consultation with BCD. The Package must include, but not necessarily be limited to: • details of the specific biodiversity offset measures to be implemented and delivered • the cost for each specific biodiversity offset measure • a bond that would be paid into the Biodiversity Conservation Fund if the other measures are not implemented and delivered. The bond is to be calculated in accordance with Division 6 of the Biodiversity Conservation Act 2016 (NSW) and the offsets payment calculator • the timing and responsibilities for the implementation and delivery of the measures required in the Package • confirmation that the biodiversity offset measures will have been implemented and delivered before construction commences. Following project determination, the Proponent must implement and deliver the Biodiversity Offset Package.	Transgrid is committed to ensuring that the final construction methodology avoids and minimises impacts to matters of biodiversity conservation significance, and disturbance overall, to the greatest extent practicable, as per Mitigation Measure B1. While there may be some changes to the extent and nature of disturbance as the design refinement and construction finalisation process occurs, this commitment means that Transgrid anticipates that actual disturbance will be generally consistent with and potentially less than the assumptions in concept methodology and indicative disturbance model. Transgrid also anticipates that the final offset calculations will be substantially the same (and potentially less) as the calculations presented in the BDAR, regardless of any changes in actual clearing. In this context, using the current credit liability as the basis for the bond calculation is appropriate. The approach to biodiversity offsets is detailed in Section 12.4 of the Revised BDAR. The final detail of the package will be developed post approval in consultation with BCD which is consistent with the adopted approach to the Transgrid EnergyConnect – Western Section project.
19 – Other matters	–	BCD note that the National Parks and Wildlife submission identified <i>Pterostylis pedina</i> as an endangered species that has been newly recorded in Yanga State Conservation Area and requested that it be avoided. Although the species is known only from two locations of several hundred plants, it is not listed as threatened under the BC or EPBC Acts, so is not required to be considered in the BDAR.	–	–	This is noted. This is not considered in Revised BDAR.