PUBLIC

# Biodiversity Management Plan EnergyConnect (NSW – Eastern Section) Stage 1 and Stage 2

45860-HSE-PL-D-0117

| REV | DATE | GENERAL DESCRIPTION | PREPARED | REVIEWED | VERIFIED | APPROVED |
|---|---|---|---|---|---|---|
| 1 | 16/03/2023 | Issued in response to agency consultation | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| 2 | 4/05/2023 | Revised in response to DPE comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| 3 | 19/06/2023 | Revised in response to DPE comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| 4 | 5/07/2023 | Revised in response to DPE comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| 5 | 26/05/2025 | Revised following the independent audit |  R.Walker-Edwards | - |  G.Crighton |  F.Delgado |

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| Revision History | |
|---|---|
| **Rev.** | **Detailed Description** |
| A | Issued for internal review |
| B | Issued to Transgrid review |
| C | Issued for agency review |
| 0 | Issued in response to agency and ER comments |
| 1 | Issued in response to agency comments |
| 2 | Revised in response to DPE comments |
| 3 | Revised in response to DPE comments |
| 4 | Revised in response to DPE comments |
| 5 | Revised following receipt of the independent audit report |
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| Key Document Stakeholders |
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| **To be communicated with during reviews and revisions of this document** |
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## Glossary and Abbreviations

| Acronym | Definition |
|---|---|
| Affected species | A species that is likely to be affected by direct and/or indirect impacts as a result of the proposal. |
| Amendment Report | *Amendment Report EnergyConnect (NSW – Eastern Section)* |
| BAM | Biodiversity Assessment Method 2020 |
| BC Act | *Biodiversity Conservation Act 2016* |
| BCD | Biodiversity and Conservation Division, now known as Conservation Programs, Heritage and Regulation |
| BCS | Biodiversity, Conservation and Science, now known as Conservation Programs, Heritage and Regulation |
| Biodiversity exclusion zone | Biodiversity exclusion zones are referenced within revised mitigation measure B11 of the BDAR. As a result, they are also included within this management plan. Biodiversity exclusion zones will 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. They are a type of 'No-go zone'. |
| BMP | Biodiversity Management Plan |
| Biodiversity study area | The biodiversity study area is defined within the Final BDAR as 'a 200-metre-wide corridor (being 100 metre either side of the proposed transmission easement centreline) where field surveys in accordance with the Biodiversity Assessment Method (BAM) have been applied. The area also includes the proposed Dinawan 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. Throughout this report this is also referred to as proposal study area'.<br>The biodiversity study area is defined within the Commonwealth Approval as 'the area represented in Attachment A by the zone enclosed by the white line designated 'Biodiversity study area.' |
| BOS | Biodiversity Offset Strategy |
| CCS | Community Communication Strategy |
| CEMP | Construction Environmental Management Plan |
| CPHR | Conservation Programs, Heritage and Regulation |
| CSSI | Critical State significant infrastructure |
| Cth | Commonwealth |
| Commonwealth Approval | The Notification of Approval issued by the Department of Climate Change, Energy, the Environment and Water for EnergyConnect – Eastern Section (EPBC 2020/8766) on 5 December 2022. |
| DAWE | Department of Agriculture, Water and Environment, now known as Department of Climate Change, Energy, the Environment and Water |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water (Commonwealth) |
| DPE | NSW Department of Planning and Environment, now known as NSW Department of Planning, Housing and Infrastructure |
| DPHI or Department | NSW Department of Planning, Housing and Infrastructure |
| DPIE | NSW Department of Planning, Industry and Environment now known as NSW Department of Planning, Housing and Infrastructure |
| EEC | Endangered Ecological Communities |
| EIS | *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* |

| Acronym | Definition |
|---|---|
| Elecnor | Transgrid has engaged Elecnor Australia, trading as Elecnor, to design and construct the EnergyConnect project. |
| EMF | Electromagnetic field |
| EP&A Act | *Environmental Planning and Assessment Act 1979* |
| EPBC Act | *Environmental Protection and Biodiversity Conservation Act 1999* |
| EPL | Environment Protection Licence |
| ER | Environmental Representative |
| ESCS | Erosion and Sediment Control Strategy |
| Final BDAR | *Revised Biodiversity Development Assessment Report* (August, 2022) |
| FM Act | *Fisheries Management Act 1994* |
| GDE | Groundwater Dependent Ecosystem |
| GIS | Geographical Information System |
| IBRA | Interim Biogeographic Regionalisation for Australia |
| LGA | Local government area |
| LLS | Local Land Services |
| MNES | Matters of national environmental significance under the EPBC Act |
| No go zone | A no go zone is an area where construction activities which result in unauthorised disturbance and / or impacts are not permitted. The term no go zone is used to describe a broad range of areas where activities may be excluded, including heritage sites, potential archaeological deposits, threatened ecological communities and / or threatened flora individuals. |
| NRAR | Natural Resources Access Regulator |
| NSW | New South Wales |
| PCT | Plant community type |
| PESCP | Progressive Erosion and Sediment Control Plan |
| Planning Secretary | Planning Secretary under the EP&A Act, or nominee |
| project, the | EnergyConnect (NSW – Eastern Section) |
| Project study area | The proposal study area comprises a generally one-kilometre-wide corridor between the Buronga substation and the Wagga Wagga substation. It traverses around 540 kilometres in total. |
| PVP | Property Vegetation Plan |
| Response to DPE Request for Information | *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (30 August 2022) |
| RMM | Revised mitigation measure |
| SA | South Australia |
| SAP | Sensitive area plan |
| Special biodiversity protection zone | Special biodiversity protection zones have been identified by revised mitigation measures B22, B23, B24 and B26 at the following locations and for the following species, Threatened Ecological Communities (TECs) and/or Property Vegetation Plans (PVPs):<br>• between towers 161-162* (Austral Pillwort);<br>• between towers 660-663* (Thyme Rice-flower);<br>• between towers 241-242* (Natural Grasslands of the Murray Valley Plains TEC); and<br>• between towers 243-249* (PVP H114).<br>* Tower numbering is reflective of tower numbering from the Final BDAR. |

| Acronym | Definition |
|---|---|
| | Construction activities within special biodiversity protection zones will be managed in accordance with Section 5.4 of the *Pre-clearing and Clearing Procedure*. |
| Stage 1 | Stage 1 of construction of the project. This includes establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation and water supply points. |
| Stage 2 | All construction activities associated with EnergyConnect (NSW – Eastern Section).<br>Once approved the Stage 2 CEMP and the relevant Stage 2 CEMP sub-plans will supersede the existing Stage 1 CEMP and Stage 1 CEMP sub-plans.<br>The Stage 2 CEMP and Stage 2 CEMP sub-plans do not address the operational phase of the project. |
| Submissions Report | *Submissions Report EnergyConnect (NSW – Eastern Section)* |
| TEC | Threatened ecological community |
| TSR | Travelling Stock Route |
| WMS | Work method statement |
| WONS | Weeds of National Significance |

# 1 Introduction

## 1.1 Context

This Biodiversity Management Plan (BMP or this plan) forms part of the Construction Environment Management Plan (CEMP) for Stage 1 and Stage 2 of EnergyConnect (NSW – Eastern Section).

This plan has been prepared for construction activities undertaken during Stage 2 of the project. Once approved, this plan will supersede the existing Stage 1 Biodiversity Management Plan. It does not address the operational phase of the project.

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS), *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

## 1.2 Background

On 29 August 2019, the then NSW Minister for Planning declared EnergyConnect to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – South Australia (SA) / New South Wales (NSW) border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The then Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with 17 from government agencies, five from special interest groups, nine from local councils and 44 from the public.

The Submissions Report was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared an Amendment Report to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report describes the updated project for which approval has been sought and was also finalised in May 2022.

On 2 June 2022, the NSW Department of Planning and Environment, now known as NSW Department of Planning, Housing and Infrastructure (DPHI or Department) requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response Transgrid prepared and provided the *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for

Information) to address the various requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI-9172452). Approval for the project under the EPBC Act (Commonwealth Approval) was granted by the Australian Minister for the Environment.

Transgrid have engaged Elecnor Australia (Elecnor), trading as Elecnor, to design and construct their portion of the EnergyConnect project.

## 1.3 Staging

Condition A8 allows preparation of plans on a staged basis, with the approval of the Planning Secretary. On 20 January 2023, the Planning Secretary approved a request under condition A8 to stage the development and prepare the required and associated strategies, plans, programs and reports on a staged basis. The staging approach included three (3) stages, with Stages 1 and 2 covering construction activities and Stage 3 covering all activities associated with the post-construction period, including operating and maintaining the infrastructure, any future upgrading and decommissioning.

Where a plan is staged, the scope of works can be carried out without addressing requirements of the Infrastructure Approval that are not applicable to that stage. This BMP is staged in accordance with condition A8. The two stages that relate to construction are as follows:

- Stage 1 – establishment of three accommodation camps, establishment and operation of five construction compounds, site establishment and construction works for the upgrade of Wagga Wagga substation and Dinawan substation, water supply points; and
- Stage 2 – Stage 1 and all other construction activities (i.e. all construction activities associated with EnergyConnect (NSW – Eastern Section).

The plans for Stage 2 incorporate and supersede the Stage 1 plans and cover the entire construction phase of the project. As per the approved staging approach, Transgrid will prepare a separate Biodiversity EMP Sub-plan for Stage 3 in accordance with conditions B1, B2 and C26 that addresses the operational phase of the project.

This BMP has been prepared specifically for EnergyConnect (NSW – Eastern Section) Stage 2 and will be implemented for the duration of Stage 2 of construction. The key project components of Stage 2 of construction include, but are not limited to, the activities provided in Table 1.1. The location of the key project components are presented in Figure 1.1.

**Table 1.1 - Key project components of construction (Stage 2)**

| Key activity | Description of key activity |
|---|---|
| Pre-construction minor works permitted in accordance with the Infrastructure Approval. | The definition of 'construction' within the Infrastructure Approval excludes the following 'pre-construction minor works' activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval.<br>Key activities include:<br>• environmental investigations, including biodiversity and heritage protection, salvage and recordings;<br>• Aboriginal heritage assessment, mitigation (e.g. exclusion zones) and salvage activities including subsurface testing/test excavation, additional survey, and consultation with RAPs;<br>• other survey work, such as road dilapidation surveys, and surveys of the general alignment and existing utilities;<br>• installation of environmental management measures (including erosion and sediment controls), fencing, signage and security measures, enabling works; and |

| Key activity | Description of key activity |
|---|---|
| | • connections and pre-commissioning of utilities (wastewater treatment plant, electrical power, lighting, etc.) for the construction facilities. |
| Continuation of any outstanding Stage 1 construction activities | Construction activities undertaken during Stage 1 of the project will continue where required. This includes, but is not limited to continuation of the following activities:<br>• any outstanding construction activities at Dinawan and Wagga Wagga substations;<br>• operation of laydown areas including the crushing and screening plant, where required;<br>• operation of the construction compounds including offices and laydown area; and<br>• use of traffic access routes and access and egress points. |
| Establishment of ancillary facilities along the transmission line corridor | A number of minor staging, storage and laydown ancillary areas would be required within the project corridor for temporary storage of materials, plant and equipment required to construct the various elements of the proposal (in particular transmission line structures). Some temporary mobile batching plant locations may also need to be established to enable easy access to concrete.<br>These sites would be in place for shorter periods at locations suitable to support the construction works as they move along the alignment. |
| Property adjustment work, including adjustments to property fencing | Installation or adjustment of gates and fences would be required at some locations along the alignment to enable access from the nearest roadway to construction areas. These would be constructed in consultation with the relevant council and/or affected landholder. |
| Water supply points – establishment and/or use | A number of water supply points have been along the length of the project to support construction water needs for the project. The proposed water supply points which are to be established and / or used include:<br>• Lake Benanee*, Balranald Shire Council;<br>• 159 Church Street, Balranald Shire Council;<br>• 10 Perry Street, Euston*, Balranald Shire Council;<br>• Ivanhoe Road*, Iluka Fill Point, Balranald Shire Council;<br>• Carey Street/Sturt Highway, Euston*, Balranald Shire Council;<br>• Ravensworth, Hay Shire Council [Ravensworth in Amendment Report];<br>• Moulamein Road 2, Edward River Council [Moulamein Road, Moulamein in Amendment Report];<br>• Burraburoon*, Edward River Council;<br>• Carathool Road, Four Corners*, Edward River Council;<br>• Kidman Way*, Murrumbidgee Council;<br>• Crosby Road*, Murrumbidgee Council;<br>• Newell Highway, Morundah*, Federation Council;<br>• Urana-Lockhart Road, Brookong*, Lockhart Shire Council;<br>• Brookdale*, Lockhart Shire Council;<br>• Federation Way/Coonong Road*, Federation Council;<br>• Newell Highway/Arrawidgee Road*, Federation Council;<br>• Federation Way*, Federation Council;<br>• Red Hill Road, Wagga Wagga, Wagga Wagga City Council [Glenfield in Amendment Report];<br>• 1254 Four Corners Road, Coleambally, Murrumbidgee Council [1254 Four Corners Road in Amendment Report];<br>• Wonga Station, Four Corners Road, Edward River Council [Wonga in Amendment Report];<br>• Four Corners Road Mabins Well; Edward River Council [Four Corners Road, Mabins Well in Amendment Report];<br>• Booroorban-Tchelery Road*, Booroorban, Edward River Council; |

| Key activity | Description of key activity |
|---|---|
| | • Strongs Lane*, Lockhart, Lockhart Shire Council;<br>• Slys Lane*, Lockhart Shire Council;<br>• Bullenbung-the-Rock Road*, Lockhart Shire Council;<br>• French Park-Bullenbung Road*, Lockhart Shire Council;<br>• Napier Road*, Lockhart Shire Council;<br>• Albury Road*, Lockhart, Lockhart Shire Council;<br>• 3 Bencubbin Avenue, Coleambally, Murrumbidgee Council [3 Bencubbin Avenue in Amendment Report];<br>• Keri Keri Road, Moulamein, Murray River Council [Keri Keri in Amendment Report];<br>• 78 Murray Street, Tooleybuc*, Murray River Council;<br>• intersection of Young Street and Carne Street*, Murray River Council;<br>• Federation Way* (near corner Federation Way and Stephen Street), Federation Council;<br>• Mclennons Bore Road, Coleambally, Murrumbidgee Council [Mclennons Bore Road in Amendment Report];<br>• 8955 Newell Highway Bundure, Murrumbidgee Council [Newell Highway, Bundure in Amendment Report];<br>• Paraway at Four Corners Road*, Murrumbidgee Council;<br>• Paraway at Cobb Highway*, Hay Shire Council;<br>• North Boundary Road*; Murrumbidgee Council;<br>• Off Sturt Highway* Wentworth Shire Council;<br>• 16 Mile Gums*, Hay Shire Council;<br>• Cadell Street, Hay, Hay Shire Council;<br>• Jerilderie Road*, Hay Shire Council;<br>• 59 Thelangerin Road, Hay*, Hay Shire Council;<br>• Court Street/Sturt Highway*, Balranald Council;<br>• Boiling Down Road*, Wagga Wagga City Council; and<br>• continued use of the Stage 1 water supply points.<br>The water supply points may require works to the existing infrastructure to enable connection and use by the water supply vehicles.<br>The definition of 'construction' within the Infrastructure Approval excludes these activities. They will therefore not be subject to the Stage 2 CEMP and CEMP sub-plans. Irrespective of this, these activities will occur in accordance with the relevant conditions of the Infrastructure Approval.<br>* The water supply points denoted above with an asterisk are additional to the water supply points identified in the EIS. Section 6.9.2 of Appendix B of the Amendment Report identifies potential sources of water for the project and notes that the final water sources, including any additions, would be confirmed in consultation with the water suppliers. Consultation with potential water suppliers has progressed and the list of proposed water supply points above has been amended accordingly. Prior to the use of each additional water supply point, the project would:<br>• confirm that the water supply point could be accessed using the approved access routes identified in Appendix 3 to the Infrastructure Approval, or otherwise obtain the Planning Secretary's agreement in accordance with condition C32;<br>• reach agreement with the water supplier regarding the use of the water supply point for the project; and<br>• carry out any additional assessments which may be required (ie heritage or biodiversity). |
| Traffic access routes and access points | Construction vehicle movements will be required for a variety of activities (i.e. earthworks, clearing and grubbing activities). All construction vehicles associated with the development will travel via the haulage routes as identified in Appendix 3 of the Infrastructure Approval or as otherwise approved. |

| Key activity | | Description of key activity |
|---|---|---|
| | | The establishment of access points would include establishing vehicle access and egress points to ensure safe vehicle movements. Existing access points may also be used.<br>The definition of construction within the Infrastructure Approval does not include road upgrades (which includes access points). Road upgrade works are, however, incorporated within the Traffic and Transport Management Plan as required by condition C35 b). |
| Construction access tracks | | Access to each tower would be required during construction. Access tracks would be required to be traversable by a range of vehicles. Access tracks would fall into two broad groups:<br>• un-improved access tracks - using existing roads or tracks, or driving on existing soil or ground surface with minimal or no prior preparation;<br>• improved access track – using existing roads or tracks where minor modification (such as grading or widening of the existing track) is required; and<br>• constructed access tracks – around six metres wide and would generally follow the natural contour of the land as far as practicable to minimise the amount of cut and fill and soil disturbance. Access tracks would also include drainage control features such as table drains or cross banks to minimise erosion.<br>Constructed access tracks would be required in areas where there are no existing roads or tracks, or where terrain conditions prevent continuous access along the line easement between road crossings.<br>Local waterway spans and causeways may be required, where alternative access routes are impractical, along the length of the proposal. |
| Temporary works | | The project will require a significant quantity of temporary works during construction. The temporary works will include, but not be limited to, the following:<br>• earthworks, including trenches, excavations, temporary slopes, stockpiles, and embankments;<br>• laydown and parking areas for the towers;<br>• structures, such as formwork, shoring, edge protection, temporary bridges, solid fencing/guardrails/barriers and signage, temporary scaffold; and<br>• equipment/plant foundations, such as work platforms, crane, and piling platforms. |
| Optical repeater sites | | Three optical repeater site communication huts would need to be constructed at Balranald, Boorooban and Lockhart. The optical repeater sites are communication huts to ensure the stability of the communications system over great distances during the operation phase. The key activities for the construction of the optical repeater sites would consist of the following:<br>• site establishment, including vegetation removal and establishment of temporary construction site office, if required;<br>• earthworks and preparation of the site for concrete foundations;<br>• construction of a new communication hut building at each site;<br>• installation of new pole-mounted transformers;<br>• installation of electrical cables and terminations (either through the installed conduits or stringing of the aboveground poles);<br>• installation of site wiring and electrical control equipment within each building;<br>• trenching for underground conduit between the Balranald optical repeater hut and transmission line;<br>• installation of new above ground poles between the transmission line and the respective Booroorban and Lockhart optical repeater sites;<br>• provision of power connections between the transmission line and associated optical repeater site; and<br>• removal of waste and remediation of site areas. |
| | Earthworks and | Excavation works and establishment of construction pads at each tower site would be required for the installation of foundations, levelling around the individual tower |

| Key activity | | Description of key activity |
|---|---|---|
| Transmission line construction | transmission tower footing construction | foundations, drainage and grading or preparation for construction at the tower site. Excavations would typically be up to five metres in depth. Construction of footings and foundation works for the new transmission line towers includes:<br>• piling. Typical transmission line tower piling depth would be generally up to 6-15 metres below ground level and would depend on ground conditions (e.g. greater piling depths would be required where soft soil types are present). The foundation type would also vary (subject to detailed design) but would consist of either:<br>– bored pile (reinforced concrete);<br>– driven or screw pile (concrete or steel); and<br>– helical screw anchor, or cast in-situ reinforced concrete;<br>• excavation to create bench sites (stepped ground excavation) where required to provide a level platform for equipment setup, the erection of the tower and other construction activities. Benching would be constructed by use of earthing equipment such as graders and excavators;<br>• steel fabrication works; and<br>• concrete pours. |
| | Assembly and erection of transmission line towers | The transmission line towers would typically be erected by assembling in sections on the ground and hoisting or lifting successive sections into place using cranes.<br>Alternatively, towers may be erected in place on the footings by installing individual members. These towers would include infrastructure such as step bolts, climbing attachment plates, ladders, platforms, climbing barriers, identification plates, warning plates, other fixtures and fittings for the attachment of earthwires and insulators. |
| | Stringing of transmission lines including conductors and overhead earth wires and optical ground wires | Following erection and securing of the tower, the transmission line would be strung by either a ground pulled draw wire (with brake/winch sites) or a line stringing drone.<br>The area required for the construction of each tower would require access for tower assembly and stringing works. Where a transmission tower is proposed to allow for a direction change of the transmission line, a larger area would be required (to allow for brake and winching sites). At a typical site, this would include a temporary area of up around 60 metres by 80 metres at each transmission line tower location.<br>The transmission line would require spanning a series of major watercourses. The general construction methodology is to assemble and erect a transmission line structure on either side of each major river crossing. A drone would then be used to take a lead wire over the river to allow cables to then be pulled and strung tower to tower. Similar methodology will be undertaken when stringing transmission line across major road networks and railway lines. |
| | Installation of earthing conductors and connection to substations | The following key activities will be undertaken:<br>• installation of earthing conductors at each of the transmission tower arms;<br>• installation of earthing or isolation sections of fences and gates where the transmission line crosses or closely runs parallels to a metallic fence; and<br>• connection of incoming transmission lines at the Dinawan and Wagga Wagga substations. |
| Pre-commissioning phases | | Pre-commissioning activities would form part of the final construction and installation works and would incorporate all tests and checks to confirm that construction quality assurance documentation, inspection and test plans, checklists and associated activities have been completed for each individual component of plant. This would be to ensure that it has been supplied and installed in accordance with the design and statutory standards and is safe to proceed to commissioning.<br>The key pre-commissioning activities which would be undertaken would include:<br>• testing and commissioning of the new substation equipment;<br>• point to point testing of the new transmission lines and substation connections;<br>• earthing testing;<br>• high voltage testing;<br>• high voltage equipment operational checks; |

| Key activity | Description of key activity |
|---|---|
| | • testing of the installed protection, metering, control, and communication systems; and<br>• cut over (energisation) of electricity between the existing and new transmission lines (where required). |
| Utility adjustments and protection | General utility protection and adjustment works, where required, to allow for the Wagga Wagga substation expansion and upgrades works to occur, the optical repeater sites, the establishment and operation of the construction compounds and accommodation camps, and elsewhere as required. |
| Progressive site rehabilitation and landscaping | Site rehabilitation would be carried out progressively along completed sections of the transmission line as well as the substation sites. This phase would occur following the completion of construction and involve the removal of materials not required during the operation of the substation and/or transmission lines.<br>This phase would include the removal/remediation of the construction compounds and camp sites, removal of temporary facilities and site buildings and temporary environmental controls.<br>Works may also be undertaken to restore:<br>• water infrastructure facilities to pre-existing conditions before arrival on site in consultation with landowners;<br>• natural drainage in areas where temporary facilities were provided; and<br>• fences, gates, etc., which may have been damaged during construction.<br>Installation of the permanent Transgrid property boundary fence surrounding the new and expanded substation sites would also likely occur during this phase. |
| Demobilisation | Elecnor will start to downsize the construction team with gradual demobilisation as particular key construction activities are completed. |

Some activities nominated in this stage will have already commenced as part of Stage 1 and/or the pre-construction minor works permitted in accordance with the Infrastructure Approval. These pre-construction minor works remain excluded from the definition of 'construction' and will therefore not be subject to the Stage 1 or 2 CEMP and this BMP. Activities that were approved to be carried out under the Stage 1 BMP will continue under this BMP.

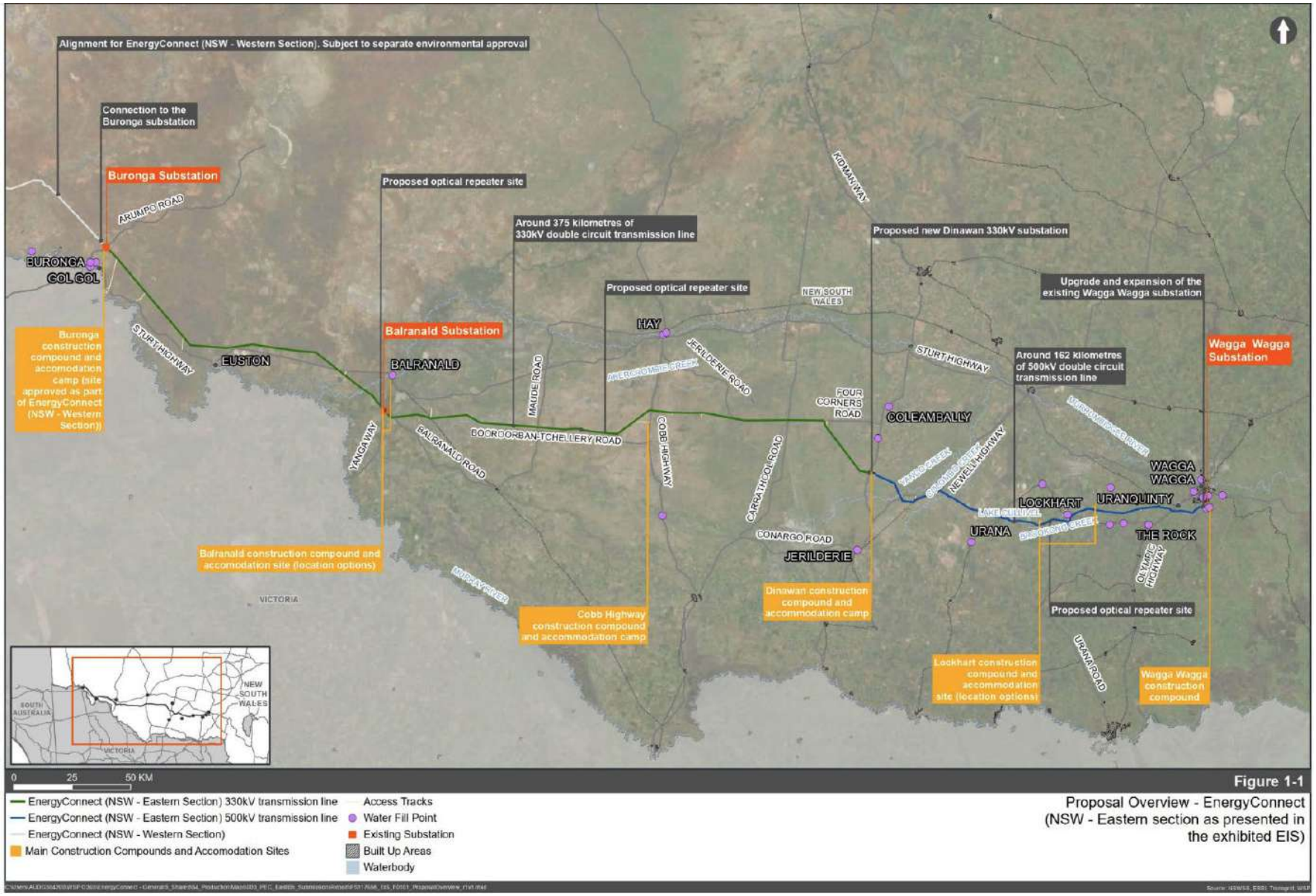



**Figure 1.1 - Key features of EnergyConnect (NSW – Eastern Section)**

## 1.4 Environmental management system

The overall environmental management system for the project is described in Section 4 of the CEMP.

This BMP is a Sub-plan that forms part of the CEMP and is also part of the environmental management framework for the project, as described in the CEMP. Figure 1.2 shows the CEMP framework for the project.

Management measures identified in this BMP will be incorporated into relevant site-based documents including, but not limited to, site or activity specific relevant work method statements (WMSs), the geographical information system (GIS) / sensitive area plans (SAPs), or training and awareness material.

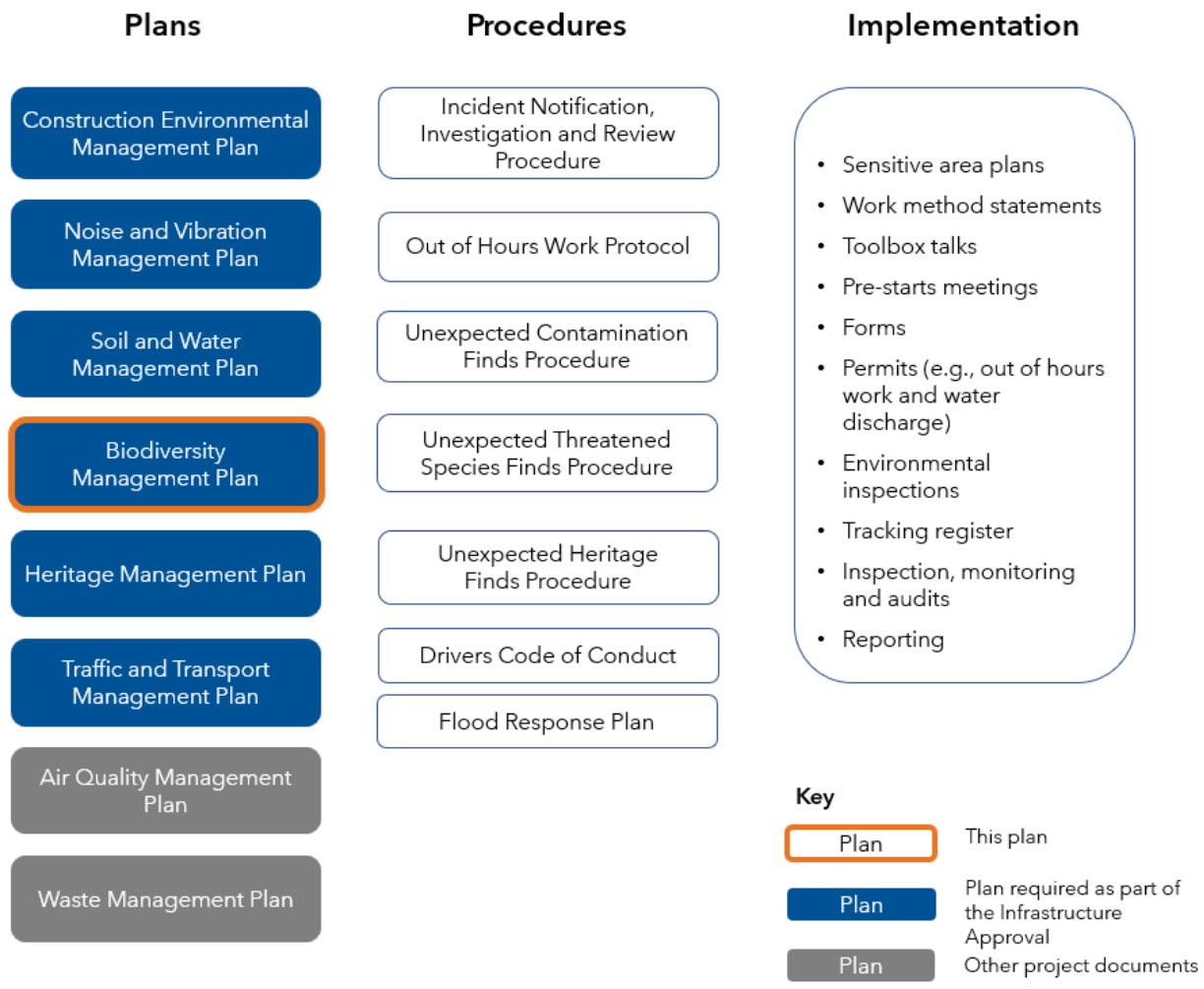



**Figure 1.2 - CEMP framework**

## 1.5 Purpose and objectives

The purpose of this BMP is to describe the approach that will be adopted during construction of Stage 2 of the project to manage biodiversity impacts.

The key objective of this BMP is to detail management measures and inform site procedures for implementation so that biodiversity impacts are minimised. To achieve this, the following will be undertaken:

- implement appropriate measures to address the requirements outlined in the Infrastructure Approval, EIS, Submissions Report, Amendment Report and Final BDAR;
- implement appropriate measures during construction to minimise biodiversity impacts; and
- implement appropriate measures to comply with all relevant legislative requirements as described in Section 2.1 of this BMP.

As a means of assessing environmental performance, environmental objectives (performance measures), targets (criteria) and performance indicators have been established for the project and are provided within Table 4.2 of the CEMP. The performance measures and indicators relevant to biodiversity management are detailed within Table 1.2.

**Table 1.2 - Environmental objectives, targets and performance indicators relevant to biodiversity**

| Aspects | Objectives (performance measures) | Targets (criteria) | Performance indicators |
|---|---|---|---|
| Biodiversity | Minimise and manage the impacts of the project on biodiversity. | • No exceedance to clearing values of known biodiversity including flora and fauna species as specified in condition C23 a).<br>• Minimise the risk of injury and mortality of fauna.<br>• Clearing and management of Plains-wanderer habitat to occur in accordance with the Plains-wanderer Protocol.<br>• Bespoke construction methodology to be applied within the special biodiversity protection zones.<br>• Nest box installation for squirrel gliders to commence prior to clearing in a particular location.<br>• Nest box installation for other species to commence prior to clearing in a particular location. | • Clearing limits to be within those set in Appendix 2 of the Infrastructure Approval and Section 5.3.1 of this BMP.<br>• Zero fauna injured as a result of procedures not being adhered to.<br>• Compliance with the requirements of the Plains-wanderer Protocol in Appendix F of the BMP.<br>• Compliance with the requirements of the Pre-clearing and Clearing Procedure in Appendix G of the BMP, for the special biodiversity protection zones.<br>• Nest box installation for squirrel gliders will commence prior to clearing in a particular location.<br>• 30% of nest boxes for other species will be installed prior to clearing in a particular location.<br>• All remaining nest boxes (100%) to be installed within three months of clearing in a particular location. |
| Biodiversity | Rehabilitate and restore disturbance areas to its pre-existing condition at tower pads, laydowns and brake and winch sites | • All temporary infrastructure is removed.<br>• Topsoil reinstated.<br>• Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration.<br>• All rubbish and waste materials are removed. | • Temporary infrastructure removed.<br>• Topsoil has been reinstated on the previously disturbed areas.<br>• Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm).<br>• No visible rubbish or waste. |

| Aspects | Objectives (performance measures) | Targets (criteria) | Performance indicators |
|---|---|---|---|
| Biodiversity | Rehabilitate and restore disturbance areas to its pre-existing condition at access tracks and access points | • Operational requirements for access, and consultation with landowner, confirms final land use.<br>• Where access track/point is restored, all infrastructure required to be removed has been removed.<br>• Where access track/point is restored, topsoil is reinstated. | • Transgrid and/or landowner confirmation of final land use of the access track/point.<br>• Where access track/point is restored, infrastructure is removed.<br>• Where access track/point is restored, topsoil has been reinstated. |
| Biodiversity | Rehabilitate the ancillary facilities, accommodation camps and the earthworks material site in accordance with the following objectives:<br>• Ancillary facilities:<br>– safe, stable and non-polluting;<br>– progressively rehabilitate the site as soon as possible following disturbance;<br>– to be decommissioned and removed, unless the Planning Secretary agrees otherwise;<br>• Land use:<br>– restore land capability to pre-existing use;<br>• Community:<br>– ensure public safety at all times. | • Progressive erosion and sediment control plan prepared and implemented<br>• Controls that relate to rehabilitation are implemented in accordance with the Progressive Erosion and Sediment Control Plans (PESCPs).<br>• Topsoil reinstated.<br>• Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration.<br>• No significant erosion is present that would compromise the establishment of vegetation.<br>• Commence decommissioning and/or rehabilitation within 1-2 months of completion of use of the site, unless the Planning Secretary agrees otherwise.<br>• Redundant services including power are disconnected.<br>• All temporary infrastructure is removed including accommodation facilities and temporary buildings.<br>• Temporary construction fencing removed.<br>• Final land use agreed with landowner.<br>• Implementation of the Health and Safety Plan during all decommissioning and rehabilitation works. | • Erosion controls have been implemented. No further sediment controls are required as appropriate cover has been achieved.<br>• Topsoil has been reinstated on the previously disturbed areas.<br>• Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm).<br>• Controls that relate to rehabilitation are implemented in accordance with the Progressive Erosion and Sediment Control Plans (PESCPs).<br>• Services are no longer connected.<br>• Temporary infrastructure removed.<br>• Agreement is to be obtained from the Planning Secretary if removal is not proposed.<br>• Temporary construction fencing removed.<br>• Landowner confirmation of final land use of the access track/point.<br>• Public access to the site is not provided until it is considered safe to do so. |

## 1.6 Preparation of this plan

In accordance with condition B6 of the Infrastructure Approval, this plan has been prepared by a suitably qualified and experienced person. This plan was prepared by:

- Rebecca Walker-Edwards; and

- Katie Baxter.

The plan has been reviewed by representatives from the project's ecological team (NGH Consulting).

## 1.7 Consultation

### 1.7.1 Development of this plan

In accordance with condition B1 of the Infrastructure Approval, this plan has been prepared in consultation with the then Biodiversity and Conservation Division (BCD).

This plan was issued to BCD for review and comment. Comments from the consultation process were incorporated into this plan where appropriate. Details of all consultation with BCD was submitted to DPHI along with the submission of this plan.

### 1.7.2 Ongoing communication and consultation

Elecnor will use a range of tools in accordance with the *Community Communication Strategy* (CCS) (45860-HSE-DOC-D-0024) to facilitate ongoing consultation and communication with the community and stakeholders regarding the project. Communication tools include, but are not limited to, stakeholder briefings, project website, community drop-in sessions via the project's mobile van, door knocks and project factsheets. Notifications will be issued for, but not limited to following, commencement of construction, significant milestones and changes to the scope of work. Refer to the CCS for further information.

In accordance with condition D12 a) of the Infrastructure Approval, project documents including the EIS, approved strategies, plans or programs required under the conditions of approval and independent reports will be publicly available on the project website. The project website is https://www.transgrid.com.au/projects-innovation/energyconnect. A 24-hour toll-free telephone number (1800 490 666) is also available for any project enquiries. In accordance with condition D12 b) the information will be kept up to date.

Project information made available on the project website in accordance with condition D12, includes:

- the EIS;
- current statutory approvals for the development;
- approved strategies, plans, programs or reports required under the conditions of the Infrastructure Approval;
- the proposed staging plans for the development if the construction, decommissioning and/or operation of the development is to be staged;
- a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of the Infrastructure Approval;
- a record of complaints, which is to be updated on a monthly basis;
- any independent environmental audit, and the Proponent's response to the recommendations in any audit; and
- any other matter required by the Planning Secretary.

### 1.7.3 Complaints

Complaints will be managed by the Community and Stakeholder Engagement Team with the use of Sales Force database. Complaints will be received via phone calls, emails and letters. Any

complaint received is regarded as a high priority and will be recorded, tracked and responded to in accordance with the CCS. Complaints will be investigated and dealt with impartially. The key principles of the complaint management process include:

- acknowledge - Elecnor staff should respect the communities' right to voice their concerns. All complaints received should be acknowledged to the complainant either by telephone or in writing;
- resolve - Elecnor staff should aim at first contact, resolution for all community concerns. Elecnor staff should investigate community concerns in detail before negotiating a resolution. All Elecnor staff should use their relevant discretions to achieve a mutually acceptable resolution to complaints;
- escalate - all Elecnor staff should aim to escalate the complaint if the community member remains dissatisfied with the investigation and/or resolution offered by their first point of contact at Elecnor. All complaints where community request to speak to a higher-level representative, should also be escalated;
- record - Elecnor staff should aim through the Engagement Team at recording all relevant information, on the community account in Sales Force, regarding customer concerns along with details of all discussions had with the community member in the process of investigating and/resolving the complaint. Detailed information on the resolutions offered to address community concerns should also be clearly recorded;
- communicate - Elecnor staff should remain in constant touch with the community member while their concerns are being investigated. The community member should be informed of all steps of the investigation and the resulting outcome at appropriate times;
- report - Elecnor should report on all complaints received to the Elecnor Management Team and Transgrid. The reporting should include information on the number as well as type of complaints being received, the status of these complaints from time to time and the resulting outcomes or resolutions offered to close them;
- feedback - the Elecnor Engagement Team should aim at regular and intensive reviews to identify possible trends in the complaints being received. These reviews should be aimed at highlighting improvements required to avoid complaints being repeated;
- action - Elecnor should aim at effective implementation of improvements suggested directly by the community or highlighted by complaint trends.

Wherever possible, complaints will be resolved directly between Elecnor and the stakeholder. If a complaints management process has been followed and the issue cannot be resolved, dispute resolution will be undertaken in accordance with the CCS. DPHI may request the Environmental Representative (ER) to assist in dispute resolution of community complaints.

All complaints will be provided to the ER and a summary of complaints received, such as a complaints register, will be updated monthly on the project website.

## 1.8 Submission and approval

Prior to submission to DPHI, this BMP was reviewed by the ER to ensure that the plan was consistent with the requirements of the Infrastructure Approval. A written statement to this effect was prepared and submitted to DPHI. This review was undertaken in accordance with condition A12 of the Infrastructure Approval.

This BMP was submitted to DPHI for review and approval by the Secretary prior to the commencement of Stage 2 of construction.

Stage 2 of construction did not commence until the CEMP and all sub-plans required under condition B1, or where staging is proposed the plans required for that stage, were approved by the Planning Secretary.

The approved BMP will then be implemented for the duration of the Stage 2 construction activities. In doing so, the project will be carried out:

- in compliance with the conditions of this approval;
- in accordance with all written directions of the Planning Secretary;
- generally in accordance with the EIS; and
- generally in accordance with the Layouts in Appendix 1 of the Infrastructure Approval.

## 1.9 Periodic review

This BMP will be reviewed at least annually and updated, if required, in accordance with Section 1.10 of the CEMP – Updating the CEMP. This includes the review and, if necessary, revision of this BMP in accordance with condition D2, within three months of the following:

- submission of an incident report under condition D6 of the Infrastructure Approval;
- submission of an audit report under condition D11 of the Infrastructure Approval; or
- any modifications of the Infrastructure Approval.

Any updates to the BMP will be approved as described in Section 1.10 of the CEMP.

# 2 Environmental requirements

## 2.1 Legislation

Legislation relevant to the management of biodiversity includes:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- *Biodiversity Conservation Act 2016* (BC Act);
- *Biosecurity Act 2015*;
- *Fisheries Management Act 1994*; and
- *Local Land Services Act 2013*.

Relevant provisions of the above legislation are detailed within the register of legal and other requirements included in Appendix A1 of the CEMP.

## 2.2 Conditions of Approval

The conditions of the Infrastructure Approval relevant to biodiversity for Stage 2 are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this plan or other project management documents.

**Table 2.1 - Conditions of Approval relevant to biodiversity**

| Condition no. | Requirement | Where addressed | How addressed |
|---|---|---|---|
| **Terms of Approval** | | | |
| A2 | The development must be carried out:<br>a) in compliance with the conditions of this approval;<br>b) in accordance with all written directions of the Planning Secretary;<br>c) generally in accordance with the EIS; and<br>d) generally in accordance with the Layouts in Appendix 1. | Section 1.8<br>Section 5.5.3 | Section 1.8 and Section 5.5.3 state that the project will be carried out in compliance with the requirements of the Infrastructure Approval, and generally in accordance with the EIS and Layouts in Appendix 1. |
| **Evidence of consultation** | | | |
| A7 | Where conditions of this approval require consultation with an identified party, the Proponent must:<br>a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and<br>b) provide details of the consultation undertaken including:<br>(i) the outcome of that consultation, matters resolved and unresolved; and<br>(ii) details of any disagreement remaining between the party consulted and the Proponent and how the Proponent has addressed the matters not resolved. | Section 1.7<br>Agency Consultation Report | In accordance with condition B1 of the Infrastructure Approval, this plan has been prepared in consultation with the then BCD.<br>This plan was issued to BCD for review and comment. Comments from the consultation process were incorporated into this plan where appropriate. Details of all consultation with BCD were submitted to DPHI along with the submission of this plan in an Agency Consultation Report. The Agency Consultation Report identifies the outcome of that consultation, including any matters which are not resolved. |

| Condition no. | Requirement | Where addressed | How addressed |
|---|---|---|---|
| **Environmental Representative** | | | |
| A12 | From commencing the development, until commencing operation, or as agreed with the Planning Secretary, the approved ER must:<br>a) review the documents identified in conditions A22, B1, B2, C10, C45, C50 and C51, and any other documents that are identified by the Planning Secretary, to ensure they are consistent with requirements in or under this approval and if so:<br>(i) make a written statement to this effect before submission of such documents to the Planning Secretary (if those documents are required to be approved by the Planning Secretary); or<br>(ii) make a written statement to this effect before the implementation of such documents (if those documents are required to be submitted to the Department for information or are not required to be submitted to the Department);<br>b) as may be requested by the Planning Secretary, assist the Department in the resolution of community complaints; and<br>c) consider any minor amendments to be made to the plans / strategies in conditions A22, C50, C51, D3, D4, D5, D6 and D7 that involve updating or are of an administrative nature and do not increase impacts to nearby sensitive receivers, and ensure they are consistent with the terms of this approval and, if satisfied such amendment is necessary, approve the amendment. This does not include any modifications to the terms of this approval. | Section 1.7.3<br>Section 1.8<br>Section 4.9.2 of the CEMP – Roles and responsibilities<br>Section 7.2.1 of the CEMP – Dispute resolution | Section 1.7.3 details that DPHI may request that the ER assist in dispute resolution of community complaints. All complaints will be provided to the ER.<br>Section 1.8 states that this BMP will be provided to the ER, for the ER to ensure that this plan is consistent with the requirements of the Infrastructure Approval prior to submission to DPHI. Revision 0 of this plan was endorsed by the ER on 17 March 2023. |
| **Compliance** | | | |
| A18 | The Proponent must ensure that all of its employees, contractors (and their sub-contractors) are made aware of, and are instructed to comply with, the conditions of this approval relevant to activities they carry out in respect of the development. | Section 6.1 | Section 6.1 outlines the training that will be provided to site personnel. All site personnel will be required to undergo induction training which will provide awareness of the requirement to comply with the conditions of this approval. |

| Condition no. | Requirement | Where addressed | How addressed |
|---|---|---|---|
| **Environmental Management Plan** | | | |
| B1 | Prior to commencing construction, an Environmental Management Plan (EMP) comprising the Sub-plans listed in Table 1 must be prepared by a suitably qualified and experienced persons, to the satisfaction of the Planning Secretary.<br>Following the Planning Secretary's approval, the Proponent must implement the Environmental Management Plan.<br>**Table 1:** EMP Sub-plans<br>(c) Biodiversity – BCS | Section 1.6<br>Section 1.7<br>The CEMP | The CEMP (in lieu of an EMP) has been prepared by suitably qualified and experienced persons prior to the commencement of construction.<br>This BMP was provided to BCD for consultation. The outcomes of consultation have been incorporated throughout the BMP. |
| B2 | The EMP Sub-plans must be prepared in accordance with relevant guidelines and in consultation with the relevant government agencies identified for each Sub-plan in Table 1, and include: | Section 1.7<br>Section 2.5 | The BMP has been prepared in accordance with the relevant guidelines and in consultation with BCD. |
| | a) a summary of relevant background or baseline data; | Section 3 | The biodiversity values of the project are outlined in Section 3. |
| | b) details of:<br>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); | Section 2 | The relevant legislation, conditions, RMMs and guidelines applicable to biodiversity are outlined in Section 2. Appendix A1 of the CEMP provides further detail on the relevant legislation applicable to biodiversity. |
| | (ii) any relevant limits or performance measures and criteria; | Section 1.5<br>Section 4.2 of the CEMP – Objectives and targets | The objectives (performance measures) and targets (criteria) relevant to biodiversity management are outlined in Section 1.5.<br>The CEMP also provides project-wide environmental objectives (performance measures) and targets (criteria). |
| | (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; and | Section 1.5<br>Section 4.2 of the CEMP – Objectives and targets | The performance indicators relevant to biodiversity management are outlined in Section 1.5 of this BMP.<br>The CEMP also provides project-wide performance indicators. |
| | (iv) any relevant commitments or recommendations identified in the EIS; | Section 2.3 | Relevant biodiversity commitments and recommendations identified in the EIS, known as revised mitigation measures (RMMs), have been outlined in Section 2.3. |
| | c) a description of the management measures to be implemented to comply with the relevant statutory | Section 5<br>Appendix A – Pre-clearing | Specific biodiversity related safeguards and management measures to address potential impacts associated with Stage 2 of |

| Condition no. | Requirement | Where addressed | How addressed |
|---|---|---|---|
| | requirements, limits, or performance measures and criteria; | and Clearing Procedure<br>Appendix D – Biosecurity Management Plan<br>Appendix F – Plains-wanderer Protocol<br>Appendix G – Connectivity Strategy<br>Appendix H – Supplementary Hollow and Nest Strategy | construction and comply with the relevant statutory requirements, limits and performance measures are outlined in Section 5, and Appendix A to Appendix H. |
| | d) a program to monitor and report on the:<br>(i) impacts and environmental performance of the development (including a table summarising all the monitoring and reporting obligations under the conditions of this approval); and | Section 6, including:<br>Section 6.3<br>Section 6.4<br>Section 6.5<br>Section 6.6 | Monitoring, inspections, auditing and reporting is outlined in Section 6.3 to 6.6 of this BMP. |
| | (ii) effectiveness of the management measures set out pursuant to paragraph (c); | Section 6 | Monitoring of the effectiveness of the management measures is outlined in Section 6 through compliance management. |
| | e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible | Section 6.8<br>Appendix B – Unexpected Threatened Species Finds Procedure<br>Section 8 of the CEMP – Incidents and emergencies<br>Section 10 of the CEMP - Reporting<br>Section 11 of the CEMP – Non-conformances, corrective and preventative action | Section 6.8 outlines a contingency plan in the event that unpredicted impacts are identified.<br>In the event of the discovery of any unexpected threatened species find, the *Unexpected Threatened Species Finds Procedure* (Appendix B) will be followed.<br>The CEMP also provides additional detail regarding incidents and emergencies, reporting, non-compliance, non-conformance, corrective and preventative actions. |
| | f) a program to investigate and implement ways to improve the environmental performance of the development over time; | Section 6<br>Section 1.9<br>Section 1.10 of the CEMP – Updating the CEMP<br>Section 1.9 of the CEMP – | Section 6 of this BMP outlines procedures for compliance management, including details for monitoring, inspections, auditing and reporting.<br>This BMP will be reviewed at least annually as described in Section |

| Condition no. | Requirement | Where addressed | How addressed |
|---|---|---|---|
| | | Continuous improvement | 1.9 of this BMP and Section 1.10 of the CEMP.<br>The Plan-Do-Check-Act model will be applied to the continuous improvement process, also outlined in Section 1.9 of the CEMP. |
| | g) a protocol for managing and reporting any:<br>(i) incident, non-compliance or exceedance of any impact assessment criterion or performance criterion); | Section 6.7<br>Section 6.8<br>Section 8 of the CEMP – Incidents and emergencies<br>Section 10 of the CEMP – Reporting<br>Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action | Section 6.7 and 6.8 describe the procedures for emergencies, incidents and non-compliances, including those related to biodiversity.<br>Additional detail for managing incidents and emergencies, non-compliances and non-conformances is included in the CEMP.<br>The protocol for reporting of any incidents, non-compliances or non-conformances is included in Section 10 of the CEMP. |
| | (ii) complaint; or | Section 1.7.3<br>Community Communication Strategy | A summary of the complaints management procedure and reporting of complaints is included in Section 1.7.3 of this BMP.<br>The procedure for managing and reporting any complaints is described in the *Enquiries, Complaint and Dispute Resolution Management Procedure* provided in the CCS. The procedure includes a complaints management process which outlines how Elecnor will respond to complaints related to the project. |
| | (iii) failure to comply with other statutory requirements; | Section 6.7<br>Section 8 of the CEMP – Incidents and emergencies<br>Section 10 of the CEMP – Reporting<br>Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action | In the event of failure to comply with statutory requirements, the procedures summarised in Section 6.7 of this BMP and described in more detail in the CEMP would be followed. |

| Condition no. | Requirement | Where addressed | How addressed |
|---|---|---|---|
| | h) public sources of information and data to assist stakeholders in understanding environmental impacts of the development; and | Section 1.7.2 | The BMP contains publicly available data sources to assist with understanding the environmental impacts of the development.<br>The local community and relevant agencies will be kept informed of construction progress and environmental performance through communication tools such as notifications and the project website as summarised in Section 1 of this BMP. |
| | i) a protocol for periodic review of the EMP and EMP Sub-plans. | Section 1.9<br>Section 9.3 of the CEMP | The BMP will be reviewed periodically in accordance with the CEMP and Section 1.9. |
| | The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans. | - | Noted |
| **Riparian Areas** | | | |
| C18 | The Proponent must ensure:<br>a) all activities on waterfront land are constructed in accordance with the *Guidelines for Controlled Activities on Waterfront Land* (2012), *Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings* (NSW Fisheries 2003) and the *Policy and Guidelines for Fish Habitat and Conservation and Management* (NSW Fisheries, 2013), unless DPE Water agrees otherwise; and | Table 5.5 | The mitigation measures identified in Section 5 will be implemented to ensure that all activities on waterfront land are constructed in accordance with the guidelines specified in condition C18 and to ensure that Stage 2 does not impact on the geomorphic conditions of any major rivers and distributary channels crossed. |
| | b) the geomorphic condition of the major rivers and distributary channels crossed by the development is not impacted. | | |
| **Restrictions on Clearing and Habitat** | | | |
| C23 | Unless otherwise agreed with the Planning Secretary, the Proponent must: | - | - |
| | a) ensure that clearing does not exceed the limits identified in Appendix 2; and | Table 5.5<br>Section 5.3<br>Section 6.3<br>Appendix A - Pre-clearing and Clearing Procedure<br>Appendix E – Biodiversity mapping | Clearing will be managed in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A).<br>Progressive monitoring of the clearing quantities will occur to ensure that harm will not exceed the limits prescribed in condition C23 a). |
| | b) minimise:<br>(i) the impacts of the development on hollow-bearing trees; | Section 5<br>Table 5.5<br>Section 6 | The mitigation measures identified within Section 5 will be implemented to ensure that clearing for the development minimises impacts to hollow-bearing trees, threatened flora and |

| Condition no. | Requirement | Where addressed | How addressed |
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| | (ii) the impacts of the development on threatened flora and fauna populations; and<br>(iii) the clearing of native vegetation and key habitat. | | fauna populations, the clearing of native vegetation and key habitat.<br>Monitoring, inspections and auditing described in Section 6 of this BMP will check the implementation and effectiveness of the management measures identified in Section 5. |
| **Biodiversity Offset Package** | | | |
| C24 | Prior to carrying out any development that would impact on biodiversity values, the Proponent must prepare a Biodiversity Offset Package (Package) that is consistent with the EIS, in consultation with BCS and BCT and to the satisfaction of the Secretary in writing. The Package must include, but not necessarily be limited to: | Section 5.4<br>Biodiversity Offset Package | Transgrid has prepared a Biodiversity Offset Package in consultation with BCD and BCT and to the satisfaction of the Planning Secretary.<br>Information relating to the offset package is provided in Section 5.4. |
| | a) details of the specific biodiversity offset measures to be implemented and delivered in accordance with the EIS; | Section 5.4<br>Biodiversity Offset Package | The Biodiversity Offset Package includes specific offset measures which are to be implemented. |
| | b) the cost for each specific biodiversity offset measure, which would be required to be paid into the Biodiversity Conservation Fund if the relevant measure is not implemented and delivered (as calculated in accordance with Division 6 of the *Biodiversity Conservation Act 2016* (NSW) and the offsets payment calculator that was established as at 18 August 2022); | Section 5.4<br>Biodiversity Offset Package | The Biodiversity Offset Package includes the cost for each specific measure which will be required to be paid if the measure is not implemented. |
| | c) the timing and responsibilities for the implementation and delivery of the measures required in the Package; and | Section 5.4<br>Biodiversity Offset Package | The timing and responsibilities for implementation of the measures will be included in the Biodiversity Offset Package. |
| | d) confirmation that the biodiversity offset measures will have been implemented and delivered no later than 1 September 2025. | Section 5.4<br>Biodiversity Offset Package | The Biodiversity Offset Package will confirm the measures that have been implemented and those that will be delivered no later than 1 September 2025. |
| | Following approval, the Proponent must implement and deliver the Biodiversity Offset Package. | Section 5.4<br>Biodiversity Offset Package | The Biodiversity Offset Package will be implemented. |
| C25 | Prior to carrying out any development that could impact the biodiversity values requiring offset, the Proponent must lodge bank guarantee(s) with a total value of $313,417,479.03, in accordance with the Deed of Agreement with the Planning Secretary executed on 1 September 2022. The Proponent must comply with the terms of the Deed. | Section 5.4 | Bank guarantees have been provided for the full amount to meet the requirements of this condition. |

| Condition no. | Requirement | Where addressed | How addressed |
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| **Biodiversity EMP Sub-Plan** | | | |
| C26 | The Biodiversity EMP Sub-Plan required under condition B2 must be prepared in accordance with the *Revised Biodiversity Development Assessment Report* (dated 19 August 2022) and include:<br>a) a description of the measures that would be implemented for:<br>(i) meeting the biodiversity mitigation requirements in condition C23; | Table 5.5<br>Appendix A - Pre-clearing and Clearing Procedure | The BMP includes measures that would be implemented within Section 5, Section 6 and the Appendices. Clearing will be managed in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A).<br>Progressive monitoring of the clearing quantities will occur to ensure that harm will not exceed the limits prescribed in condition C23 a). |
| | (ii) minimising the amount of native vegetation clearing within the approved development footprint; | Table 5.5<br>Appendix A - Pre-clearing and Clearing Procedure | Vegetation clearing will be minimised through ongoing review of detailed design, construction methodologies and construction impacts to determine opportunities to minimise clearing. |
| | (iii) minimising the loss of key fauna habitat, including tree hollows; | Section 5.2<br>Table 5.5<br>Appendix A - Pre-clearing and Clearing Procedure | Impacts to key fauna habitat and tree hollows will be minimised where possible through review of detailed design and temporary design (i.e. access tracks and laydown locations). |
| | (iv) minimising the impacts on fauna on site, including undertaking pre-clearance surveys; | Section 5.1<br>Table 5.5<br>Appendix A - Pre-clearing and Clearing Procedure<br>Appendix C – Fauna Handling Procedure | Pre-clearing surveys will include inspections for fauna prior to clearing. Identified fauna will be relocated into adjacent suitable habitat. This process is identified within the *Pre-clearing and Clearing Procedure* (Appendix A) and the *Fauna Handling Procedure* (Appendix C). |
| | (v) minimising the potential indirect impacts on threatened flora and fauna species, migratory species and 'at risk' species; | Table 5.5 | Indirect impacts to threatened fauna and flora species, migratory species and 'at risk' species may include for example, soil and water runoff impacting the adjoining threatened ecological communities. Measures have been incorporated within Table 5.5 in relation to erosion and sedimentation management. |
| | (vi) rehabilitating and restoring disturbance areas to its pre-existing condition; | Section 5.9<br>Soil and Water Management Plan | Rehabilitation of the ancillary facilities, accommodation camps and earthwork material sites would be carried out in accordance with progressive erosion and sediment control plans (to provide safe, stable and non-polluting areas). |
| | (vii) avoiding and minimising impacts on Serious and Irreversible Impact (SAII); | Table 5.5<br>Appendix A - Pre-clearing | Serious and irreversible impacts will be avoided through the mitigation measures outlined in the BMP. |

| Condition no. | Requirement | Where addressed | How addressed |
|---|---|---|---|
| | | and Clearing Procedure | |
| | (viii) construction clearing and operation vegetation management protocols; | Table 5.5<br>Appendix A - Pre-clearing and Clearing Procedure | The BMP does not relate to the operation of the project.<br>Construction clearing will be undertaken in accordance with Appendix A – *Pre-clearing and Clearing Procedure*.<br>The operation vegetation management protocols relate to the operational phase of the project (i.e. Stage 3), not the construction phase (Stages 1 and 2). As per the approved staging approach, Transgrid will prepare a separate Biodiversity EMP Sub-plan for Stage 3 in accordance with conditions B1, B2 and C26 that addresses the operational phase of the project. |
| | (ix) monitoring of the areas of partial clearance within three months of the commencement of construction and provision of a verification report to confirm if any changes are required to the construction vegetation clearing protocols; | Table 5.5<br>Table 6.1<br>Table 6.2<br>Appendix A - Pre-clearing and Clearing Procedure | Areas subject to partial clearance will be monitored within three months from commencement of construction.<br>A verification report will be produced to confirm whether any changes are required to the Appendix A – *Pre-clearing and Clearing Procedure*.<br>Construction clearing will be undertaken in accordance with Appendix A – *Pre-clearing and Clearing Procedure*. |
| | (x) protecting native vegetation and key fauna habitat outside the approved disturbance area; | Appendix D – Biosecurity Management Plan | The *Biosecurity Management Plan* (Appendix D) includes measures to control the spread of weeds. |
| | (xi) maximising the salvage of resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and restoration of the site; | Section 5.9<br>Appendix A - Pre-clearing and Clearing Procedure<br>Soil and Water Management Plan | The salvage of resources is included within Section 5.9. |
| | (xii) a Connectivity Strategy and a Supplementary Hollow and Nest Strategy; | Section 5.2<br>Section 5.7<br>Appendix G – Connectivity Strategy<br>Appendix H – Supplementary Hollow and Nest Strategy | Connectivity corridors will be provided adjacent to towers at select locations along the easement. A Connectivity Strategy is described in Section 5.7 and included within Appendix G.<br>Section 5.2 of the BMP outlines considerations for a Supplementary Hollow and Nest Strategy, with the strategy itself included within Appendix H. |

| Condition no. | Requirement | Where addressed | How addressed |
|---|---|---|---|
| | (xiii) controlling weeds; | Appendix D – Biosecurity Management Plan | The *Biosecurity Management Plan* (Appendix D) includes measures to control the spread of weeds. |
| | (xiv) controlling erosion; and | Table 5.5<br>Soil and Water Management Plan | Table 5.5 includes measures for controlling erosion. The *Soil and Water Management Plan* has also been prepared for Stage 2 to minimise erosion and sedimentation impacts. |
| | (xv) bushfire management; and | Table 5.5<br>Emergency Plan | Table 5.5 includes measures for bushfire management. The *Emergency Plan* has also been prepared to prevent and mitigate the potential for fires, including bushfire. |
| | e) a detailed program to monitor and report on the effectiveness of these measures. | Section 6.3<br>Section 6.4<br>Section 6.5<br>Section 6.6<br>Section 6.8 | Monitoring and reporting on the effectiveness of these measures will be undertaken in accordance with Section 6.3 to Section 6.6, and Section 6.8. This will include pre-clearing inspections, clearing inspections, weekly inspections, auditing and reporting.<br>Inspections will assess the effectiveness of the measures being implemented to meet the requirements of the BMP. Monitoring and reporting will focus on clearing monitoring and reporting to track the spatial extent of clearing and inform any final biodiversity offset requirements. |

<table>
<tr><th>Condition no.</th><th>Requirement</th><th>Where addressed</th><th>How addressed</th></tr>
<tr><td colspan="4">Rehabilitation</td></tr>
<tr><td>C52</td><td>Within 6 months of the completion of construction, upgrading or decommissioning, unless the Planning Secretary agrees otherwise, the Proponent must rehabilitate the areas where ancillary facilities, accommodation camps and earthwork material sites are located. This rehabilitation must comply with the objectives in Table 3.<br>Table 3: Rehabilitation Objectives
<table>
<tr><th>Feature</th><th>Objective</th></tr>
<tr><td>Ancillary facilities</td><td>• Safe, stable and non-polluting<br>• Progressively rehabilitate the site as soon as possible following disturbance<br>• To be decommissioned and removed, unless the Planning Secretary agrees otherwise</td></tr>
<tr><td>Land use</td><td>• Restore land capability to pre-existing use</td></tr>
<tr><td>Community</td><td>• Ensure public safety at all times</td></tr>
</table></td><td>Section 5.9</td><td>Rehabilitation of the project will be carried out in accordance with Section 5.9.</td></tr>
<tr><td colspan="4">Independent Environmental Audit</td></tr>
<tr><td>D11</td><td>Independent Audits of the development must be conducted and carried out at the frequency described and in accordance with the Independent Audit Post Approval Requirements (2020), unless otherwise agreed or directed by the Planning Secretary.</td><td>Section 6.5</td><td>Section 6.5 details that independent audits will be carried out in accordance with the Independent Audit Post Approval Requirements (2020), unless otherwise agreed or directed by the Planning Secretary.</td></tr>
<tr><td colspan="4">Access to information</td></tr>
<tr><td>D12</td><td>The Proponent must:<br>a) make the following information publicly available on its website as relevant to the stage of the development:<br>(i) the EIS;<br>(ii) current statutory approvals for the development;<br>(iii) approved strategies, plans, programs or reports required under the conditions of this approval;<br>(iv) the proposed staging plans for the development if the construction, decommissioning and/or operation of the development is to be staged;<br>(v) a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the</td><td>Section 1.7.2</td><td>Section 1.7.2 states that the information required by condition D12 will be made publicly available on the project website.</td></tr>
</table>

| Condition no. | Requirement | Where addressed | How addressed |
|---|---|---|---|
| | various plans and programs approved under the conditions of this approval;<br>(vi) a record of complaints, which is to be updated on a monthly basis;<br>(vii) any independent environmental audit, and the Proponent's response to the recommendations in any audit; and<br>(viii) any other matter required by the Planning Secretary; and<br>b) keep this information up to date. | | |

## 2.3 Revised mitigation measures

The revised mitigation measures (RMMs) are defined in the Amendment Report. The RMMs relevant to biodiversity management are detailed in Table 2.2 below.

A cross reference is also included to indicate where the measure is addressed within this BMP or other project management documents. The management measures that will be implemented for Stage 1 of the project are provided in Section 5 of this BMP.

**Table 2.2 - Revised mitigation measures relevant to biodiversity**

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| 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.<br>Micro-siting of the transmission line infrastructure and associated construction working areas and other areas of disturbance would occur to avoid impacts wherever practicable.<br>Site features with the highest biodiversity conservation significance, in particular, threatened species recorded and their habitat would be given the highest priority.<br>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. | All locations | Table 5.5<br>Appendix A - Pre-clearing and Clearing Procedure<br>Appendix C – Fauna Handling Procedure<br>Appendix E – Biodiversity mapping<br>Section 4.5 of the CEMP – Sensitive area plans | During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur.<br>Mapping of spatial data and buffered threatened species locations would be included in the geographical information system (GIS). |
| B2 | If refinements to the proposal design and construction methodology or additional field surveys result in changed[1] impacts to biodiversity which are not included in this BDAR, these would be assessed in | All locations | Section 5.1.1<br>Table 5.5 | Should changes to the project's design or construction methodology or additional field surveys result in changed |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | accordance with the requirements of the BAM by an accredited assessor. | | | impacts to biodiversity which have not been included in the Final BDAR, these would be assessed in accordance with the requirements of the BAM by an accredited assessor.<br>Detail in relation to changed impacts that would be assessed in accordance with the requirements of the BAM are provided in Section 5.1.1. |
| 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. | All locations | Table 5.5<br>Section 5.3 | During detailed design and review of temporary design, opportunities to site items such as compounds and ancillary facilities in areas of limited biodiversity value with vegetation integrity scores of less than 17 (in accordance with the *NSW Government Biodiversity Assessment Method Operational Manual*), will occur. |
| B4 | Existing tracks and clearings will be used, where possible, to avoid the construction of new tracks. Where this is not possible, the design will seek to minimise impacts to native vegetation, including cut and fill, as a priority. | Transmission line corridor | Table 5.5 | Existing tracks are proposed for use where possible to minimise impacts along the transmission line corridor. |
| B5 | Transmission line towers would be located and constructed to minimise impact to vegetated riparian corridors. | 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 | Table 5.5 | Transmission line towers have been located and will be constructed to minimise impacts to vegetated riparian corridors, 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 | Transmission line – within one kilometre of wetland/ riverine habitats (refer to Key Waterbodies | Appendix G - Connectivity Strategy | Location, positioning and diverter model for conductor line-marking has been developed as part of the *Connectivity Strategy* (Appendix G) to minimise bird strike. |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | design refinement and would be developed as part of a Connectivity Strategy. 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. | list in Section 3.1.3 of the Final BDAR) | | |
| 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, targeting the following locations (wherever practicable):<br>• key riparian crossings<br>• areas of the alignment joining proposed biodiversity<br>• stewardship sites and or conservation reserve estate; and<br>• areas of existing dense mallee/belah.<br>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).<br>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. | All locations and for Squirrel Glider at (at locations as identified in the Final BDAR) | Appendix G - Connectivity Strategy | The *Connectivity Strategy* (Appendix G) identifies a series of connectivity corridors that would be established near tower locations that occur in woodland vegetation.<br>The Connectivity Strategy also addresses the requirement for under transmission glider poles in the locations identified in the Final BDAR (Figure 9.6). |
| 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:<br>• survey of tree hollows and nests within the proposed clearing extents | All locations where hollow bearing trees are being removed | Table 5.5<br>Section 5.2<br>Appendix H – Supplementary Hollow and Nest Strategy | The presence of tree hollow habitat within the disturbance area will be confirmed during pre-clearing surveys (Section 5.1 and Appendix A).<br>Detail relating to the *Supplementary Hollow and Nest Strategy* is included in Appendix H. |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | • 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<br>• 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<br>• nest boxes would also include the re-use of existing hollows salvaged prior to or during clearing where practicable; and<br>• measures to address and manage nests (such as raptor nests) prior to clearing. | | | Any nest boxes required will be installed within the vicinity of hollow bearing trees no more than two weeks prior to clearing of the tree. |
| B9 | Pre-clearing surveys will be completed prior to clearing at each location by a suitability qualified ecologist.<br>The proposed clearing extents will be marked out on site prior to the pre-clearing surveys. During the surveys, the ecologist will:<br>• survey the proposed clearing extent<br>• identify any fauna that will require relocation prior to clearing<br>• confirm the location and mark out the extents of any biodiversity exclusion zones<br>• confirm that hollow-bearing trees within and adjacent to the clearing extents are prominently marked/tagged<br>• 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; and<br>• survey and confirm the presence of raptor nests within and adjacent to the clearing extents. | All locations | Section 5.1<br>Table 5.5<br>Appendix A - Pre-clearing and Clearing Procedure | Pre-clearing surveys will be undertaken in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A) and the requirements listed within Section 5.1.<br>Pre-clearing surveys will be undertaken by the project ecologist in accordance with the requirement of RMM B9. These requirements are listed within Appendix A. |
| B10 | The results of the pre-clearing surveys would be used to update and confirm the accuracy of sensitive area maps. | All locations | Section 5.1<br>Table 5.5<br>Appendix A – Pre-clearing and Clearing Procedure<br>Section 4.5 of the CEMP – | The *Pre-clearing and Clearing Procedure* (Appendix A) includes the requirement to update the Geographical Information System (GIS) or sensitive area plans (SAPs) (as required, based on findings). |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | | | Sensitive area plans | |
| B11 | Biodiversity exclusion zones for retained vegetation, including identified threatened flora populations will be clearly identified by a suitably qualified ecologist prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone. Biodiversity exclusion zones will be physically marked and demarcated, and included on sensitive area maps, prior to clearing.<br>'No disturbance zones' would consider:<br>• identified Plains-wanderer habitat<br>• identified threatened flora populations; and<br>• PCTs in disturbance area B that are not of a growth form height that would ever require management.<br>Biodiversity exclusion zones would be physically marked and demarcated, and included on sensitive area maps, prior to clearing. | All locations | Section 5.1<br>Section 5.1.1<br>Table 5.5<br>Appendix A - Pre-clearing and Clearing Procedure | The *Pre-clearing and Clearing Procedure* (Appendix A) includes the requirement for the ecologist to identify biodiversity exclusion zones. This would also apply to Plains-wanderer habitat.<br>The ecologists' tasks and responsibilities are identified within Table 5.5. |
| 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. | All areas of key Plains Wanderer primary habitat | Table 5.5<br>Appendix F – Plains-wanderer Protocol | The project has been designed to minimise impacts to Plains-wanderer habitat as much as feasible. Should a tree require removal that would exceed the clearing limits, the tree would be removed to ground level under the supervision of an ecologist, using methods that minimise impacts to key habitat. |
| B13 | 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. | All locations | Appendix F – Plains-wanderer Protocol | A *Plains-wanderer Protocol* has been developed and is included in Appendix F. |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| B14 | 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. | All locations | Table 5.5<br>Section 6.1<br>Section 4.5 of the CEMP<br>Appendix A - Pre-clearing and Clearing Procedure | Training will be carried out through he site inductions, toolbox trainings and targeted training. Table 5.5 and Section 6.1 provides information in relation to the training and awareness that will be provided to all site personnel.<br>Sensitive areas (i.e. spatial locations that contain any protected biodiversity matters identified in the Final BDAR) for the relevant works locations will be covered in the training, with GIS or sensitive area plans provided to relevant personnel within the construction workforce (Section 5.1). |
| B15 | 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. | All locations | Table 5.5<br>Section 4<br>Section 6.6 | Monitoring of native vegetation which is cleared will occur in accordance with the requirements detailed within Section 5 and the reporting requirements included within Section 6.<br>This will include the reporting of information relating to the type of clearing (e.g. Disturbance Area A) and the spatial extent of each PCT, TEC and threatened flora. |
| B16 | Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of Water Management Act 2000) 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. | Transmission line within the riparian corridor as defined by "Guidelines for riparian corridors on waterfront land" (DPI – Office of Water, July 2012) | Table 5.5 | Shrub or ground stratum native vegetation within vegetated riparian zones as defined by RMM B16 would be protected to the greatest extent practicable. Vegetation clearing will be limited to the tree stratum only where possible, with trunk bases also being retained in-situ where feasible. |
| B17 | Activities within vegetated riparian zones would be managed to minimise impacts to aquatic environments. Riparian areas subject to disturbance | Transmission line within the riparian corridor as defined by | Table 5.5 | Mitigation measures in Section 5 will be implemented to ensure that activities within vegetated riparian zones |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | would be progressively stabilised and rehabilitated. | "Guidelines for riparian corridors on waterfront land" | | are undertaken in a way so to minimise impacts to aquatic environments. |
| B18 | A species unexpected finds protocol would be implemented if threatened ecological communities, flora and fauna species, not identified in the biodiversity assessment, are identified in the disturbance area. | All locations | Appendix B – Unexpected Threatened Species Finds Procedure<br>Table 5.5 | If an unexpected threatened species is discovered, the *Unexpected Threatened Species Finds Procedure* will be followed (Appendix B). |
| B19 | 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. | Murrumbidgee River | Table 5.5 | Where clearing would be undertaken within the mapped PCT 8 and PCT 11 vegetation at the crossing point of the Murrumbidgee River, this would be undertaken outside of the key breeding periods of the Regent Parrot (September-December). |
| B22 | **Special biodiversity protection zone – *Pimelea serpyllifolia subsp. serpyllifolia* (Thyme Rice-flower)**<br>Between towers 660-663 a bespoke construction methodology would be employed which would avoid impacts to known individuals of *Pimelea serpyllifolia* subsp. *serpyllifolia* (Thyme Rice-flower) and minimise impact as far as practicable to the species' habitat.<br>This methodology would include at a minimum:<br>• pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all *Pimelea serpyllifolia* subsp. *serpyllifolia* (Thyme Rice-flower) individuals<br>• pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone<br>• during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone<br>• access being prioritised from existing tracks<br>• clearing restricted to the identified tower 660–663 worksite locations and short new perpendicular access track sections. These would provide access between the existing | Between towers 660-663 | Section 5.3.4<br>Table 5.5<br>Appendix A – Pre-clearing and Clearing Procedure | A bespoke construction methodology will be adopted between these towers, to avoid impacts to known individuals of Thyme Rice-flower.<br>The methodology will include the aspects identified in RMM B22 and will also include the use of A-Frame Fence Hurdles when stringing transmission lines within the special biodiversity protection zones and / or walking the rope and draw wire through on foot when traversing through habitat, with an ecologist walking ahead acting as a spotter.<br>The methodology will also ensure that during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1. |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | access track along the proposal alignment and the tower 660–663 worksite locations<br>• alternative line installation techniques which do not require clearing of disturbance area A (centreline).<br>The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1. | | | |
| B23 | **Special biodiversity protection zone – *Pilularia novaehollandiae* (Austral Pillwort)**<br>Between towers 161–162 a bespoke construction methodology would be employed which would avoid impacts to known individuals of *Pilularia novaehollandiae* (Austral Pillwort) individuals and minimise impact as far as practicable to the species habitat.<br>This methodology would include at a minimum:<br>• pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all *Pilularia novae-hollandiae* (Austral Pillwort) individuals<br>• pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone<br>• during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone<br>• access being prioritised from existing tracks<br>• 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<br>• alternative line installation techniques which do not require clearing of disturbance area A (centreline).<br>The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1. | Between towers 161-162 | Section 5.3.4<br>Table 5.5<br>Appendix A – Pre-clearing and Clearing Procedure | A bespoke construction methodology will be adopted between these towers, to avoid impacts to known individuals of Austral Pillwort.<br>The methodology will include the aspects identified in RMM B23 and will also include the use of A-Frame Fence Hurdles when stringing transmission lines within the special biodiversity protection zones and / or walking the rope and draw wire through on foot when traversing through habitat, with an ecologist walking ahead acting as a spotter.<br>The methodology will also ensure that during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1. |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| B24 | **Special biodiversity protection zone – Natural Grasslands of the Murray Valley Plains**<br>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.<br>This methodology would include at a minimum:<br>• pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone<br>• during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone<br>• access being prioritised from existing tracks<br>• 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<br>• alternative line installation techniques which do not require clearing of disturbance area A (centreline).<br>The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1. | Between towers 241-242 | Section 5.3.4<br>Table 5.5<br>Appendix A – Pre-clearing and Clearing Procedure | A bespoke construction methodology will be adopted between these towers, to avoid impacts to mapped Natural Grasslands of the Murray Valley Plains.<br>The methodology will include the aspects identified in RMM B24 and will also include the use of A-Frame Fence Hurdles when stringing transmission lines within the special biodiversity protection zones and / or walking the rope and draw wire through on foot when traversing through the TEC, with an ecologist walking ahead acting as a spotter.<br>The methodology will also ensure that during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1. |
| B25 | The opportunity to stockpile and supply felled trees for Key Fish Habitat rehabilitation or improvement works would be discussed with DPI Fisheries. | Strahler stream orders 4 and above as identified in Section 3.1.2 | Table 5.5 | Opportunities to stockpile and supply felled trees for Key Fish Habitat rehabilitation or improvement works would be discussed with DPI Fisheries during construction. |
| B26 | **Special biodiversity protection zone – Property Vegetation Plan (PVP) on holding identified by Transgrid as H114 (location of towers 243-249)**<br>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. | Between towers 243-249 | Section 5.3.4<br>Table 5.5<br>Appendix A – Pre-clearing and Clearing Procedure | A bespoke construction methodology will be adopted between these towers, to avoid impacts to mapped Property Vegetation Plan (PVP) on holding identified by TransGrid as H114 (towers 243-249).<br>The methodology will include the aspects |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | This methodology would include at a minimum:<br>• pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone<br>• during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone<br>• access being prioritised from existing tracks<br>• 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<br>• alternative line installation techniques which do not require clearing of disturbance area A (centreline).<br>The final clearing methodology would be developed in accordance with the commitment in mitigation measure B1. | | | identified in RMM B26 and will also include the use of A-Frame Fence Hurdles when stringing transmission lines within the special biodiversity protection zones and / or walking the rope or draw wire through on foot if traversing through the PVP is required.<br>The methodology will also ensure that during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1. |
| **Land use and property** | | | | |
| LP2 | Transmission line towers 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:<br>• cropping and irrigated horticultural land<br>• areas used for set up and pack up of agricultural equipment, entry points and turning areas<br>• drainage catchments for farm dams<br>• locations of high biosecurity risk. | All locations | Table 5.5 | Transmission line towers structures (and associated permanent structures or construction compounds) have been located where possible to avoid or minimise impacts on locations of high biosecurity risk. |
| LP5 | Disturbed areas will be stabilised and appropriately rehabilitated (i.e. as close as possible 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 landholder. | All locations | Section 5.9<br>Table 5.5 | Disturbed areas will be stabilised in consultation with landholders. RMM LP5 is included within Table 5.5, with further detail included in Section 5.9. |
| LP7 | Biosecurity controls would be implemented during construction to minimise the risk of off-site transport or spread of disease, pests or weeds. | All locations | Table 5.5<br>Appendix D - Biosecurity Management Plan | Appendix D provides a *Biosecurity Management Plan* which will be implemented to minimise the risk of off-site transport or spread |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | Controls would include (but not limited to):<br>• inspections and cleaning of vehicles, machinery, and personnel equipment prior to movement on and off the construction work areas or between properties<br>• minimising movements across adjoining farmland including trip numbers and locations<br>• additional measures where localised areas of high biosecurity risks have been identified.<br>The specific controls applicable to a property would be identified in consultation with the affected landholder. The effectiveness of these controls will be monitored in a manner and time interval consistent with the level of risk on each property. | | | of disease, pests or weeds.<br>The *Biosecurity Management Plan* (Appendix D) includes an inspection checklist for vehicles and equipment. Information from Property Management Plans and consultation with landowners will be used to identify specific controls applicable to a property. |
| 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 (Local Land Services, the relevant local council, or NSW DPI) in relation to notifiable weeds | All locations | Table 5.5<br>Appendix D - Biosecurity Management Plan | Consultation with Local Land Services, the relevant local council or Department of Primary Industries will occur where weeds are present. |
| LP9 | In the event of new infestations of notifiable weeds as a result of construction activities, the relevant control authority will be notified as per *Biosecurity Act 2015* and *Biosecurity Regulation 2017*. | All locations | Table 5.5<br>Appendix D - Biosecurity Management Plan | Notification processes are included within the *Biosecurity Management Plan* (Appendix D). |
| **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. | All locations | Table 5.5 | Opportunities for retention of vegetation will occur through detailed design and construction planning. |
| LV2 | Temporary and permanent access would be designed to minimise vegetation removal, changes to landform, and visual impacts where practicable. | All locations | Table 5.5 | Existing access tracks will be used where possible to minimise vegetation clearing required. |
| 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 AS4970–2009 Protection of Trees on Development Sites. Practicable and | All locations | Table 5.5 | Where tree protection zones can be protected on the boundary of Disturbance Area A, they will be. |

| Reference | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | appropriate measures would be implemented to minimise the impact of the works on the long-term health of these trees. | | | |

[1] Revised mitigation measure B2 in Table C-2 Summary of proposed mitigation measures in Appendix C to the Amendment Report included the word 'increased'. This has been amended to 'changed' as requested by the Department during finalisation of the BMP and to reflect the project's commitment to reduce potential impacts to biodiversity to the greatest extent practicable when finalising the detailed design and construction methodology, per the requirements of condition A1 and the commitment in revised mitigation measure B1. This commitment relates to minor project changes that might arise during design and construction methodology finalisation, to ensure that they are adequately considered in accordance with the Biodiversity Assessment Method.

## 2.4 Permits and licences

Due to the potential for impacts on Matters of National Environmental Significance (MNES), a referral (EPBC 2020/8673) was prepared and lodged with the Commonwealth Department of Climate Change, Energy, the Environment and Water under the EPBC Act. The Commonwealth Minister's delegate determined on 25 June 2020 that the proposed action is a "controlled action" under the EPBC Act. Approval for the project under the EPBC Act (Commonwealth Approval) was granted by the Australian Minister for the Environment on 5 December 2022.

A Scientific Licence under Part 2 of the BC Act (including Animal Ethics Approval under the *Animal Research Act 1985*) is required for fauna handling/rescue and survey work. Where rescued fauna requires rehabilitation and care, only wildlife rehabilitation organisations authorised under Part 2 of the BC Act may be used.

As this project has been designated CSSI and assessed under Part 5 of the EP&A Act, permits relating to fish passage are not required.

An Environment Protection Licence (EPL) is not required for the project.

## 2.5 Guidelines

The main guidelines, specifications, and policy documents relevant to this BMP include:

- NSW *Biodiversity Assessment Method 2020* (BAM) (Department of Planning, Industry and Environment);
- Natural Resources Access Regulator (NRAR) *Guideline for controlled activities on waterfront land* (2018); and
- *Restoration of degraded grazing country in the semi-arid areas of NSW* (2006) (NSW Department of Primary Industries).

Transgrid has assessed the project's potential impacts to biodiversity values in accordance with the Biodiversity Assessment Method. The final biodiversity credit liability will be confirmed in accordance with the Biodiversity Assessment Method.

The documents identified above are considered by the project as described and referenced throughout this BMP.

# 3 Existing environment

This section summarises the existing biodiversity within and adjacent to the project. The key reference documents include:

- Section 9.3 of the EIS; and
- the Final BDAR.

## 3.1 Vegetation communities

Native vegetation recorded within the indicative disturbance area was assigned to nine vegetation formations that occur within five Interim Biogeographic Regionalisation of Australia (IBRA) subregions. The IBRA regions and subregions and vegetation formations are outlined in Table 3.1.

**Table 3.1 - IBRA regions and subregions**

| IBRA region | IBRA subregion | Vegetation formations |
|---|---|---|
| Murray Darling Depression | South Olary Plain | Arid Shrublands (Acacia sub-formation)<br>Arid Shrublands (Chenopod sub-formation)<br>Dry Sclerophyll Forests (Shrubby sub-formation)<br>Forested Wetlands<br>Freshwater Wetlands<br>Grasslands<br>Grassy Woodlands<br>Semi-arid Woodlands (Grassy sub-formation)<br>Semi-arid Woodlands (Shrubby sub-formation) |
| Riverina | Lachlan<br>Murrumbidgee | |
| NSW South Western Slopes | Lower slopes<br>Inland slopes | |

The nine recorded native vegetation formations have been assigned to 38 plant community types (PCTs). An overview of the plant community types relevant to the general construction area is provided within Table 3.2 and Figure 3.1 to Figure 3.4.

**Table 3.2 - Overview of plant community types**

| Plant Community Type | IBRA subregions | | | | |
|---|---|---|---|---|---|
| | South Olary Plain | Lachlan | Murrumbidgee | Lower slopes | Inland slopes |
| PCT143 – Narrow-leaved Hopbush –Scrub Turpentine – Senna shrubland on semi-arid and arid sandplains and dunes | X | | X | | |
| PCT157 – Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion | | | X | | |
| PCT 163 – Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones | X | X | X | | |
| PCT 164 – Cotton Bush open shrubland of the semi-arid (warm) zone | | | X | | |
| PCT 216 – Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion | | | X | | |
| PCT 110 – Western Grey Box – Cypress Pine shrubby woodland on stony footslopes in the NSW South Western Slopes Bioregion and Riverina Bioregion | | | | | X |

| Plant Community Type | IBRA subregions | | | | |
|---|---|---|---|---|---|
| | South Olary Plain | Lachlan | Murrumbidgee | Lower slopes | Inland slopes |
| PCT 17 – Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion | | | X | | |
| PCT 24 – Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains | | X | X | | |
| PCT 47 – Swamp grassland wetland of the Riverine Plain | | | X | | |
| PCT 53 – Shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains | | | X | | |
| PCT 160 – Nitre Goosefoot shrubland wetland on clays of the inland floodplains | | | X | | |
| PCT 182 – Cumbungi rushland wetland of shallow semi-permanent water bodies and inland watercourses | | | X | | |
| PCT 5 – River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion | | | | X | X |
| PCT 7 – River Red Gum – Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion | | | X | | |
| PCT 8 – River Red Gum – Warrego Grass – Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion) | | | X | | |
| PCT 11 – River Red Gum – Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | | | X | | |
| PCT 249 – River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW | | | | X | |
| PCT 44 – Forb-rich Speargrass – Windmill Grass – White Top grassland of the Riverina Bioregion | | | X | | |
| PCT 45 – Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion | | | X | X | |
| PCT 46 – Curly Windmill Grass – speargrass – wallaby grass grassland on alluvial clay and loam on the Hay plain, Riverina Bioregion | | | X | | |
| PCT 74 – Yellow Box – River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion | | | | X | X |
| PCT 76 – Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions | | | | X | |
| PCT80 – Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of | | | | X | X |

| Plant Community Type | IBRA subregions | | | | |
|---|---|---|---|---|---|
| | South Olary Plain | Lachlan | Murrumbidgee | Lower slopes | Inland slopes |
| NSW South Western Slopes Bioregion and Riverina Bioregion | | | | | |
| PCT 267 – White Box – White Cypress Pine – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion | | | | | X |
| PCT 277 – Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion | | | | X | X |
| PCT 13 – Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | | | X | | |
| PCT 15 – Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | X | X | X | | |
| PCT 26 – Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion | | | X | | |
| PCT 22 – Semi-arid shrubby Buloke – Slender Cypress Pine woodland, far south-western NSW | X | | | | |
| PCT 23 – Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones | X | X | X | | |
| PCT 28 – White Cypress Pine open woodland of sandplains, prior streams and dunes mainly of the semi-arid (warm) climate zone | | | X | | |
| PCT 58 – Black Oak – Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion | X | X | X | | |
| PCT 75 – Yellow Box – White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion | | | X | X | X |
| PCT 170 – Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones | X | X | X | | |
| PCT 171 – Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion | X | | | | |
| PCT 172 – Deep sand mallee of irregular dunefields of the semi-arid (warm) zone | X | | | | |
| PCT 199 - Hooked Needlewood – Needlewood – Mulga - Turpentine Bush open shrubland of the semi-arid and arid plains | X | | | | |
| PCT 319 – Tumbledown Red Gum – White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion | | | | | X |

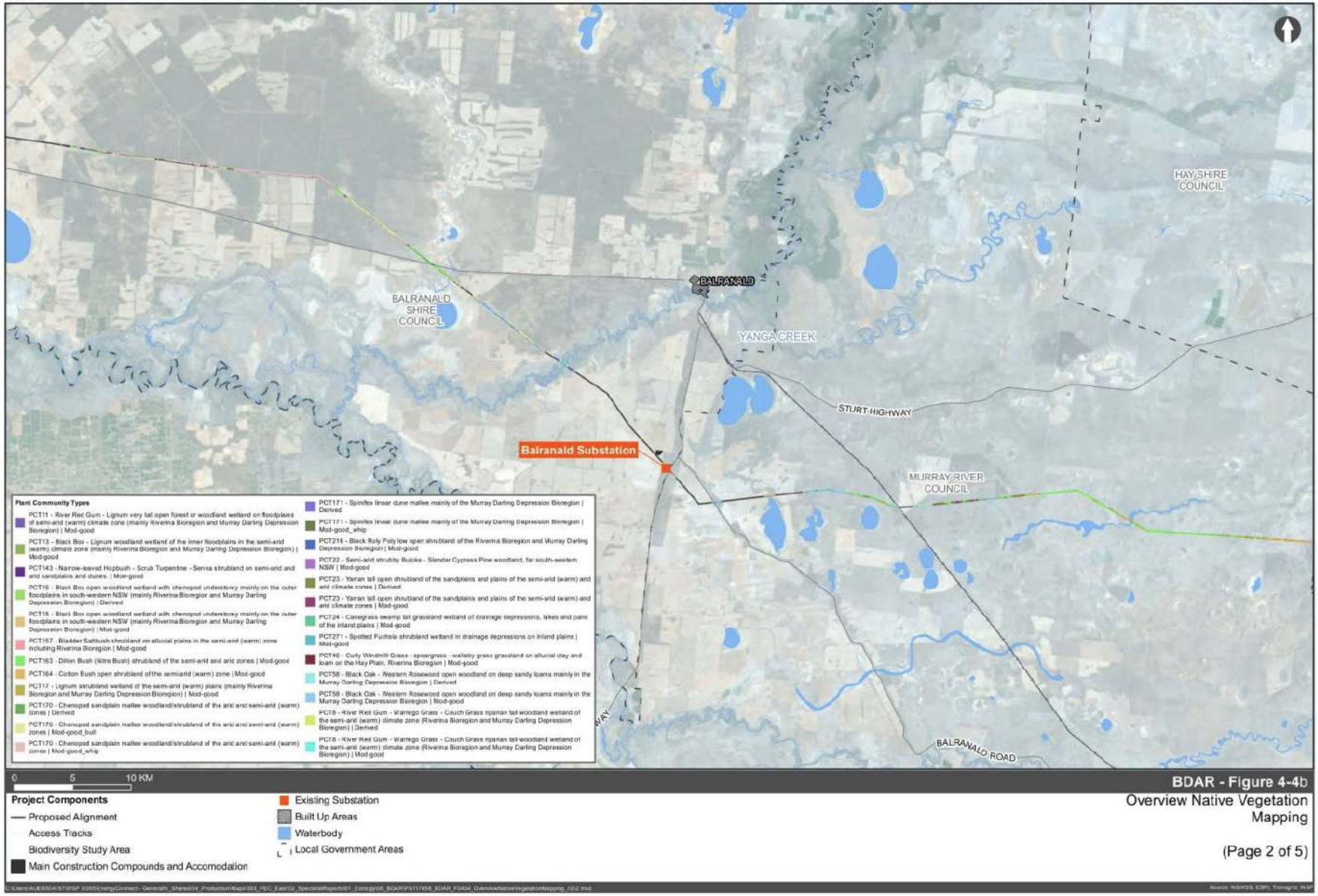



**Figure 3.1 - Overview of vegetation types within the project study area (map 1 of 4)**

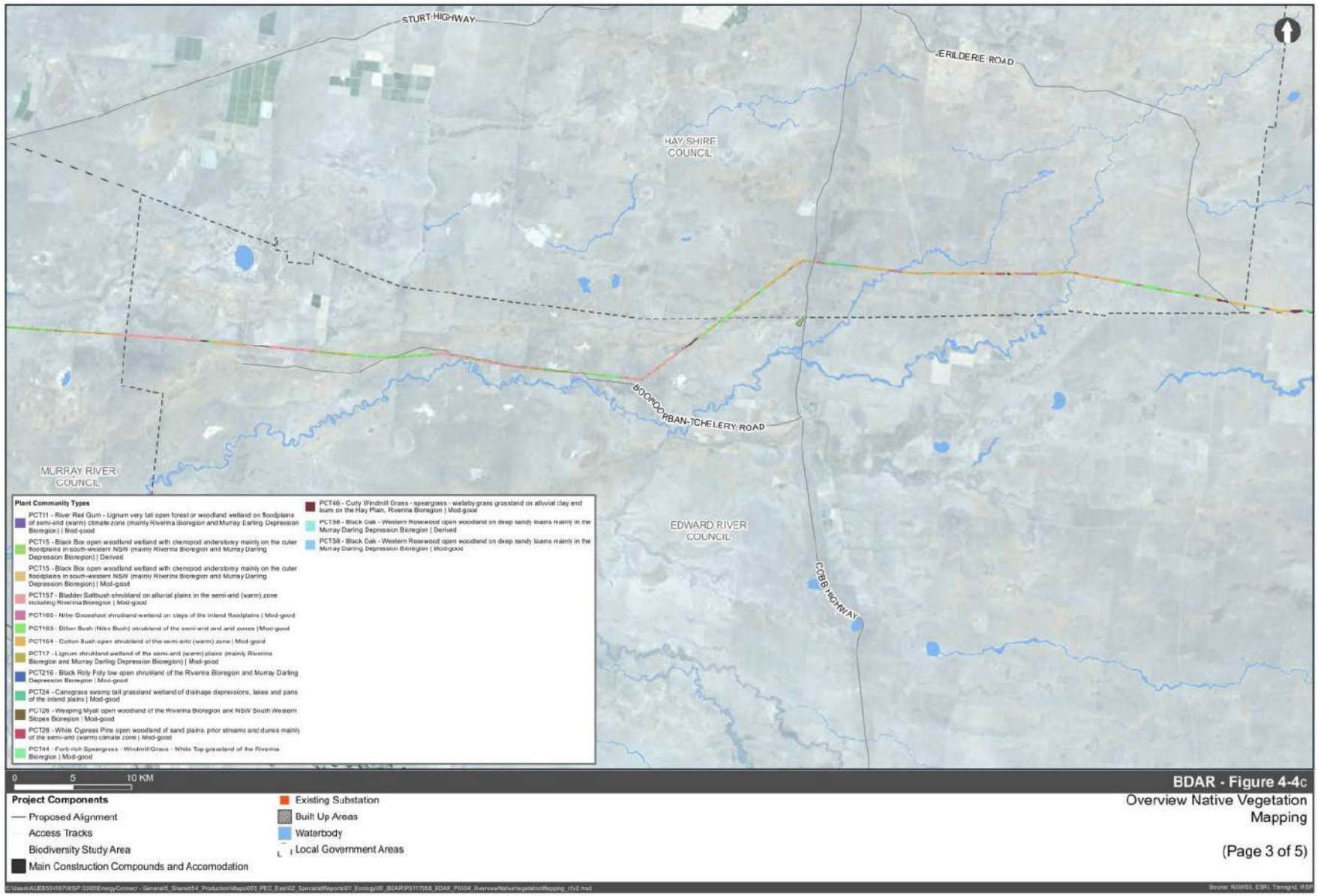



**Figure 3.2 - Overview of vegetation types within the project study area (map 2 of 4)**

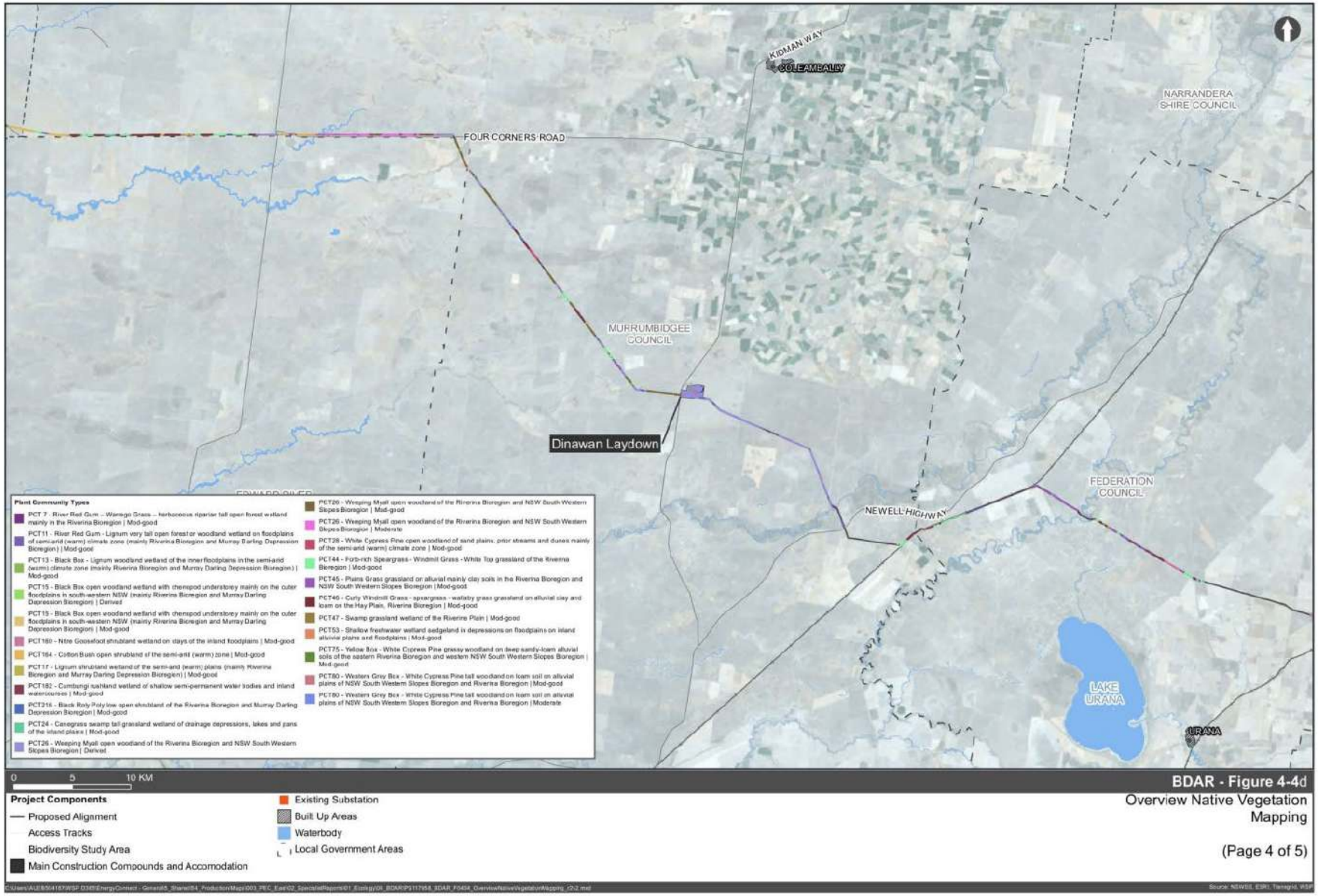



**Figure 3.3 - Overview of vegetation types within the project study area (map 3 of 4)**

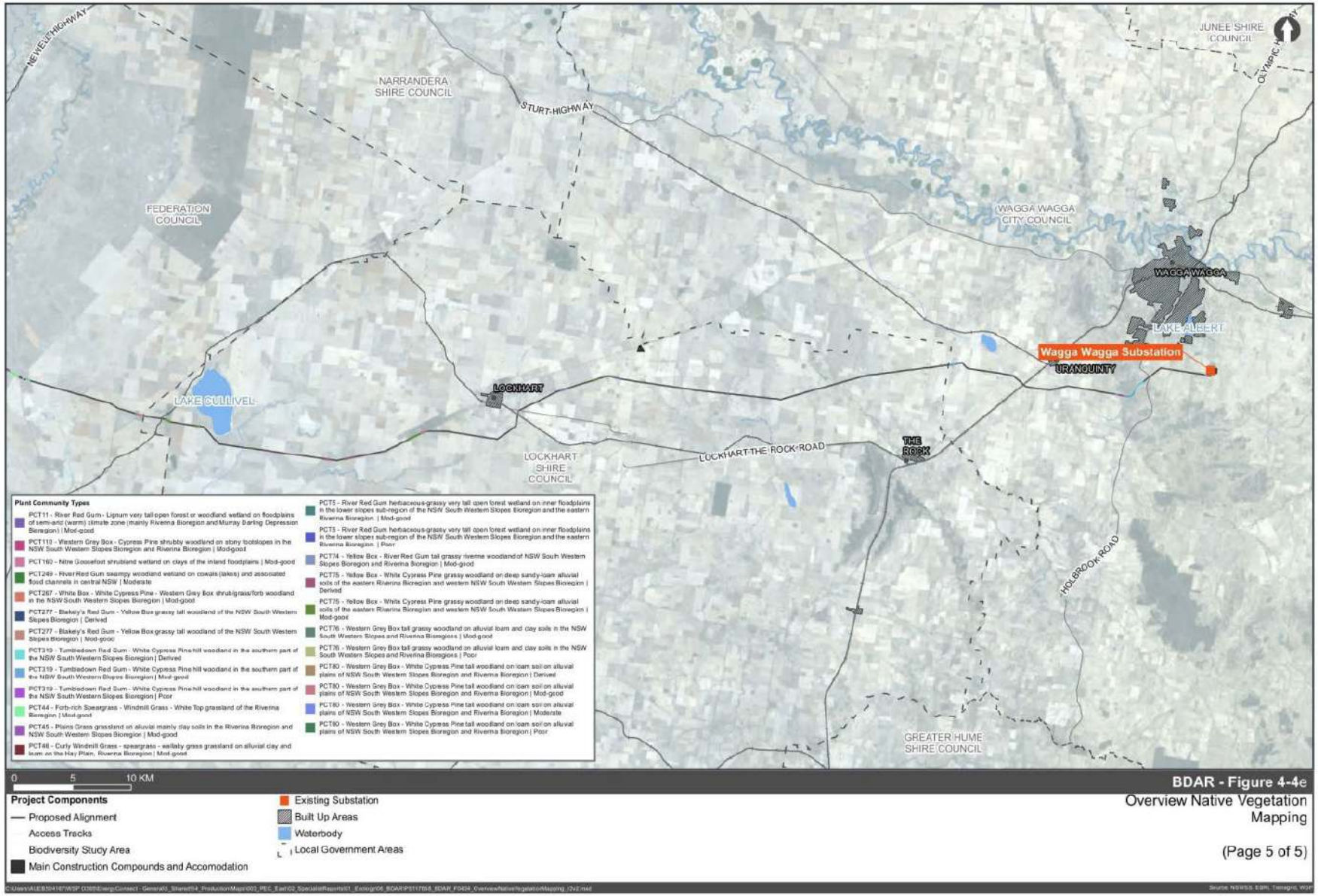



**Figure 3.4 - Overview of vegetation types within the project study area (map 4 of 4)**

## 3.2 Threatened ecological communities

A total of six threatened ecological communities (TECs) listed under the BC Act were recorded in the disturbance area. These were:

- *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 Peneplain, Nandewar and Brigalow Belt South Bioregions – Endangered;
- Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, 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; and
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland – Critically endangered.

A total of eight candidate threatened ecological communities (TECs) listed under the EPBC Act were recorded within the disturbance area. These were:

- Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregions – Endangered;
- Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia – Endangered;
- Mallee Bird Community of the Murray Darling Depression Bioregion – Endangered;
- Natural Grasslands of the Murray Valley Plains – Critically Endangered;
- Plains mallee box woodland of the Murray Darling Depression, Riverina and Naracoorte Coastal Plains bioregions – Critically Endangered;
- Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains – Critically Endangered;
- Weeping Myall Woodlands – Endangered; and
- White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered.

## 3.3 Threatened flora species

A total of 20 threatened flora species – both recorded and assumed – were considered affected by the project. These included:

- *Acacia acanthoclada* (Harrow Wattle);
- *Austrostipia metatoris* (A *spear grass);*
- *Austrostipa wakoolica* (A spear grass);
- *Brachyscome papillosa* (Mossgiel Daisy);
- *Caladenia arenaria* (Sand-hill Spider Orchid);
- *Calotis moorei* (A burr-daisy);
- *Convolvulus tedmooeri* (Bindweed);

- *Cullen parvum* (Small Scurf-pea);
- *Lasiopetalum behrii* (Pink Velvet Bush);
- *Lepidium monoplocoides* (Winged Peppercress);
- *Leptorhynchos orientalis* (Lanky Buttons);
- *Leptorhynchos waitzia* (Button Immortelle);
- *Maireana cheelii* (Chariot Wheels);
- *Pilularia novae-hollandiae* (Austral Pillwort) – Endangered (SAII);
- *Pimelea serpyllifolia subsp. serpyllifolia* (Thyme Rice-Flower) – Endangered (SAII);
- *Pterostylis cobarensis* (A Greenhood Orchid);
- *Swainsonia colutoides* (Bladder Senna);
- *Swainsona murrayana* (Slender Darling Pea);
- *Swainsonia pyrophila* (Yellow Swainson Pea); and
- *Swainsona sericea* (Silky Swainson Pea).

Impacts to *Santalum murrayanum* (Bitter Quandong) have been avoided and the species is not anticipated to be impacted by the disturbance area of the project. The species is therefore not considered further in this plan. Table 3.3 reflects the species listed under the EPBC Act and the BC Act that are anticipated to be impacted by the project and contains images of the threatened flora species. Refer to Appendix E for the location of the threatened flora species.

**Table 3.3 - Threatened flora species affected by the project**

| Species name | Common name | BC Act[1] | EPBC Act[2] | Images | Associated PCT | Recorded within study area? |
|---|---|---|---|---|---|---|
| *Acacia acanthoclada* | Harrow Wattle | E | - |  (Source: William Archer, Esperance Wild Flowers) | 170, 171, 172 | No |
| *Austrostipa metatoris* | A spear grass | V | V | - | 8, 28, 170 | No |
| *Austrostipa wakoolica* | A spear grass | E | E |  (Source: Geoff Carr) | 17, 26, 28, 74, 76, 80 | No |

| Species name | Common name | BC Act[1] | EPBC Act[2] | Images | Associated PCT | Recorded within study area? |
|---|---|---|---|---|---|---|
| *Brachyscome papillosa* | Mossgiel Daisy | V | V |  (Source: WSP) | 13, 15, 17, 24, 44, 45, 46, 76, 80, 157, 160, 163, 164, 216 | Yes |
| *Caladenia arenaria* | Sand-hill Spider Orchid | E | E |  (Source: Geoff Carr) | 28, 75, 76, 80 | No |
| *Calotis moorei* | A burr-daisy | E | E |  (Source: Geoff Carr) | 23, 143, 157, 170, 199 | No |
| *Convolvulus tedmooeri* | Bindweed | E | - | - | 17, 24, 26, 44, 45, 46, 157, 160, 163, 216 | No |
| *Cullen parvum* | Small Scurf-pea | E | - |  (Source: www.dpi.vic.gov.au (John Eichler)) | 5, 7, 44, 74, 277 | No |
| *Lasiopetalum behrii* | Pink Velvet Bush | CE | - |  (Source: Murray Fagg, Australian National Botanic Gardens) | 170, 171, 172 | No |

| Species name | Common name | BC Act[1] | EPBC Act[2] | Images | Associated PCT | Recorded within study area? |
|---|---|---|---|---|---|---|
| *Lepidium monoplocoides* | Winged Peppercress | E | E |  (Source: WSP) | 13, 15, 24, 26, 45, 46, 47, 74, 80, 160, 163, 170, 216 | Yes |
| *Leptorhynchos orientalis* | Lanky Buttons | E | - |  (Source: WSP) | 24, 26, 44, 45, 46, 47 | Yes |
| *Leptorhynchos waitzia* | Button Immortelle | E | - |  (Source: K. Nicolson, Atlas of Living Australia) | 170 | No |
| *Maireana cheelii* | Chariot Wheels | V | V |  (Source: WSP) | 26, 44, 46, 157, 163, 164 | Yes |
| *Pterostylis cobarensis* | A Greenhood Orchid | V | - |  (Source: Lachlan Copeland) | 170, 171 | No |

| Species name | Common name | BC Act[1] | EPBC Act[2] | Images | Associated PCT | Recorded within study area? |
|---|---|---|---|---|---|---|
| *Swainsona colutoides* | Bladder Senna | E | - |  (Source Tony Cathcart, Australian Wildlife Conservancy) | 170, 171, 172 | No |
| *Swainsona murrayana* | Slender Darling Pea | V | V |  (Source: WSP) | 15, 23, 26, 28, 44, 45, 46, 76, 80, 157, 163, 164, 216 | Yes |
| *Swainsona pyrophila* | Yellow Swainson Pea | V | V |  (Source: VicFlora) | 170, 171, 172 | No |
| *Swainsona sericea* | Silky Swainson Pea | V | - |  (Source: John Briggs) | 23, 26, 28, 44, 45, 46, 74, 76, 80 | No |
| *Pilularia novaehollandiae* | Austral Pillwort | E | - |  (Source: WSP) | 9, 12, 13, 15, 44, 45, 46, 74 | Yes |
| *Pimelea serpyllifolia subsp. serpyllifolia* | Thyme Rice-Flower | E | - |  (Source: WSP) | 170, 171, 172 | Yes |

(1) V = vulnerable, E = endangered, CE = critically endangered under the BC Act

(2) V = vulnerable under the EPBC Act

During post approvals surveys and delivery of the project, Striate Spike-sedge (*Eleocharis obicis*) was identified (Table 3.4). The *Unexpected Threatened Species Finds Procedure* (Appendix B) was followed with management measures identified and implemented.

**Table 3.4 - Threatened flora species (identified during project delivery)**

| Species name | Common name | BC Act[1] | EPBC Act[2] | Images |
|---|---|---|---|---|
| *Eleocharis obicis* | Striate Spike-sedge | V | V |  |

(1) V = vulnerable, E = endangered, CE= critically endangered under the BC Act

(2) V = vulnerable, E = endangered under the EPBC Act, CE= critically endangered under the EPBC Act

## 3.4 Threatened fauna species

A total of 20 threatened fauna species listed under the BC Act were recorded within the project study area. Following consultation with BCD during development of the BDAR, it was agreed that an additional three threatened fauna species are assumed present based on species habitat and limitations in surveys.

Of the 23 recorded and assumed fauna species identified for the project study area, nine are considered to be directly impacted by the project. Habitat for one species (Plains-wanderer) listed under the BC Act and EPBC Act was recorded within the project site boundary. An additional eight threatened fauna species were determined to have assumed presence. The species that are anticipated to be directly impacted are listed within Appendix 2 of the Infrastructure Approval and are detailed within Table 3.5.

A total of three Plains-wanderer birds were recorded at Bundure Siding Travelling Stock Route (TSR) within the Final BDAR.

**Table 3.5 - Threatened fauna species (considered to be directly impacted)**

| Species name | Common name | BC Act[1] | EPBC Act[2] | Images | Recorded within study area? |
|---|---|---|---|---|---|
| *Burhinus grallarius* | Bush Stone-curlew | V | - |  Source: Ross Bennett | No – assumed presence |

| Species name | Common name | BC Act[1] | EPBC Act[2] | Images | Recorded within study area? |
|---|---|---|---|---|---|
| *Hieraaetus morphnoides* | Little Eagle | V | - |  Source: WSP | No – assumed presence |
| *Lophochroa leadbeateri* | Major Mitchell's Cockatoo | V | - |  Source: WSP | Yes |
| *Myotis macropus* | Southern Myotis | V | - |  Source: WSP | Yes |
| *Ninox connivens* | Barking Owl | V | - |  Source: National Geographic | No – assumed presence |
| *Pedionomus torquatus* | Plains-wanderer | E | CE |  Source: WSP | Yes |
| *Petaurus norfolcensis* | Squirrel Glider | V | - |  Source: WSP | Yes |
| *Polytelis anthopeplus monarchoides* | Regent Parrot (eastern subspecies) | E | V |  Source: Australian Museum (David Cook) | Yes |

| Species name | Common name | BC Act[1] | EPBC Act[2] | Images | Recorded within study area? |
|---|---|---|---|---|---|
| *Polytelis swainsonii* | Superb Parrot | V | V |  Source: WSP | Yes |

(1) V = vulnerable, E = endangered, CE= critically endangered under the BC Act

(2) V = vulnerable, E = endangered under the EPBC Act, CE= critically endangered under the EPBC Act

During post approvals surveys and delivery of the project, the Southern Bell Frog (*Litoria raniformis*) was identified (Table 3.6). The *Unexpected Threatened Species Finds Procedure* (Appendix B) was followed with management measures identified and implemented.

**Table 3.6 - Threatened fauna species (identified during project delivery)**

| Species name | Common name | BC Act[1] | EPBC Act[2] | Images |
|---|---|---|---|---|
| *Litoria raniformis* | Southern Bell Frog | E | V |  |

(1) V = vulnerable, E = endangered, CE= critically endangered under the BC Act

(2) V = vulnerable, E = endangered under the EPBC Act, CE= critically endangered under the EPBC Act

## 3.5 Threatened aquatic species

The Final BDAR identified that areas of mapped key fish habitat have been considered to provide moderate likelihood of occurrence for four threatened species listed under the *Fisheries Management Act 1994*. The species relevant to Stage 2 are:

- Murray Hardyhead (*Craterocephalus fluviatilis*) listed as critically endangered under the *Fisheries Management Act 1994*;
- Silver Perch (*Bidyanus bidyanus*) listed as vulnerable under the *Fisheries Management Act 1994*;
- Flathead Galaxias (*Galaxias rostratus*) listed as critically endangered under the *Fisheries Management Act 1994*; and
- Macquarie Perch (*Macquaria australasica*) listed as endangered under the *Fisheries Management Act 1994*.

## 3.6 Threatened aquatic ecological communities

One endangered ecological community listed under the *Fisheries Management Act 1994* was considered to have the potential to occur within the project study area:

- Aquatic ecological community in the natural drainage system of the lowland catchment of the Murray River Lowland.

This endangered ecological community is considered to be affected by the project based on the clearing of riparian vegetation.

## 3.7 Matters of National Environmental Significance

Matters of National Environmental Significance (MNES) are those matters protected by the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), and include:

- world heritage properties;
- national heritage places;
- wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed);
- nationally threatened species and ecological communities;
- migratory species;
- Commonwealth marine areas;
- the Great Barrier Reef Marine Park;
- nuclear actions (including uranium mining); and
- a water resource, in relation to coal seam gas development and large coal mining development.

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020 due to the Project's potential significant impact on nationally threatened species and ecological communities.

The then Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act. Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

Matters of national environmental significance, including threatened species and ecological communities, relevant to the project are listed in Section 7 of the Final BDAR.

The Commonwealth Approval contains clearing limits for threatened flora species and ecological communities. These clearing limits, compared to the Infrastructure Approval limits, are provided in Section 4.2.2, Section 4.2.3 and Section 5.3 in order to provide clarity on the difference, if any, between the clearing limits.

It is noted that the Commonwealth Approval does not provide clearing limits for threatened fauna species.

## 3.8 Groundwater dependent ecosystems

There are no high potential groundwater dependent ecosystems (GDE) located within the Stage 2 project construction footprint.

GDE information obtained through the National Groundwater Information System (BOM, 2020) identified 17 GDEs with high potential for groundwater interaction within the Stage 2 project study area (Table 3.7).

**Table 3.7 - GDE with high potential for groundwater interaction**

| GDE Type | Name | Associated PCT |
|---|---|---|
| Aquatic | Coloboralli Creek – near Wagga | N/A |
| Aquatic | Stringybark Creek | N/A |
| Aquatic | Boiling down Creek – near Wagga | N/A |

| GDE Type | Name | Associated PCT |
|---|---|---|
| Aquatic | Crooked Creek – near Wagga | N/A |
| Aquatic | Sandy Creek | N/A |
| Aquatic | Lake Cullival – near Wagga | N/A |
| Aquatic | Wetlands | 47, 53 |
| Terrestrial | River Red Gum | 5, 7, 8, 11 |
| Terrestrial | Red River Gum and Warrego Grass | 7, 8 |
| Terrestrial | Red River Gum and Wallaby Grass | 5 |
| Terrestrial | Red River Gum and Lignum | 11 |
| Terrestrial | Red River Gum and Black Box | 10 (not recorded) |
| Terrestrial | Lignum shrubland | 17 |
| Terrestrial | Black box | 13 and 15 |
| Terrestrial | Canegrass Swamp | 24 |
| Terrestrial | Dillon bush (Nitre bush) | 163 |
| Terrestrial | Nitre Goosefoot shrubland | 160 |

## 3.9 Migratory species

The Final BDAR identified that 19 EPBC Act listed migratory species are moderately likely to occur within or adjacent to the project study area. An additional 17 EPBC Act listed marine bird species may occur on occasion.

It is anticipated that the project will impact on the following 12 species:

- *Actitis hypoleucos* (Common Sandpiper) – Migratory under the EPBC Act;
- *Apus pacificus* (Fork-tailed Swift) – Migratory under the EPBC Act;
- *Calidris acuminata* (Sharp-tailed Sandpiper) – Migratory under the EPBC Act;
- *Calidris ferruginea* (Curlew Sandpiper) – Critically Endangered and Migratory under the EPBC Act;
- *Gallinago harwickii* (Latham's Snipe) – Migratory under the EPBC Act;
- *Grantiella picta* (Painted Honeyeater) – Vulnerable and Migratory under the EPBC Act;
- *Hirundapus caudacutus* (White-throated Needletail) – Vulnerable and Migratory under the EPBC Act;
- *Leipoa ocellata* (Malleefowl) – Vulnerable and Migratory under the EPBC Act;
- *Limosa lapponica* (Bar-tailed Godwit) – Migratory under the EPBC Act;
- *Limosa lapponica baueri* (Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit) – Vulnerable and Migratory under the EPBC Act;
- *Limosa limosa* (Black-tailed Godwit) - Migratory under the EPBC Act; and
- *Tringa nebularia* (Common Greenshank) – Migratory under the EPBC Act.

The Final BDAR noted that none of these species were recorded and considered that it was unlikely that the project would have a significant impact on these species.

## 3.10 Wetlands of national and international importance

Seven nationally important wetlands are located within 25km of the project study area, however none of these nationally important wetlands occur within NSW. However, there are two nationally important wetlands nearby (but outside the project study area):

- Tala Lake and Yanga Lake, near Balranald (five kilometres from the project); and
- Black Swamp and Coopers Swamp near Wanganella.

Four RAMSAR wetlands or Wetlands of International importance were identified:

- Banrock station wetland complex;
- Hattah-kulkyne lakes;
- Riverland; and
- The Coorong, and Lakes Alexandrina and Albert wetland.

No RAMSAR wetlands or Wetlands of International importance were identified within 10km of the project study area. Therefore, no RAMSAR wetlands or Wetlands of International Importance are considered to be affected by the project.

## 3.11 Weeds

The weeds identified across the project area and legislation or document under which they were identified are included within the *Biosecurity Management Plan* (45860-HSE-PL-D-0127) (Appendix D).

Three exotic flora species recorded within the project study area are listed under the NSW *Biosecurity Act 2015* as priority weeds for the Western region and/or Riverina region (Department of Primary Industries, 2021). These three species are also listed as Weeds of National Significance (WONS) (Australian Weeds Committee, 2021).

There are several species of weeds identified in the Final BDAR that are likely to be located in the vicinity of the project study area including:

- two priority weeds and weeds of national significance recorded within the Western Local Land services region (*Lycium ferocissimum (*African boxthorn), *Opuntia* species including *Opuntia elata* and *Opuntia robusta* (Wheel Cactus));
- one priority weed and weed of national significance recorded within the Riverina Local Land services region (*Lycium ferocissimum* (African boxthorn)); and
- 18 high threat weeds recorded within the project study area during field surveys.

# 4 Environmental aspects and impacts

## 4.1 Construction activities

An environmental aspect is an element of an organisation's activities, products, or services that has or may have an impact on the environment (ISO 14001 Environmental Management Systems). The relationship of aspects and impacts is one of cause and effect.

Key construction activities and the associated environmental aspects that could result in adverse impacts to biodiversity include:

- removal of vegetation as a result of clearing activities reducing available habitat and local biodiversity;
- stripping of topsoils as part of the initial earthwork's activities removing or harming any existing seed bank present and limiting natural regeneration potential;
- dust generation due to earthworks and vehicle movements affecting adjacent habitat;
- construction activities generally affecting the amenity and breeding cycles of any nearby fauna;
- introduction or spread of weeds and pathogens due to vehicle and machinery movements;
- surface grading and earthworks affecting root stock and soil structure, limiting natural regeneration potential;
- compaction of soils due to earthworks and vehicle movements increasing runoff and soil erosion risk and reducing future revegetation potential; and
- construction plant and equipment and site activities resulting in ignition of vegetation.

## 4.2 Impacts

The potential for impacts on biodiversity will depend on a number of factors. Primarily impacts will be dependent on the nature, extent and magnitude of construction activities and their interaction with the natural environment. Potential impacts attributable to construction are discussed in the sections below. The environmental management measures described in Section 5 have been developed to minimise and mitigate the impacts to biodiversity.

### 4.2.1 Impacts on native vegetation

#### Direct impacts

Avoidance and minimisation of native vegetation have been considered during transmission line corridor placement, including the strategic options assessment and identification and refinement of the project process, however, complete avoidance of removal of native vegetation is not practicable.

It should be noted that detailed design for the project has not been completed and as a result the disturbance area is indicative only.

The Final BDAR reported that direct impacts of the project as a whole (Stage 1 and Stage 2) on native vegetation, based on the assumed disturbance model, would include direct impacts up to 1,615.20 hectares of native vegetation. Total direct impact on native vegetation for each IBRA region is outlined in Table 4.1.

**Table 4.1 - Total direct impact on native vegetation**

| Native vegetation | IBRA subregions (ha) | | | | | Direct impact (ha) |
|---|---|---|---|---|---|---|
| | South Olary Plain | Lachlan | Murrumbidgee | Lower slopes | Inland slopes | |
| Total direct impact on native vegetation for each IBRA subregion | 484.6 | 17.17 | 991.63 | 79.58 | 42.22 | |
| **Total direct impact on native vegetation** | | | | | | **1,615.20** |

Table 12-11 of the Final BDAR provided a summary of the impacts to native vegetation, related to the ecosystem credit offset requirements, based on the plant community types and disturbance areas. Table 12-11 of the Final BDAR is repeated within Table 4.2 below.

In accordance with condition A2, the project will be caried out in compliance with the conditions of the Infrastructure Approval, and generally in accordance with the EIS (which includes the Final BDAR). Note that the final impact extents will be subject to finalisation of the design and construction methodology and commitments in the EIS concerning impact minimisation.

## Table 4.2 - Summary of native vegetation impacts (Table 12-11 of Final BDAR)

| Vegetation community | Condition | Conservation status | | SAII | Disturbance area (ha) | | | | Total impact area (ha) | Ecosystem credit liability |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BC Act | EPBC Act | | A | B4 | B10 | HZ | | |
| **Arid Shrublands (Acacia sub-formation)** | | | | | | | | | | |
| PCT 143 – Narrow-leaved Hopbush – Scrub Turpentine – Senna shrubland on semi-arid and arid sandplains and dunes | 143_Mod-good | No | No | No | 2.43 | 0 | 0 | 0 | 2.43 | 83 |
| PCT 199 – Hooked Needlewood – Needlewood – Mulga – Turpentine Bush open shrubland of the semi-arid and arid plains | 199_Mod-good | No | No | No | 1.31 | 0 | 0 | 0 | 1.31 | 24 |
| **Arid Shrublands (Chenopod sub-formation)** | | | | | | | | | | |
| PCT 157 – Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion | 157_Mod-good | No | No | No | 73.76 | 0 | 0 | 0 | 73.76 | 2642 |
| PCT 163 – Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones | 163_Mod-good | No | No | No | 145.80 | 0 | 0 | 0 | 145.80 | 5313 |
| PCT 164 – Cotton Bush open shrubland of the semi-arid (warm) zone | 164_Mod-good | No | No | No | 116.29 | 0 | 0 | 0 | 116.29 | 4268 |
| PCT 216 – Black Roly Poly low open shrubland of the Riverina | 216_Mod-good | No | No | No | 20.28 | 0 | 0 | 0 | 20.28 | 618 |
| **Dry Sclerophyll Forests (Shrubby sub-formation)** | | | | | | | | | | |
| PCT 110 – Western Grey Box – Cypress Pine shrubby woodland on stony footslopes in the NSW South Western Slopes Bioregion and Riverina Bioregion | 110_Mod-good | Yes | Yes | No | 0.70 | 1.27 | 0.70 | 0.72 | 3.39 | 58 |
| **Freshwater Wetlands** | | | | | | | | | | |
| PCT 17 – Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | 17_Mod-good | No | No | No | 18.08 | 0 | 0 | 0 | 18.08 | 773 |
| PCT 24 – Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains | 24_Mod-good | No | No | No | 13.52 | 0 | 0 | 0 | 13.52 | 447 |
| PCT 47 – Swamp grassland wetland of the Riverine Plain | 47_Mod-good | No | Yes | No | 2.63 | 0 | 0 | 0 | 2.63 | 98 |

| Vegetation community | Condition | Conservation status | | SAII | Disturbance area (ha) | | | | Total impact area (ha) | Ecosystem credit lability |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BC Act | EPBC Act | | A | B4 | B10 | HZ | | |
| PCT 53 – Shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains | 53_Mod-good | No | No | No | 1.73 | 0 | 0 | 0 | 1.73 | 76 |
| PCT 160 – Nitre Goosefoot shrubland wetland on clays of the inland floodplains | 160_Mod-good | No | No | No | 29.03 | 0 | 0 | 0 | 29.03 | 1064 |
| PCT 182 – Cumbungi rushland wetland of shallow semipermanent water bodies and inland watercourses | 182_Mod-good | No | No | No | 0.05 | 0 | 0 | 0 | 0.05 | 2 |
| **Forested Wetlands** | | | | | | | | | | |
| PCT 5 – River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes subregion of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion | 5_Mod-good | No | No | No | 1.04 | 2.03 | 0.66 | 0.62 | 3.35 | 64 |
| | 5_Poor | No | No | No | 0.29 | 0.44 | 0.15 | 0 | 0.88 | 9 |
| PCT 7 – River Red Gum – Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion | 7_Mod-good | No | No | No | 1.36 | 2.27 | 1.32 | 1.32 | 6.27 | 104 |
| PCT 8 – River Red Gum – Warrego Grass – Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion) | 8_Mod-good | No | No | No | 1.70 | 1.73 | 1.34 | 0 | 4.77 | 95 |
| PCT 11 – River Red Gum – Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | 11_Mod-good | No | No | No | 4.90 | 4.92 | 3.45 | 1.27 | 14.54 | 295 |
| PCT 249 – River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW | 249_Moderate | No | No | No | 0.02 | 0.01 | 0.01 | 0.01 | 0.05 | 1 |
| **Grasslands** | | | | | | | | | | |
| PCT 44 – Forb-rich Speargrass – Windmill Grass – White Top grassland of the Riverina Bioregion | 44_Mod-good | No | Yes | No | 43.11 | 0 | 0 | 0 | 43.11 | 1853 |
| PCT 45 – Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion | 45_Mod-good | No | Yes | No | 28.13 | 0 | 0 | 0 | 28.13 | 1102 |

| Vegetation community | Condition | Conservation status | | SAII | Disturbance area (ha) | | | | Total impact area (ha) | Ecosystem credit lability |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BC Act | EPBC Act | | A | B4 | B10 | HZ | | |
| PCT 46 – Curly Windmill Grass – speargrass – wallaby grass grassland on alluvial clay and loam on the Hay plain, Riverina Bioregion | 46_Mod-good | No | Yes | No | 49.72 | 0 | 0 | 0 | 49.72 | 1612 |
| **Grassy Woodlands** | | | | | | | | | | |
| PCT 74 – Yellow Box – River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion | 74_Mod-good | Yes | Yes | Yes | 0.84 | 0.78 | 0.49 | 0.38 | 2.49 | 67 |
| PCT 76 – Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions | 76_Mod-good | Yes | Yes | No | 0.51 | 0.45 | 0.19 | 0.26 | 1.41 | 33 |
| PCT 80 – Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion | 80_Mod-good | Yes | Yes | No | 5.45 | 4.38 | 2.81 | 2.91 | 15.55 | 456 |
| | 80_Moderate | Yes | Yes | No | 3.87 | 3.64 | 1.99 | 2.38 | 11.88 | 209 |
| | 80_Poor | Yes | Yes | No | 0.79 | 0.70 | 0.14 | 0 | 1.63 | 21 |
| | 80_Derived | No | No | No | 0.98 | 0 | 0 | 0 | 0.98 | 14 |
| PCT 267 – White Box – White Cypress Pine – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion | 267_Mod-good | Yes | Yes | Yes | 0.09 | 0.13 | 0.04 | 0.06 | 0.32 | 9 |
| PCT 277 – Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion | 277_Mod-good | Yes | Yes | Yes | 4.53 | 1.10 | 0.45 | 0.40 | 6.48 | 289 |
| | 277_Derived | Yes | No | Yes | 0.68 | 0 | 0 | 0 | 0.68 | 0 |
| | 277_Native plantings | Yes | No | Yes | 2.25 | 1.71 | 1.36 | | 5.32 | 121 |
| **Semi-arid Woodlands (Grassy sub-formation)** | | | | | | | | | | |
| PCT 13 – Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | 13_Mod-good | No | No | No | 5.75 | 2.33 | 1.67 | 0 | 9.75 | 323 |
| PCT 15 – Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains | 15_Mod-good | No | No | No | 7.37 | 7.38 | 5.51 | 0 | 20.26 | 440 |
| | 15_Derived | No | No | No | 2.87 | 0 | 0 | 0 | 2.87 | 33 |

| Vegetation community | Condition | Conservation status | | SAII | Disturbance area (ha) | | | | Total impact area (ha) | Ecosystem credit lability |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BC Act | EPBC Act | | A | B4 | B10 | HZ | | |
| in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | | | | | | | | | | |
| PCT 26 – Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion | 26_Mod-good | Yes | Yes | No | 32.99 | 30.91 | 0 | 0 | 63.90 | 2044 |
| | 26_Moderate | Yes | Yes | No | 19.90 | 18.03 | 0 | 0 | 37.93 | 950 |
| | 26_Derived | No | No | No | 233.11 | 0 | 0 | 0 | 233.11 | 4687 |
| PCT 319 – Tumbledown Red Gum – White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion | 319_Mod-good | No | No | No | 5.31 | 5.05 | 2.29 | 2.78 | 15.43 | 276 |
| | 319_Poor | No | No | No | 0.18 | 0.15 | 0.09 | 0 | 0.42 | 5 |
| | 319_Derived | No | No | No | 6.35 | 0 | 0 | 0 | 6.35 | 103 |
| **Semi-arid Woodlands (Shrubby sub-formation)** | | | | | | | | | | |
| PCT 22 – Semi-arid shrubby Buloke – Slender Cypress Pine woodland, far south-western NSW | 22_Mod-good | Yes | Yes | Yes | 1.20 | 1.04 | 0.69 | 0 | 2.93 | 89 |
| PCT 23 – Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones | 23_Mod-good | Yes | No | No | 4.91 | 5.91 | 0 | 0 | 10.82 | 290 |
| | 23_Derived | No | No | No | 7.71 | 0 | 0 | 0 | 7.71 | 163 |
| PCT 28 – White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zones | 28_Mod-good | Yes | No | No | 8.06 | 8.38 | 5.81 | 0 | 22.25 | |
| PCT 58 – Black Oak – Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion | 58_Mod-good | No | No | No | 35.59 | 44.11 | 32.43 | 0 | 112.13 | 2710 |
| | 58_Derived | No | No | No | 4.81 | 0 | 0 | 0 | 4.81 | 0 |
| PCT 75 – Yellow Box – White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion | 75_Mod-good | Yes | Yes | Yes | 15.58 | 10.18 | 6.00 | 7.09 | 38.85 | 1260 |
| | 75_Derived | Yes | No | Yes | 6.33 | 0 | 0 | 0 | 6.33 | 0 |
| PCT 170 – Chenopod sandplain mallee woodland/ shrubland of the arid and semi-arid (warm) zones | 170_Mod-good_bull | No | Yes – part | No | 28.07 | 35.69 | 0 | 0 | 63.76 | 1202 |
| | 170_Mod-good_whip | No | Yes | No | 106.01 | 123.87 | 0 | 0 | 229.88 | 4266 |
| | 170_Derived | No | No | No | 5.44 | 0 | 0 | 0 | 5.44 | 0 |

| Vegetation community | Condition | Conservation status | | SAII | Disturbance area (ha) | | | | Total impact area (ha) | Ecosystem credit liability |
|---|---|---|---|---|---|---|---|---|---|---|
| | | BC Act | EPBC Act | | A | B4 | B10 | HZ | | |
| PCT 171 – Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion | 171_Mod-good_whip | No | No | No | 22.49 | 22.14 | 0 | 0 | 44.63 | 1064 |
| | 171_Derived | No | No | No | 0.56 | 0 | 0 | 0 | 0.56 | 9 |
| PCT 172 – Deep sand mallee of irregular dunefields of the semi-arid (warm) zone | 172_Mod-good_whip | No | No | No | 22.68 | 26.54 | 0 | 0 | 49.22 | 994 |
| **Total native vegetation ecosystem credit liability** | | | | | **1159.14** | **366.27** | **69.59** | **20.20** | **1615.20** | **43134** |

### Indirect impacts

Indirect impacts to native vegetation would likely be limited to:

- low risk of inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality);
- negligible risk of reduced viability of adjacent habitat due to edge effects;
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill;
- negligible risk of transport of weeds and pathogens from the site to adjacent vegetation; and
- low risk of increased risk of fire.

## 4.2.2 Impacts on threatened ecological communities

### Direct impacts

Direct loss or impacts to both EPBC Act and BC Act listed threatened ecological communities is included within Table 4.3.

It is noted that in the instance of White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland, the clearing limit designated by the Infrastructure Approval (60.48) is higher than the clearing limit designated by the Commonwealth Approval (34.89), as the TEC comprises both BC Act and EPBC Act (Matters of National Environmental Significance (MNES)) matters.

Condition C23 and Appendix 2 of the Infrastructure Approval establish these extents as clearing limits (subject to agreement from the Planning Secretary). Condition 1 of the Commonwealth Approval also stipulates clearing limits for EPBC protected matters. Final impact extents will be subject to finalisation of the design and construction methodology and commitments in the EIS concerning impact minimisation.

### Table 4.3 - Direct impact on threatened ecological communities

| Threatened ecological community | Vegetation type (PCT) | IBRA subregion | Vegetation zone name | BC Act[1] | EPBC Act[2] | Direct impact (ha) | Clearing limits (ha) (Appendix 2 of the Approval) | Clearing limits for MNES (ha) (Condition 1 of the Commonwealth Approval) | Total clearing limits (ha) |
|---|---|---|---|---|---|---|---|---|---|
| *Acacia melvillei* shrubland in the Riverina and Murray Darling Depression bioregions | PCT 23 | South Olary Plain | VZ #3 23_Mod-good | E | - | 10.81 | 10.81 | - | 10.81 |
| | | Lachlan | VZ #2 23_Mod-good | | | | | | |
| | | Murrumbidgee | VZ #9 23_Mod-good | | | | | | |
| *Allocasuarina luehmanii* woodland in the Riverina and Murray-Darling Depression bioregions | PCT 22 | South Olary Plain | VZ #13 22_Mod-good | E | E | 2.93 | 2.93 | - | 2.93 |
| Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions | PCT 76 | Lower Slopes | VZ #2 76_Mod-good | E | - | 33.86<br>17.56ha of this is the EPBC Act listed 'Grey Box (*Eucalyptus acrocarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia', which is listed below. | 33.86 | - | 33.86 |
| | PCT 80 | Lower Slopes | VZ #4 80_Mod-good | | | | | | |
| | | | VZ #3 80_Moderate | | | | | | |
| | | Inland Slopes | VZ #2 80_Poor | | | | | | |
| | PCT 110 | Inland Slopes | VZ #3 110_Mod-good | | | | | | |
| Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions<br>This TEC is referred to as 'Weeping Myall Woodland' within the Commonwealth Approval. | PCT 26 | Murrumbidgee | VZ #11 26_Mod-good | E | E | 101.83 | 101.83 | 101.83 | 101.83 |
| | | | VZ #12 26_Moderate | | | | | | |
| Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions | PCT 28 | Murrumbidgee | VZ #14 28_Mod-good | E | - | 22.25 | 22.25 | - | 22.25 |

| Threatened ecological community | Vegetation type (PCT) | IBRA subregion | Vegetation zone name | BC Act[1] | EPBC Act[2] | Direct impact (ha) | Clearing limits (ha) (Appendix 2 of the Approval) | Clearing limits for MNES (ha) (Condition 1 of the Commonwealth Approval) | Total clearing limits (ha) |
|---|---|---|---|---|---|---|---|---|---|
| White Box - Yellow Box - Blakely's Red Gum grassy woodland and derived native grassland | PCT 74 | Lower Slopes | VZ #7<br>74_Mod-good<br>1.06ha BC Act<br>1.06ha EPBC Act | CE | CE | 60.48 | 60.48 | 34.89<br><br>The impact area indicated in orange text is for the EPBC Act listed TEC (refer Table 7-21 of Final BDAR). | 60.48 |
| | | Inland Slopes | VZ #1<br>74_Mod-good<br>1.44ha BC Act<br>1.43ha EPBC Act | | | | | | |
| | PCT 75 | Murrumbidgee | VZ #30<br>75_Mod-good<br>0.25ha BC Act<br>0.25ha EPBC Act | | | | | | |
| | | Lower Slopes | VZ #10<br>75_Mod-good<br>38.60ha BC Act<br>31.28ha EPBC Act | | | | | | |
| | | | VZ #11<br>75_Derived<br>6.33ha BC Act<br>0ha EPBC Act | | | | | | |
| | PCT 267 | Inland Slopes | VZ #6<br>267_Mod-good<br>0.32ha BC Act<br>0.32ha EPBC Act | | | | | | |
| | PCT 277 | Lower Slopes | VZ #9<br>277_Derived<br>0.11ha BC Act<br>0ha EPBC Act | | | | | | |
| | | Inland Slopes | VZ #4<br>277_Mod-good<br>6.48ha BC Act<br>0.55ha EPBC Act | | | | | | |
| | | | VZ #7<br>277_Derived<br>0.57ha BC Act<br>0ha EPBC Act | | | | | | |

| Threatened ecological community | Vegetation type (PCT) | IBRA subregion | Vegetation zone name | BC Act[1] | EPBC Act[2] | Direct impact (ha) | Clearing limits (ha) (Appendix 2 of the Approval) | Clearing limits for MNES (ha) (Condition 1 of the Commonwealth Approval) | Total clearing limits (ha) |
|---|---|---|---|---|---|---|---|---|---|
| | | | VZ #11<br>277_Native plantings<br>5.32ha BC Act<br>0ha EPBC Act | | | | | | |
| Natural Grasslands of the Murray Valley Plains | PCT 44 | Murrumbidgee | VZ #15<br>44_Mod-good | - | CE | 62.47 | 62.47 | 62.47 | 62.47 |
| | PCT 45 | Murrumbidgee | VZ #16<br>45_Mod-good | | | | | | |
| | | Lower Slopes | VZ #10<br>45_Mod-good | | | | | | |
| | PCT 46 | Murrumbidgee | VZ #17<br>36_Mod-good | | | | | | |
| Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia<br><br>This community forms part of 'Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions'. | PCT 76 | Lower Slopes | VZ #2<br>76_Mod-good | - | E | 17.56 | - | 17.56 | 17.56 |
| | PCT 80 | Lower Slopes | VZ #4<br>80_Mod-good | | | | | | |
| | | | VZ #3<br>80_Moderate | | | | | | |
| | PCT 110 | Inland Slopes | VZ #3<br>110_Mod-good | | | | | | |
| Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plains Bioregions | PCT 170 | South Olary Plains | VZ #7<br>170_Mod-good_whip | - | CE | 5.98 | 5.98 | - | 5.98 |
| | | | VZ #8<br>170_Mod-good_Bull | | | | | | |
| Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains | PCT 47 | Murrumbidgee | VZ #18<br>47_Mod-good | - | CE | 2.63 | 2.63 | - | 2.63 |
| Mallee Bird Community of the Murray Darling Depression Bioregion – Endangered | | | | - | E | 380.93 | 380.93 | - | 380.93 |

(1) E = endangered, CE = critically endangered under the BC Act

(2) E = endangered, CE = critically endangered under the EPBC Act

### Indirect impacts

Indirect impacts to threatened ecological communities would likely be limited to:

- low inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality);
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill; and
- negligible risk of transport of weeds and pathogens from the site to adjacent vegetation.

## 4.2.3 Impacts on threatened flora species

### Direct impacts

A total of forty-two candidate threatened flora species listed under the BC Act were identified as having the potential to occur on the project and were therefore the subject of targeted surveys. Of these, seven threatened flora species were identified within the disturbance area. In addition to this, an additional 13 threatened flora species were determined to have assumed presence, five of which are also listed under the EPBC Act.

The extent of the direct impacts on threatened flora, as well as their conservation significance, are detailed in Table 4.4. A reference to the total clearing limits for the project (Stage 1 and Stage 2) is also included in Table 4.4.

Condition C23 and Appendix 2 of the Infrastructure Approval establish these extents as clearing limits (subject to agreement from the Planning Secretary). Further to this, the final impact extents will be subject to finalisation of the design and construction methodology and commitments in the EIS concerning impact minimisation.

It is noted that the unit of measurement used by the Biodiversity Assessment Calculator for the affected threatened flora species is area, so potential impacts are considered in terms of species polygons, as described in the Final BDAR.

The biodiversity offset package for the project has been developed on the assumption that any assumed species presence noted in the Final BDAR are indeed present at those locations. Transgrid proposes to carry out additional ecological surveys in spring and prior to any vegetation disturbance within the site to confirm the presence or absence of these threatened flora species, to confirm potential biodiversity impacts and associated biodiversity offset requirements.

### Table 4.4 - Direct impact on threatened flora

| Species | | Conservation significance | | Direct impact (ha) (Table 9-10 of Final BDAR) | Clearing limits (ha) (Appendix 2 of the Approval) | Clearing limits for MNES (ha) (Condition 1 of the Commonwealth Approval) | Total clearing limits (ha) |
|---|---|---|---|---|---|---|---|
| | | BC Act[1] | EPBC Act[2] | | | | |
| *Acacia acanthoclada* | Harrow Wattle | E | - | 4.62 | 4.62 | - | 4.62 |
| *Austrostipa metatoris* | A spear-grass | V | V | 1.82 | 1.82 | - | 1.82 |
| *Austrostipa wakoolica* | A spear-grass | E | E | 41.15 | 41.15 | - | 41.15 |
| *Brachyscome papillosa* | Mossgiel Daisy | V | V | 132.18 | 132.18 | 132.18 | 132.18 |
| *Caladenia arenaria* | Sand-hill Spider Orchid | E | E | 1.07 | 1.07 | - | 1.07 |
| *Calotis moorei* | A burr-daisy | E | E | 20.24 | 20.25 | - | 20.25 |
| *Convolvulus tedmooeri* | Bindweed | E | - | 24.62 | 23.44 | - | 23.44 |
| *Cullen parvum* | Small Scurf-pea | E | - | 29.34 | 29.34 | - | 29.34 |
| *Lasiopetalum behrii* | Pink Velvet Bush | CE | - | 4.64 | 4.63 | - | 4.63 |
| *Lepidium monoplocoides* | Winged Peppercress | E | E | 17.55 | 17.55 | - | 17.55 |
| *Leptorhynchos orientalis* | Lanky Buttons | E | - | 44.46 | 44.46 | - | 44.46 |
| *Leptorhynchos waitzia* | Button Immortelle | E | - | 1.82 | 1.83 | - | 1.83 |
| *Maireana cheelii* | Chariot Wheels | V | V | 144.71 | 144.71 | 144.71 | 144.71 |
| *Pilularia novaehollandiae* | Austral Pillwort | E | - | 4.41 | 4.41 | - | 4.41 |
| *Pimelea serpyllifolia subsp. serpyllifolia* | Thyme Rice-Flower | E | - | 6.32 | 6.32 | - | 6.32 |
| *Pterostylis cobarensis* | Greenhood Orchid | V | - | 2.99 | 2.99 | - | 2.99 |
| *Swainsona colutoides* | Bladder Senna | E | - | 4.64 | 4.63 | - | 4.63 |
| *Swainsona murrayana* | Slender Darling Pea | V | V | 241.99 | 241.99 | 241.99 | 241.99 |
| *Swainsona pyrophila* | Yellow Swainson-pea | V | V | 4.64 | 4.63 | - | 4.63 |
| *Swainsona sericea* | Silky Swainson-pea | V | - | 44.74 | 44.8 | - | 44.8 |

(1) V = vulnerable, E = endangered, CE = critically endangered under the BC Act

(2) V = vulnerable, E = endangered under the EPBC Act

### Indirect impacts

Indirect impacts to threatened flora species would likely be limited to:

- low risk of inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality);
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill;
- negligible risk of transport of weeds and pathogens from the site to adjacent vegetation;
- low risk of trampling of threatened flora species; and
- low risk of increased risk of fire.

## 4.2.4 Impacts on threatened fauna species

### Direct impacts

A total of forty-one candidate threatened fauna species were considered to have potential habitat within the disturbance area and were the subject of targeted surveys. Of these, habitat for one species (Plains-wanderer) listed under the BC Act and EPBC Act was recorded within the project site boundary. In addition to this, an additional eight threatened fauna species were determined to have assumed presence, two of which are also listed under the EPBC Act.

Condition C23 and Appendix 2 of the Infrastructure Approval establish these extents as clearing limits (subject to agreement from the Planning Secretary).

Table 4.5 summarises the anticipated direct impacts to these species' habitat. A reference to the total clearing limits for the project (Stage 1 and Stage 2) is also included in Table 4.5.

**Table 4.5 - Anticipated extent of direct impacts on threatened fauna species habitat**

| Species | | Conservation significance | | Direct impact (ha) (Table 9-10 of Final BDAR) | Clearing limits (ha) (Appendix 2 of the Approval) |
|---|---|---|---|---|---|
| | | BC Act[1] | EPBC Act[2] | | |
| *Burhinus grallarius* | Bush Stone-curlew | V | - | 188.39 | 188.39 |
| *Hieraaetus morphnoides* | Little Eagle | V | - | 21.23 | 21.23 |
| *Lophochroa leadbeateri* | Major Mitchell's Cockatoo | V | - | 50.8 | 50.8 |
| *Myotis macropus* | Southern Myotis | V | - | 28.86 | 28.86 |
| *Ninox connivens* | Barking Owl | V | - | 74.4 | 74.4 |
| *Pedionomus torquatus* | Plains-wanderer | E | CE | 0.37 | 0.37 |
| *Petaurus norfolcensis* | Squirrel Glider | V | - | 31.47 | 31.47 |
| *Polytelis anthopeplus monarchoides* | Regent Parrot (eastern subspecies) | E | V | 29.09 | 29.09 |
| *Polytelis swainsonii* | Superb Parrot | V | V | 114.33 | 114.33 |

(1) V = vulnerable, E = endangered, CE = critically endangered under the BC Act

(2) V = vulnerable, E = endangered, CE = critically endangered under the EPBC Act

### Indirect impacts

The key indirect impact, which is anticipated to be moderate in nature, is the loss of breeding habitats during construction within all PCTs. The loss of breeding habitat such as hollow-bearing trees, old growth bull mallee lignotubers, *Triodia* grass clumps and fallen timber has the potential to affect native animals such as:

- hollow-dependent bats;

- hollow-nesting and canopy-nesting birds;
- arboreal mammals; and
- reptiles.

The Final BDAR anticipated that a loss of breeding habitats is unlikely to extend beyond the disturbance area.

Other indirect impacts to threatened fauna species would likely be limited to:

- low risk of inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality);
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill;
- negligible risk of increased risk of starvation, exposure and loss of shade or shelter; and
- low risk of increased risk of fire.

### 4.2.5 Impacts on scattered trees

#### Direct impacts

The direct impacts on scattered trees due to the project for each IBRA subregion is summarised in Table 4.6.

No individual threatened candidate fauna species were observed using or are considered to have a high likelihood of occurrence of using any recorded scattered trees.

Several recorded scattered trees derive from PCTs that form part of the SAII threatened ecological community listed as White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland. The occurrence of these trees does not form part of a functional ecosystem or meet the final determination requirements of the threatened ecological community.

**Table 4.6 - Summary of total direct impacts on scattered trees**

| Native vegetation | IBRA Subregions | | | | | Number of trees |
|---|---|---|---|---|---|---|
| | South Olary Plain | Lachlan | Murrumbidgee | Lower slopes | Inland slopes | |
| Total direct impact on scattered trees for each IBRA subregion | 10 | 0 | 19 | 61 | 31 | 121 |
| Total direct impact on scattered trees | | | | | | 121 |

### 4.2.6 Impacts on threatened aquatic species and ecological communities

#### 4.2.6.1 Impacts on threatened aquatic species

#### Direct impacts

The Final BDAR identified that areas of mapped key fish habitat have been considered to provide moderate likelihood of occurrence for four threatened species listed under the *Fisheries Management Act 1994*. Refer to Section 3.5.

Direct impacts on mapped key fish habitats (Strahler 4/5th order streams) were considered to be negligible.

Transmission line structures will be located around 50 to 100 metres from the waterways to minimise impact to riparian areas.

The only likely direct impact to occur in an area of key fish habitat would be the removal or trimming of tree canopy on the riverbanks 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 riverbanks. All potential indirect impacts associated with erosion and sedimentation impacts would be managed and monitored to ensure that these do not impact the riparian areas. At most, any impact to water quality would be temporary and negligible. Each riparian area would continue to function as it currently functions.

**Indirect impacts**

Indirect impacts to threatened aquatic species would likely be limited to:

- low risk of inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality); and
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill.

#### 4.2.6.2 Impacts on threatened aquatic ecological communities

The project will span tributaries of Murray River and would not lead to direct impacts on the assemblage of native fish and aquatic invertebrates that have been listed to form part of this ecological community. The disturbance area would lead to modification of native vegetation associated with the riparian zone influence of this community.

Disturbance within the riparian zone would be limited to upper stratum tree removal with all shrub and ground stratum vegetation below four and 10 metres of growth height would be retained in-situ. Transmission line structures would be located around 50 to 100 metres from the waterways to limit impact to riparian areas. Stage 2 of the project is unlikely to lead to a significant direct or indirect impact, due to the predicted negligible aquatic impact.

### 4.2.7 Impacts on groundwater dependent ecosystems

Should blasting be undertaken as part of Stage 2, a desktop assessment would be carried out to identify any high potential GDE's and registered bores in the vicinity that might be affected, in accordance with RMM SCG4. 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.

Groundwater supply for construction is to be sourced from existing infrastructure and licensing allocations and approvals. Therefore, the potential impact to the groundwater environment relating to groundwater supply is considered low.

Eleven registered bores were identified within construction impact area and therefore contain an increased risk of being accidently damaged during construction activities.

### 4.2.8 Impacts on migratory species

Stage 2 of the project will have an impact on 12 migratory species listed under the EPBC Act. Impacts would comprise those discussed in Table 4.7. Significant impacts to the species are not anticipated to occur as a result of Stage 2.

**Table 4.7 - Anticipated construction impacts to listed EPBC Act migratory species**

| Common name | EPBC Act | Predicted construction impact | Significant impact? |
|---|---|---|---|
| Common Sandpiper | M | Suitable habitats in the form of freshwater wetlands have been identified within the project study area. | No - the project is considered unlikely to have a significant impact on the species. |

| Common name | EPBC Act | Predicted construction impact | Significant impact? |
|---|---|---|---|
| Fork-tailed Swift | M | N/A | No - the project is considered unlikely to have a significant impact on the species. |
| Sharp-tailed Sandpiper | M | Suitable habitat in the form of Lake Cullivel recorded within the project area. | No - the project is considered unlikely to have a significant impact on the species. |
| Curlew Sandpiper | CE, M | Suitable habitat in the form of Lake Cullivel recorded with the project study area. | No - the project is considered unlikely to have a significant impact on the species. |
| Latham's Snipe | M | Suitable habitat in the form of intermittent wetlands recorded across the project study area. | No - the project is considered unlikely to have a significant impact on the species. |
| Painted Honeyeater | V, M | Records within the locality and suitable habitat found within the project study area. | No - the project is considered unlikely to have a significant impact on the species. |
| White-throated Needletail | V, M | Potential foraging habitat occurs over the project study area. | No - the project is considered unlikely to have a significant impact on the species. |
| Malleefowl | V, M | Abundance of records scattered throughout the locality. Suitable habitat identified within the project study area. | No - the project is considered unlikely to have a significant impact on the species. |
| Bar-tailed Godwit | M | N/A | No - the project is considered unlikely to have a significant impact on the species. |
| Bar-tailed Godwit (baueri), Western Alaskan Bar-tailed Godwit | V, M | N/A | No - the project is considered unlikely to have a significant impact on the species. |
| Black-tailed Godwit | M | N/A | No - the project is considered unlikely to have a significant impact on the species. |
| Common Greenshank | M | N/A | No - the project is considered unlikely to have a significant impact on the species. |

### 4.2.9 Impacts on wetlands of national and international importance

The closest RAMSAR listed wetland is Hattah-kulkyne lakes which occurs 10–20 km upstream from the far western end of the project and is in Victoria. The Riverland RAMSAR site and Banrock Station wetland complex are located about 150 km to the west of the far western end of the project, near Renmark, SA. The Coorong, and Lakes Alexandrina and Albert wetland occurs 200–300 kms away in South Australia. These wetlands will not be directly or indirectly impacted by the project.

Management measures will ensure that water quality impacts do not occur downstream to these areas.

### 4.2.10 World and National Heritage

No World Heritage Properties or National Heritage Places are located within or nearby the project.

### 4.2.11 Impacts on biosecurity

#### Indirect impacts

Section 3.11 identifies the three exotic species recorded within the study area that are listed under the BA Act as priority weeds for the Western region and/or Riverina region (Department of Primary Industries, 2012).

The Final BDAR identified that there would likely be a negligible risk of transport of weeds and pathogens from the site to adjacent vegetation. The Final BDAR also stated that management measures would be developed during construction to maintain the integrity of native vegetation in adjoining habitats. These are provided in Section 5.

Potential carriers of weed seeds, plant material and diseases include vehicles (especially tyres), machinery and personnel (clothing and footwear). Biosecurity matters could also be spread by soil and water movements associated with construction. The biosecurity risks are generally highest during the construction phase due to earthworks, and the frequency of vehicle and personnel movements.

Potential impacts of a biosecurity incident on agricultural businesses include increased costs associated with monitoring pests, weeds or diseases, and reduced income caused by reduced livestock, crop or pasture production.

Appendix D (Biosecurity Management Plan) of this plan identifies how biosecurity impacts will be managed during construction of the project.

# 5 Mitigation measures

A range of environmental requirements and mitigation measures are identified in the EIS, the Amendment Report, the Submissions Report, and the Final BDAR.

Specific safeguards and management measures to address impacts to biodiversity are identified within Section 5.1 to Section 5.9 and in Table 5.5.

## 5.1 Pre-clearing surveys

Pre-clearing survey will be undertaken by the project ecologist. Pre-clearing surveys of the clearing extent will be undertaken prior to clearing and will include:

- confirmation of the location and extents of any biodiversity exclusion zones;
- identification and demarcation of all hollow bearing trees. Identification and demarcation may also occur during earlier surveys. If this is the case, the ecologist will confirm that hollow bearing trees are prominently marked / tagged;
- identification of fauna that require relocation;
- the identification of nearby habitats for suitable release of fauna; and
- identification of suitable resources for salvage and beneficial reuse within the approved disturbance area. This may include, for example, logs or tree hollows.

The pre-clearing survey and delineation of clearing extents will be undertaken in accordance with the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027) included within Appendix A.

The results of the pre-clearing surveys will be used to update and confirm the accuracy of the GIS or sensitive area plans, and these will be communicated and distributed to the construction team.

Sensitive area plans (SAPs) will be prepared to support the identification and appropriate management of key environmental features associated with the project. An initial risk assessment for the site will be undertaken by the Environmental Team. Where the risk is identified as being moderate or above (i.e. locations where sensitive areas are located adjacent to the work area), a SAP will be developed and reviewed by the environmental team. The SAPs will identify areas/features of environmental and heritage sensitivity and 'no go' zones, to help identify key risk areas, and promote ongoing communication to construction personnel.

Sensitive area plans include information pertaining, but not limited to:

- flora features, including threatened species and endangered ecological communities;
- Aboriginal and non-Aboriginal heritage sites;
- waterbodies/waterways and riparian zones;
- known fauna habitat to be protected (i.e. hollow bearing trees);
- areas of vegetation to be retained;
- clearing limit boundary; and
- any designated no-go zones (a no-go zone defines the minimum distance away from which construction personnel, plant and equipment needs to work from a particular item, for example, an area of retained threatened flora).

### 5.1.1 Changed impacts and BAM assessments

Changed impacts may affect areas either inside or outside of the biodiversity study area.

Project changes within the biodiversity study area can be considered against the known biodiversity values that were confirmed in accordance with the BAM, as documented in the Final BDAR. Most commonly, these types of changes include altered tower locations to minimise environmental disturbance and improve constructability, changes to construction site layouts, and the provision of alternative access. This can result in slightly different impacts compared to the Final BDAR.

If a proposed change could affect a location outside of the biodiversity study area, an additional BAM assessment would be carried out by an accredited assessor to confirm the biodiversity values present, and to allow potential impacts to identified and considered.

Typical situations that can require additional BAM assessment outside of the biodiversity study area may include the following:

- areas adjacent to assessed access tracks to allow for spatial inaccuracies in the georeferenced aerial imagery used for impact assessment purposes and alterations based on actual site conditions;
- areas where alternative access arrangements might be required based on landholder preferences, ground conditions or topography not understood during the EIS phase;
- areas where alternative access is required to avoid access through, and impacts within, locations with sensitive heritage and biodiversity values (for example, avoiding access through Plains-wanderer habitat);
- parts of road corridors in the vicinity of approved access points and internal property access roads to account for all potential ground disturbance during access point installation, including signage within the road reserve on approach to the access points, track installation, upgrades and maintenance; and
- areas around water supply points to account for any disturbance to vegetation required during access upgrades or that might occur due to project-related vehicle movements.

When finalising the design and construction methodology, the project will reduce impacts to the greatest extent practicable in accordance with the commitment in revised mitigation measure B1 and the requirements of condition A1.

The project will assess any of these proposed changes to confirm that:

- the works can be carried out in compliance with the conditions of the Infrastructure Approval;
- the works can be carried out generally in accordance with the EIS (including the Final BDAR);
- the works can be carried out generally in accordance with the Layout included in Appendix 1.

Clearing that would result in an exceedance of the limits included within Appendix 2 of the Approval will not occur.

### 5.1.2 Management of nests

Should any nests be identified during pre-clearing or clearing surveys, the following will occur:

- check nest to identify if active;
- stop work in the surrounding area (i.e. 20m minimum buffer);
- where the nest is active retrieve the nest along with any eggs/hatchlings;
- fauna spotter catcher/ecologist to oversee process and advise if feasible to attempt relocation within the local area; and
- if not feasible to relocate, fauna spotter catcher/ecologist to secure within a dark, cool area until eggs/fledglings can be transported to a licensed wildlife carer.

## 5.2 Supplementary Hollow and Nest Strategy

During pre-clearing surveys, the project ecologists will survey and document tree hollows and nests within the proposed clearing extent as outlined in the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0015). If the surveys identify tree hollow habitat within the disturbance area, a *Supplementary Hollow and Nest Strategy* will be prepared to inform the types of nest boxes that would be required.

The *Supplementary Hollow and Nest Strategy* (45860-HSE-DOC-D-0021) is provided in Appendix H of this plan.

### 5.2.1 Nest box monitoring and maintenance

Monitoring and maintenance of nest boxes will be detailed within the *Supplementary Hollow and Nest Strategy*.

Monitoring during construction will determine the use of nest boxes during the construction phase and will occur on an annual basis. Any requirement to maintain or replace nest boxes due to deterioration or invasion by pest species, will also be assessed based on the viability of the nest box to continue to be used by the target species. Where longer term use is considered unviable, consideration and assessment will be made to determine if nest box replacement is required.

An annual report will be prepared to summarise the results of the nest box monitoring.

Any longer-term maintenance and monitoring (post-construction) would be detailed within the Operational Environmental Management Plan.

## 5.3 Vegetation clearing

### 5.3.1 Vegetation clearing limits

All vegetation clearing will be undertaken in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A).

Clearing limits for threatened fauna species, in accordance with Appendix 2 (Biodiversity) of the Infrastructure Approval are provided in Table 5.1. Clearing limits for threatened flora species are provided in Table 5.2. Clearing limits for threatened ecological communities is provided in Table 5.3.

These clearing limits apply to the project as a whole (Stage 1 and Stage 2) and take into consideration limits stipulated in both the Infrastructure Approval and the Commonwealth Approval, where applicable.

The project is committed to ensuring that the clearing limits stipulated in the Infrastructure Approval and Commonwealth Approval are not exceeded and will ensure that the total predicted clearing value is tracked against the limits to identify potential exceedances. In the unlikely event that an exceedance is predicted, the project will discuss the matter with the Department and will seek the Planning Secretary's agreement, as required by condition C23. If the Planning Secretary indicates that formal project modification is required, the project would seek the required modification.

### Table 5.1 - Clearing limits for threatened fauna species

| Species | | Conservation significance | | Direct impact (ha) | Clearing limits (ha) (Appendix 2 of the Approval) |
|---|---|---|---|---|---|
| | | BC Act | EPBC Act | | |
| *Burhinus grallarius* | Bush Stone-curlew | V | - | 188.39 | 188.39 |
| *Hieraaetus morphnoides* | Little Eagle | V | - | 21.23 | 21.23 |
| *Lophochroa leadbeateri* | Major Mitchell's Cockatoo | V | - | 50.8 | 50.8 |
| *Myotis macropus* | Southern Myotis | V | - | 28.86 | 28.86 |
| *Ninox connivens* | Barking Owl | V | - | 74.4 | 74.4 |
| *Pedionomus torquatus* | Plains-wanderer | E | CE | 0.37 | 0.37 |
| *Petaurus norfolcensis* | Squirrel Glider | V | - | 31.47 | 31.47 |
| *Polytelis anthopeplus monarchoides* | Regent Parrot (eastern subspecies) | E | V | 29.09 | 29.09 |
| *Polytelis swainsonii* | Superb Parrot | V | V | 114.33 | 114.33 |

### Table 5.2 - Clearing limits for threatened flora species

| Species | | Conservation significance | | Direct impact (ha) (Table 9-10 of Final BDAR) | Clearing limits (ha) (Appendix 2 of the Approval) | Clearing limits for MNES (ha) (Condition 1 of the Commonwealth Approval) | Total clearing limits (ha) |
|---|---|---|---|---|---|---|---|
| | | BC Act | EPBC Act | | | | |
| *Acacia acanthoclada* | Harrow Wattle | E | - | 4.62 | 4.62 | - | 4.62 |
| *Austrostipa metatoris* | A spear-grass | V | V | 1.82 | 1.82 | - | 1.82 |
| *Austrostipa wakoolica* | A spear-grass | E | E | 41.15 | 41.15 | - | 41.15 |
| *Brachyscome papillosa* | Mossgiel Daisy | V | V | 132.18 | 132.18 | 132.18 | 132.18 |
| *Caladenia arenaria* | Sand-hill Spider Orchid | E | E | 1.07 | 1.07 | - | 1.07 |
| *Calotis moorei* | A burr-daisy | E | E | 20.24 | 20.25 | - | 20.25 |
| *Convolvulus tedmooeri* | Bindweed | E | - | 24.62 | 23.44 | - | 23.44 |
| *Cullen parvum* | Small Scurf-pea | E | - | 29.34 | 29.34 | - | 29.34 |
| *Lasiopetalum behrii* | Pink Velvet Bush | CE | - | 4.64 | 4.63 | - | 4.63 |
| *Lepidium monoplocoides* | Winged Peppercress | E | E | 17.55 | 17.55 | - | 17.55 |
| *Leptorhynchos orientalis* | Lanky buttons | E | - | 44.46 | 44.46 | - | 44.46 |
| *Leptorhynchos waitzia* | Button Immortelle | E | - | 1.82 | 1.83 | - | 1.83 |
| *Maireana cheelii* | Chariot Wheels | V | V | 144.71 | 144.71 | 144.71 | 144.71 |
| *Pterostylis cobarensis* | Greenhood Orchid | V | - | 2.99 | 2.99 | - | 2.99 |
| *Pilularia novaehollandiae* | Austral Pillwort | E | - | 4.41 | 4.41 | - | 4.41 |
| *Pimelea serpyllifolia subsp. serpyllifolia* | Thyme Rice-Flower | E | - | 6.32 | 6.32 | - | 6.32 |
| *Swainsona colutoides* | Bladder Senna | E | - | 4.63 | 4.63 | - | 4.63 |
| *Swainsona murrayana* | Slender Darling Pea | V | V | 217.76 | 241.99 | 241.99 | 241.99 |
| *Swainsona pyrophila* | Yellow Swainson pea | V | V | 4.64 | 4.63 | - | 4.63 |
| *Swainsona sericea* | Silky Swainson pea | V | - | 44.74 | 44.8 | - | 44.8 |

### Table 5.3 - Clearing limits for threatened ecological communities

| Threatened ecological community | Conservation significance | | Direct impact (ha) | Clearing limits (ha) (Appendix 2 of the Approval) | Clearing limits for MNES (ha) (Condition 1 of the Commonwealth Approval) | Total clearing limits (ha) |
|---|---|---|---|---|---|---|
| | BC Act | EPBC Act | | | | |
| *Acacia melvillei* shrubland in the Riverina and Murray Darling Depression bioegions | E | - | 10.81 | 10.81 | - | 10.81 |
| *Allocasuarina luehmanii* woodland in the Riverina and Murray-Darling Depression bioregions | E | E | 2.93 | 2.93 | - | 2.93 |
| Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions<br>NOTE - 17.56ha of this is the EPBC Act listed 'Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia' which is listed below. | E | E | 33.86 | 33.86 | - | 33.86 |
| Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions<br>This TEC is referred to as 'Weeping Myall Woodland' within the Commonwealth Approval. | E | E | 101.83 | 101.83 | 101.83 | 101.83 |
| Sandhill Pine woodland in the Riverina, Murray – Darling Depression and NSW South Western Slopes bioregions | E | - | 22.25 | 22.25 | - | 22.25 |
| White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland | CE | CE | 57.69 | 60.48 | 34.89 | 60.48 |
| Natural Grasslands of the Murray Valley Plains | - | CE | 62.47 | 62.47 | 62.47 | 62.47 |
| Grey Box (*Eucalyptus microcarpa*) Grassy Woodlands and Derived Native Grasslands of South-eastern Australia | - | E | 17.56 | - | 17.56 | 17.56 |
| Plains mallee box woodlands of the Murray Darling Depression, Riverina and Naracoorte Coastal Plains Bioregions | - | CE | 5.98 | 5.98 | - | 5.98 |
| Seasonal Herbaceous Wetlands (Freshwater) of the Temperate Lowland Plains | - | CE | 2.63 | 2.63 | - | 2.63 |
| Mallee Bird Community of the Murray Darling Depression Bioregion – Endangered | - | E | 380.84 | 380.93 | - | 380.93 |

### 5.3.2 Staged or non-staged clearing

All areas that need to be cleared will be subject to staged or non-staged clearing. Staged clearing occurs in locations where the ecologist identifies habitat and is typically referred to as 'two-stage clearing'. Habitat vegetation will be identified with flagging (typically yellow) and unique identifier numbers indicated by identification tags. GPS coordinates for each hollow-bearing tree will be recorded and uploaded into the GIS mapping.

Areas where two-stage clearing is required will clear non-habitat vegetation first, with habitat vegetation removed approximately 24 hours following this. Habitat vegetation will be removed following an inspection by the ecologists / fauna handlers. Relocation of fauna will occur.

Areas where no staging is required may be removed in one step. No habitat has been identified in these locations.

Both two-staged and non-staged areas are also subject to the requirements of the disturbance areas.

### 5.3.3 Disturbance areas

The method of clearing required changes based on the disturbance area. The key disturbance areas are as follows:

1. Disturbance Area A;
2. Disturbance Area A - centreline clearing;
3. Disturbance Area B; and
4. other areas (hazard/high risk trees and fauna corridors).

Figure 5.1 and Figure 5.2 illustrate these disturbance areas. As detailed within condition A2 of the Infrastructure Approval, clearing in these areas will be carried out in compliance with the conditions of the Infrastructure Approval, generally in accordance with the EIS (which includes the Final BDAR) and generally in accordance with the Layouts in Appendix 1 of the Infrastructure Approval.

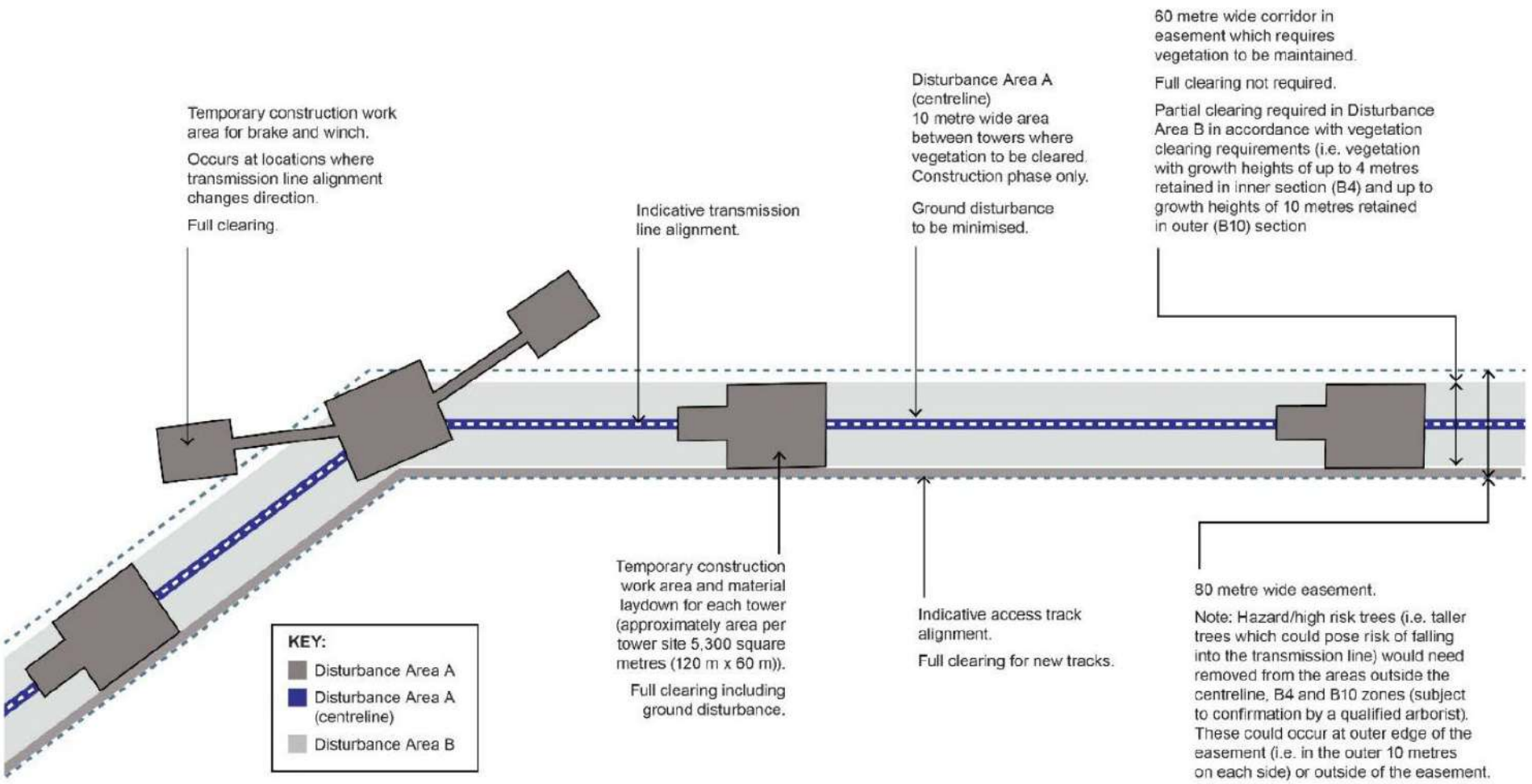



**Figure 5.1 - Indicative disturbance area (330kV transmission line)**

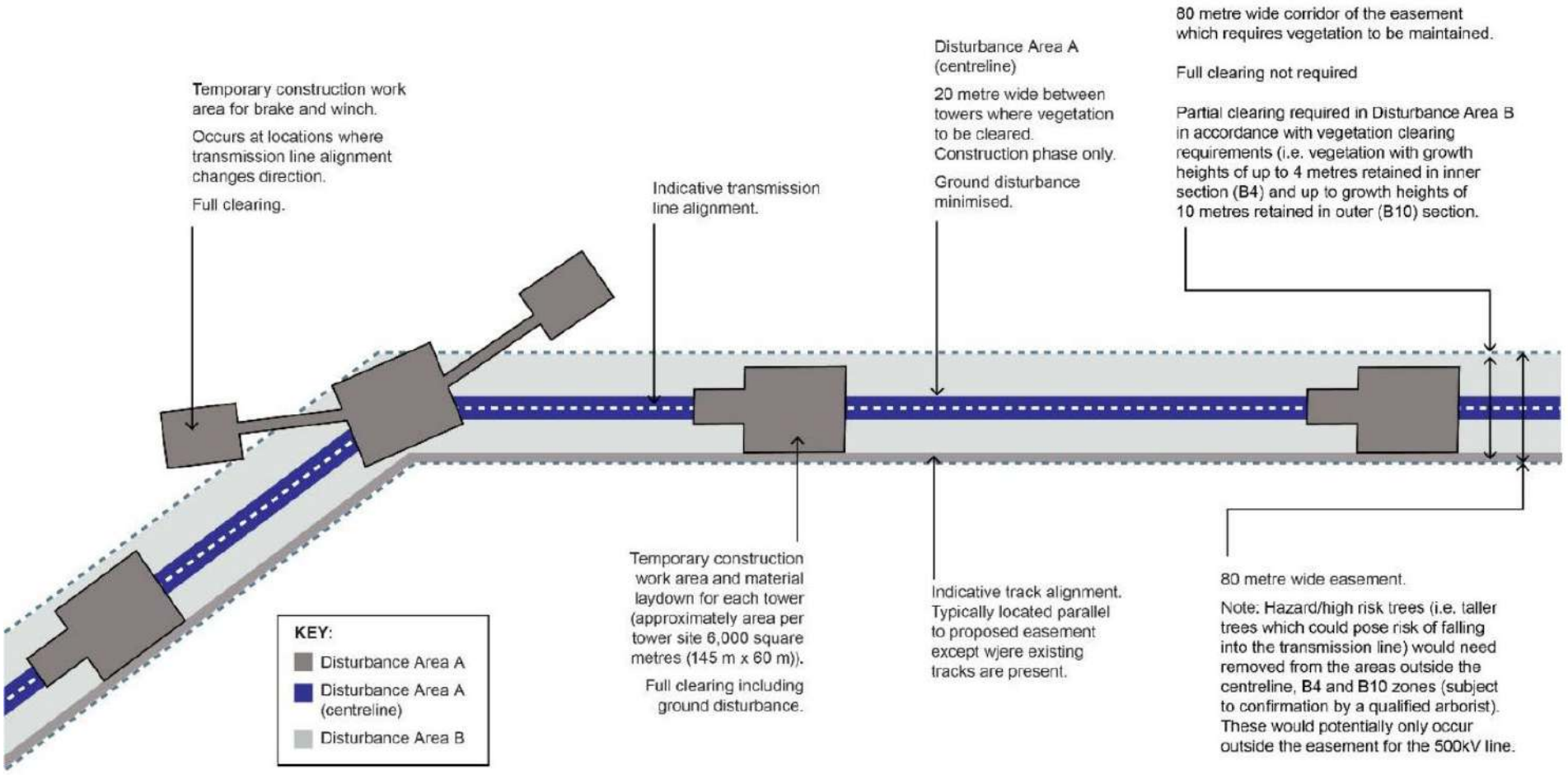



**Figure 5.2 - Indicative disturbance area (500kV transmission line)**

Further detail in relation to the various disturbance areas and the clearing approach which will be undertaken within these locations is provided within the *Pre-Clearing and Clearing Procedure* (Appendix A). Any clearing will be subject to the management measures within Table 5.5 and the *Pre-Clearing and Clearing Procedure*.

### Disturbance Area A

Disturbance Area A includes the tower pads, access tracks, laydowns, parking areas, accommodation camps, construction compounds, asset protection zones and the substations.

Vegetation is permitted to be removed to ground within Disturbance Area A. Where possible opportunities to retain vegetation will occur through review of temporary design and construction methodologies.

### Disturbance Area A – centreline

Disturbance Area A centreline clearing is the area required for line stringing activities. Disturbance Area A centreline clearing is 10 metres in width for a typical 330 kV transmission line section and 20 metres in width for a typical 500 kV transmission line section.

For the Plains-wanderer habitat (Section 5.1.4 of the *Pre-clearing and Clearing Procedure*) and the special biodiversity protection zones (Section 5.1.5 of the *Pre-clearing and Clearing Procedure*), Disturbance Area A – centreline will not be cleared, other than for the removal of a tree that exceeds the vegetation clearance requirements. In this circumstance the tree would be subject to removal to ground level (i.e. tree height cut back but the rootball will be retained in place).

For other locations within the transmission line easement, vegetation in this area will be removed, however topsoil and ground material would be retained (where possible). Tree stumps will be removed.

### Disturbance Area B

Disturbance Area B is the area within the easement between the transmission towers. Disturbance Area B consists of:

- Disturbance Area B4; and
- Disturbance Area B10.

*330kV transmission line*

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 20 metres distance from the centreline (i.e. a 40 metre wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10 metres would be able to be retained in the easement section which is 20 metres to 30 metres from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

Hazard/high risk trees (i.e. trees that are so tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees have a potential growth height of 30m or more occur within a 10m zone adjacent to the 330kV transmission line easement.

*500kV transmission line*

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 30 metres distance from the centreline (i.e. a 60 metre wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10 metres would be able to be retained in the easement section which is 30 metres to 40 metres from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

Hazard/high risk trees (i.e. trees that are so tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees with a potential growth height of 20m or more occur within a 10m zone adjacent to the 500kV transmission line easement.

### 5.3.4 Special biodiversity protection zones

Special biodiversity protection zones have been identified by revised mitigation measures B22, B23, B24 and B26 at the following locations and for the following species, Threatened Ecological Communities (TECs) and/or Property Vegetation Plans (PVPs):

- between towers 161-162* (Austral Pillwort);
- between towers 660-663* (Thyme Rice-flower);
- between towers 241-242* (Natural Grasslands of the Murray Valley Plains TEC); and
- between towers 243-249* (PVP H114).

* Tower numbering is reflective of tower numbering from the Final BDAR.

Construction activities, including clearing, within special biodiversity protection zones will be managed in accordance with Section 5.4 of the *Pre-clearing and Clearing Procedure*.

### 5.3.5 Use of the Geographical Information System

The Geographical Information System (GIS) will be used during construction to ensure that the locations of relevant biodiversity features, such as exclusion zones and special biodiversity protection zones, are known to all relevant construction personnel, including the vegetation clearing sub-contractors. The GIS is considered to be the most appropriate method of communicating these areas as it contains up-to-date information in relation to areas of biodiversity value or the location of construction features, such as tower footprints.

This GIS-based and location-specific data will often be accessed directly from handheld devices in the field, which is a more useful data access method than hardcopy mapping as they will communicate the user's position in relation the features of significance.

The relevant biodiversity layers within Elecnor's GIS include:

- Biodiversity Study Area L2 L5;
- Biodiversity Vegetation L2 L5;
- Biodiversity Vegetation TEC L2 L5;
- Biodiversity Eastern Plains Wanderer L2 L5;
- Biodiversity Special Protection Flora Zone L2 L5;
- Biodiversity Fauna Threatened Species Point WSP L2 L5;

- Biodiversity Fauna Threatened Species Polygons WSP L2 L5;
- Biodiversity Flora Threatened Species Point WSP L2 L5
- Biodiversity Flora Threatened Species Polygons WSP L2 L5;
- Unexpected Finds Threatened Flora;
- Biodiversity Matters of National Significance L2 L5;
- Biodiversity Connectivity Corridors L2 L5;
- Biodiversity Vegetation NGH.

An example of the GIS mapping available from these layers is provided within Figure 5.3.

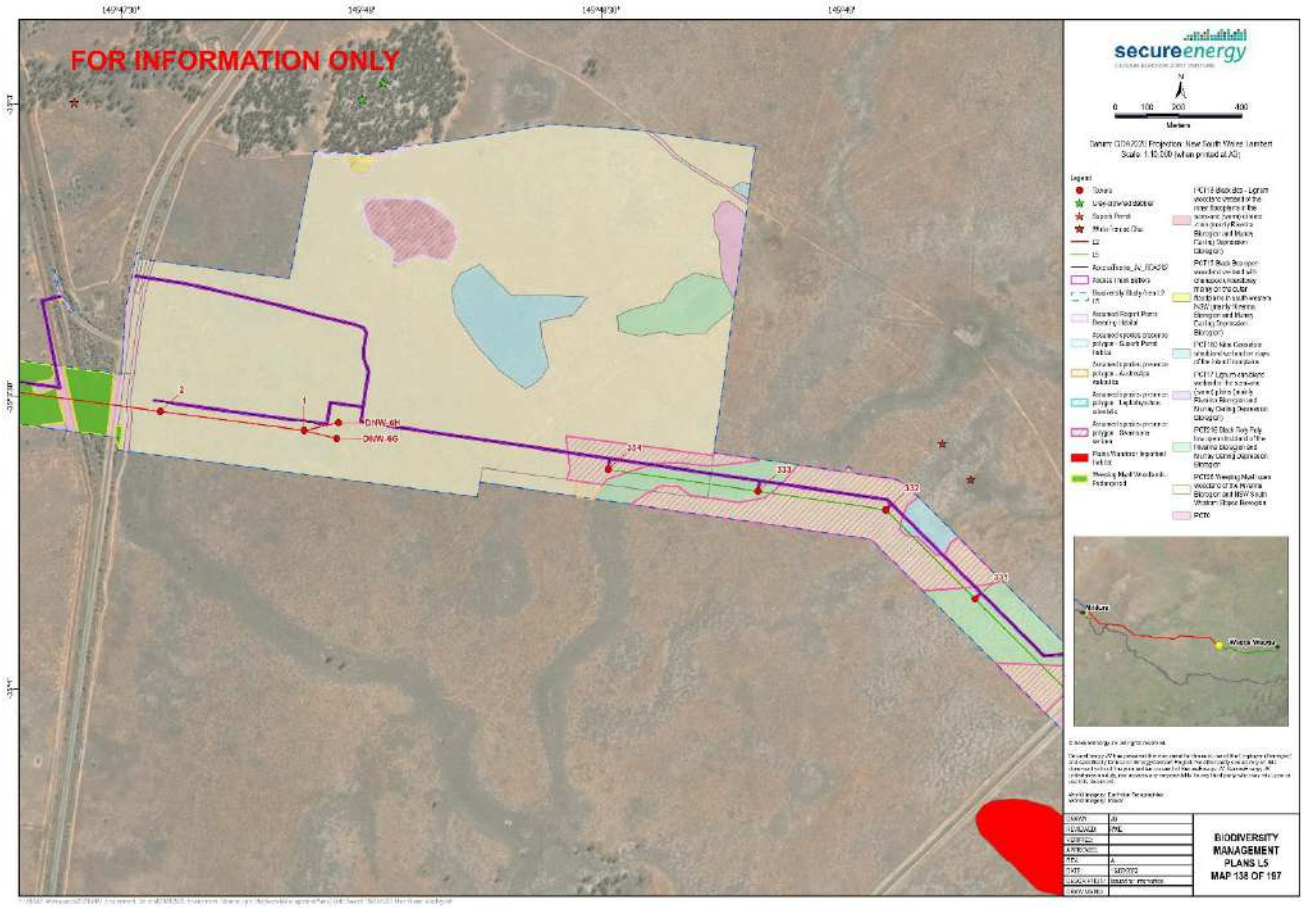



**Figure 5.3 - Example of GIS mapping**

The GIS database will be updated following the Spring and Summer biodiversity surveys, with this information provided to relevant subcontractors including the clearing subcontractor and the ecologist.

It must be noted that GIS is used in combination with the other measures stipulated within this plan, including pre-clearing inspections by ecologists and physical demarcation of biodiversity exclusion zones to ensure that these areas are known and appropriately identified.

## 5.4 Biodiversity Offset Package

Bank guarantees have been provided for the full amount to meet the requirements of condition C25.

The extent of clearing of native vegetation will be recorded to confirm actual impacts to biodiversity values to inform any final biodiversity offset requirements within the biodiversity

offset package. Actual clearing extents will be provided to Transgrid, who will calculate the final biodiversity offset requirements in accordance with the requirements of the BC Act, the RMMs and applicable conditions of approval and compare actual clearing to the predicted clearing extents outlined in Table 12-11 of the Final BDAR. The following information will be recorded and provided to Transgrid in GIS format:

- the clearing extent; and
- the type of clearing at each clearing location as per the clearing approach identified and assessed in the EIS and BDAR (i.e. Disturbance Area A, Disturbance Area B4, Disturbance Area B10 etc.).

## 5.5 Fauna handling

A *Fauna Handling Procedure* (45860-HSE-PR-D-0020) has been developed for the project and is included within Appendix C.

## 5.6 Unexpected threatened species finds

If any threatened species or threatened ecological community are unexpectedly encountered, the *Unexpected Threatened Species Finds Procedure* (45860-HSE-PR-D-0012) (Appendix B) will be implemented.

## 5.7 Connectivity Strategy

A wildlife corridor or connectivity corridor is an area of habitat connecting wildlife populations separated by human activities or structures (such as roads or easements). Wildlife corridors are a link of wildlife habitat, generally native vegetation, that connect two or more larger areas of similar habitat. Wildlife corridors can range in size from small, local corridors, to large corridors that stretch across various landscapes.

Connectivity of habitat is essential for the long-term survival of many species because it facilitates fauna movement on a local scale, for foraging and sheltering, as well as on a regional scale as a wildlife corridor for dispersal and migration.

The Final BDAR states that key impacts on terrestrial connectivity as a result of the project would be associated with Disturbance Area A (area around the transmission line towers, areas for brake and winch sites and for new/upgraded access tracks). A gradual reduction in vegetation removal heights within discreate management zone was specifically designed to minimise impacts on biodiversity, including indirect impacts on terrestrial connectivity. It is also anticipated that the retention of understorey vegetation, ground timber within these zones is likely to maintain existing shelter and cover requirements for movement across the corridor.

The project will also establish a series of 20-metre-wide connectivity corridors near tower locations that occur in woodland vegetation. These connectivity corridors will involve native vegetation retention up to the 10 metre (330 kV line) or 20 metre (500 kV line) wide temporary construction centreline clearing zone to better facilitate woodland connectivity.

The inclusion of these corridors would also assist in further reducing clearing volumes during detailed design. Connectivity corridors would occur as a minimum at:

- key riparian crossings (Murrumbidgee River, Yanco Creek, Colombo Creek);
- areas of the alignment joining proposed biodiversity stewardship sites and or conservation reserve estate; and
- areas of existing dense mallee/belah.

The implementation of an outer Disturbance Area B10 zone will maintain all Mallee (PCT 170-172) and similar canopy vegetation in a 10 metre wide strip or stepping stone on the edge of the

project boundary with the adjoining transmission line (refer to Figure 5.4). This effectively results in no increase in the current minimum gap crossing distances associated with the existing transmission line corridor for the majority of significant regional corridors in the western portion of the alignment.

The approach to vegetation clearing in the connectivity corridors is discussed in the *Pre-clearing and Clearing Procedure* (Appendix A).

The *Connectivity Strategy* (45860-HSE-DOC-D-0022) is provided in Appendix G of this plan.

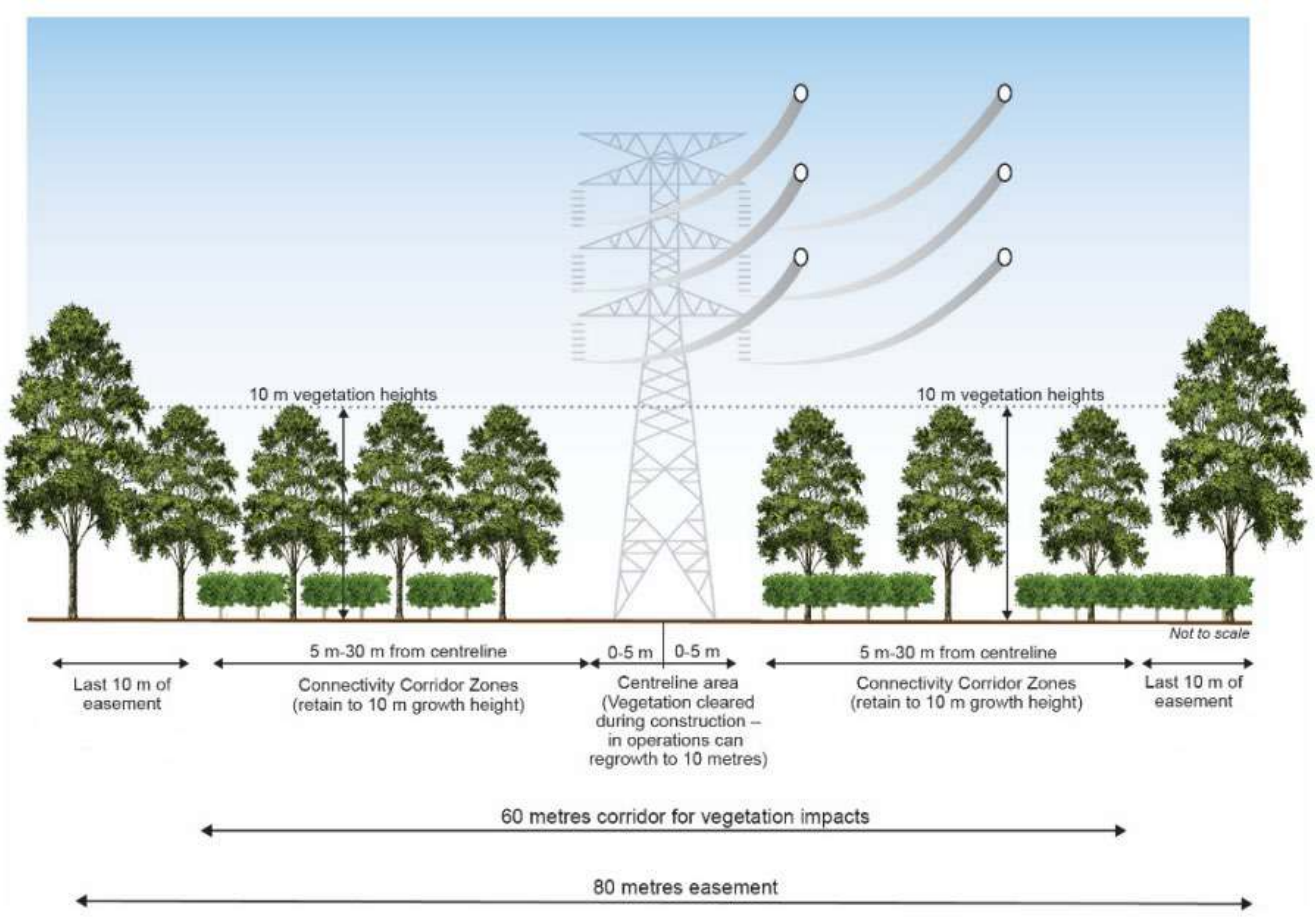



**Figure 5.4 - Fauna connectivity corridor (330 kV transmission line)**

## 5.8 Aquatic species, habitats and riparian zones

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.

All vegetation clearing of riparian zones will be undertaken in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A).

Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of *Water Management Act 2000*) of the Murrumbidgee River, the Coleambally irrigation channels, Yanco Creek, Colombo Creek and Lake Cullivel (and other defined riparian areas) will be protected to the greatest extent practicable.

Vegetation clearing will be limited to the tree stratum only, with trunk bases retained in-situ (vegetation to remain at four metres and 10 metres based on the disturbance area). Should the riparian zone be subject to a connectivity corridor, then vegetation within this connectivity

corridor will be cleared at 10 metres in height, as detailed within the *Pre-clearing and Clearing Procedure* (Appendix A).

## 5.9 Rehabilitation

The rehabilitation objectives for the project are detailed within condition C52 of the Infrastructure Approval. Condition C52 states that within 6 months of the completion of construction, upgrading or decommissioning (unless the Planning Secretary agrees otherwise), the ancillary facilities, accommodation camps, and the earthworks material sites are to be rehabilitated. Rehabilitation works are to be undertaken in accordance with the objectives listed within condition C52 which are as follows:

- safe, stable and non-polluting;
- progressively rehabilitate the site as soon as possible following disturbance;
- to be decommissioned and removed, unless the Planning Secretary agrees otherwise;
- restore land capability to pre-existing use; and
- ensure public safety at all times.

The rehabilitation objectives as presented in the Infrastructure Approval are provided within Table 5.4.

Resources which may be available within the approved disturbance area will be identified for salvage where possible. This includes vegetative and soil resources which may be reused beneficially during the rehabilitation and restoration of the site.

**Table 5.4 - Rehabilitation objectives**

| Feature | Objective |
|---|---|
| Ancillary facilities | • Safe, stable and non-polluting<br>• Progressively rehabilitate the site as soon as possible following disturbance<br>• To be decommissioned and removed, unless the Planning Secretary agrees otherwise. |
| Land use | • Restore land capability to pre-existing use |
| Community | • Ensure public safety at all times. |

The framework for addressing the objectives at the ancillary facilities, accommodation camps and the earthworks material site, are provided within Section 5.9.1 to Section 5.9.5. Reference is also made to the NSW DPI guideline *Restoration of degraded grazing country in the semi-arid areas of NSW* (2006) (NSW DPI guideline).

### 5.9.1 Safe, stable and non-polluting

An *Erosion and Sediment Control Strategy* (ESCS) (45860-HSE-PR-D-0016) has been prepared and is included within Appendix A of the *Soil and Water Management Plan* (45860-HSE-PL-D-0118). The ESCS has been developed in line with the principles and requirements in:

- *Managing Urban Stormwater – Soils and Construction*, Volume 1 (Landcom 2004), commonly referred to as the 'Blue Book';
- *Managing Urban Stormwater – Soils and Construction*, Volumes 2A and 2C (NSW Department of Environment, Climate Change and Water 2008);
- *Best Practice Erosion and Sediment Control* (IESCA – 2008);
- Transgrid's HSE Guideline; and

- *Guidelines for Controlled Activities on Waterfront Land* (NRA 2018).

The ESCS will be implemented to guide the development of the Progressive Erosion and Sediment Control Plan (PESCPs).

The Progressive Erosion and Sediment Control Plans (PESCPs) will be prepared and implemented for locations where soil disturbance will occur. The PESCPs will outline controls to be implemented to manage and minimise soil erosion, and movement of sediment and other pollutants to land and/or waters.

The PESCPs will be progressively updated throughout the project to reflect the current construction activities occurring on site and to allow the removal of any measures that are ineffective or no longer needed.

As construction finalises, areas will become progressively available for stabilisation. Unless otherwise requested by the landowner, areas will be stabilised through the application of retained topsoil and natural regeneration. Application of cover crop (seed) may also occur; however, consideration will need to be made of the available water supply and effectiveness of such an approach. The PESCPs will provide detail in relation to the measures which will be applied specific to each site. As required, advice will also be sought from the soil conservationist in relation to these measures.

### 5.9.2 Progressively rehabilitate

Many of the ancillary facilities will be used during construction of the project, with rehabilitation of these sites occurring following decommissioning and removal of the temporary infrastructure.

As recommended by the NSW DPI guideline, harnessing natural processes or natural regeneration should be considered as a first option for re-establishing native vegetation. Natural regeneration involves the germination of seedlings from seedfall or existing nearby vegetation and is an effective method of establishing a large number of plants, particularly where establishment is required at a large scale. Natural regeneration is also a form of rehabilitation.

Natural regeneration provides the following advantages:

- genetics are appropriate and relevant to the location of the site;
- it ensures that indigenous species are established rather than non-indigenous species;
- it ensures that regeneration is reflective of the vegetation present within the adjacent plant community types;
- heavy machinery or vehicles won't necessarily be required to traverse the existing site following placement of topsoil. This is of particular benefit given the number of Aboriginal heritage sites on the project;
- it establishes vegetation with random spacing, reflective of natural processes which would occur with the surrounding plant community types; and
- it provides a greater chance of long-term success.

Seed production areas or seed banks will supply seed, which is dispersed by a combination of wind, water and animals is the preferred rehabilitation method. The seed source for natural regeneration can be from parent trees, residual native plant seed within the soil, wind-blown seed and fauna that transfer and deposit seeds in an area. Water and nutrients are captured in fertile patches of natural vegetation, where plants can germinate and grow. To create a fertile patch, branches can be laid across a slope or the soil can be physically manipulated using mechanical intervention to create divets or depressions where water and nutrients can be retained.

The DPI guideline reports that on degraded country much of the water, seed and nutrients are lost through the action of wind and water. The placement of vegetation, or use of divets and depressions, can assist in enabling seed, fine sediment and organic matter to accumulate.

Where remnant vegetation remains, it will be the starting point to encourage natural regeneration. Remnant vegetation will remain in various locations adjoining areas of temporary clearing including, for example, vegetation adjoining the access tracks and vegetation adjacent to the laydown areas (temporary disturbance areas). In undertaking rehabilitation, the following will occur:

- material resources from the area will be salvaged and stockpiled for beneficial reuse in future where possible. This could include soil and vegetative resources such as hollows and mulch;
- topsoil will be removed and stockpiled for future reuse;
- decommissioning or rehabilitation of the accommodation camp and construction compound will be carried out in accordance with information detailed within the progressive erosion and sediment control plan and/or in consultation with the landowners, where relevant;
- stabilisation of any areas available within the earthworks material site will occur in accordance with the progressive erosion and sediment control plans. Stabilisation would occur progressively, as any of the sections of the earthworks material site are no longer required and/or in consultation with the landowners, where relevant;
- on completion of the work in the temporary construction areas, topsoil shall be re-spread over the disturbed surface in order to promote natural revegetation from the seed and nutrient contained within the topsoil; and
- mulch and woody debris will be a by-product of vegetation clearing activities. Where practicable, this material will be reused in the progressive rehabilitation works following placement of topsoil.

During the construction period, monitoring of the rehabilitation of these areas will occur in accordance with the monitoring detailed within Table 6.3.

### 5.9.3 Decommission and remove

At the end of the construction phase of the project, temporary infrastructure will be decommissioned and removed, unless the Planning Secretary agrees otherwise. In general, decommissioning activities will involve the following:

- disconnecting redundant services including power;
- removal of accommodation facilities;
- removal of other temporary buildings; and
- removal of temporary construction fencing.

Construction access tracks and access points will be retained for operational access, where required and practicable, in consultation with the relevant landowner. 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.

### 5.9.4 Restore land capability to pre-existing use

The pre-existing use of the ancillary facilities, accommodation camps, and the earthworks material site is agricultural land. Consultation with the landholders will occur in stabilising the disturbed areas as required by RMM LP5.

### 5.9.5 Ensure public safety

Project works, including any decommissioning activities required as part of the rehabilitation works will be undertaken in accordance Elecnor's Health and Safety Plan. The Health and Safety Plan details the safety management system and processes which will be implemented during delivery of the project.

## 5.10 Summary of management measures

Table 5.5 summarises the biodiversity management measures required to manage impacts to biodiversity as a result of the construction of the project.

**Table 5.5 - Biodiversity management measures**

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| **General** | | | | |
| BD1 | Training will be provided to all project personnel, including relevant sub-contractors on biodiversity management practices and the requirements from this plan through inductions, toolbox talks and activity specific training. | Pre-construction | Training team<br>Environmental Manager<br>Environmental Advisors | RMM B14 |
| BD2 | Any site offices or crib sheds which may be required will be located in an area 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) will be prioritised). | Detailed design | Design Manager<br>Construction Manager<br>Environmental Manager | RMM B3 |
| BD3 | Where vegetation disturbance activities are required in areas that have not previously been subject to biodiversity survey, additional survey will be carried out prior to works occurring to inform detailed design and construction methodology. These surveys will be carried out by a suitably qualified ecologist. | Pre-construction and construction | Environmental Manager | RMM B2 |
| BD4 | Should changes to the project's design or construction methodology or additional field surveys result in changed impacts to biodiversity which have not been included in the Final BDAR, these would be assessed in accordance with the requirements of the BAM by an accredited assessor. | Construction | Environmental Manager | RMM B2 |
| BD5 | Clearing of native vegetation and key habitat will be minimised where possible. This will include minimising impacts on the clearing of hollow-bearing trees, threatened species as well as native vegetation and key habitat. Opportunities to minimise clearing will occur through review of temporary design and construction methodologies for the Stage 2 disturbance area. | Pre-construction and construction | Environmental Manager<br>Construction Manager<br>Design Manager<br>Supervisor<br>Engineer | Condition C23<br>Condition C26 |
| BD6 | Unless otherwise agreed with the Planning Secretary, clearing is not to exceed the limits identified in Section 5.3, Table 5.1, Table 5.2 and Table 5.3 of this BMP.<br>Spatial data and threatened species locations will be provided to the detailed design team in detailed construction planning. | Pre-construction and construction | Design Manager<br>Construction Manager<br>Environmental Manager<br>Supervisor | Condition C23<br>Condition C26 |
| BD7 | Detailed design and construction methodologies will avoid impact to matters of biodiversity conservation significance to the greatest extent practicable.<br>Micro-siting of the transmission line infrastructure and associated construction working areas and other areas of disturbance will occur to avoid impacts wherever practicable. | Detailed design and construction | Design Manager<br>Environmental Advisor<br>Environmental Manager<br>Construction Manager | RMM B1<br>RMM B10<br>RMM LV1 |

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| | Threatened species recorded and their habitat, will be given the highest priority in terms of impact minimisation.<br>Threatened species and their habitats, as well as endangered threatened ecological communities, will be identified through the GIS or sensitive area plans (SAPs) (per Section 4.5 of the CEMP). The results of pre-clearing surveys will be used to update and confirm the accuracy of SAPs. | | | |
| BD8 | To avoid the construction of new tracks, existing tracks and clearings will be utilised where possible during construction. Detailed design will ensure that where this is not possible, that impacts to native vegetation is minimised. | Detailed design and construction | Design Manager<br>Construction Manager<br>Environmental Manager | RMM B4<br>RMM LV2<br>Condition C23<br>Condition C26 |
| BD9 | Transmission line towers have been located and will be constructed to minimise impacts to vegetated riparian corridors, as defined by "Guidelines for riparian corridors on waterfront land" (DPI – Office of Water, July 2012) of Murrumbidgee River. | Detailed design and construction | Design Manager<br>Environmental Manager | RMM B5 |
| BD10 | 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 | Environmental Advisor<br>Environmental Manager<br>Construction Manager<br>Supervisors | RMM LV4 |
| **Pre-clearing and clearing** | | | | |
| BD11 | Pre-clearing surveys will be completed prior to construction by a suitably qualified ecologist in accordance with the *Pre-clearing and Clearing Procedure* (Appendix A). This includes the requirement to undertake pre-clearance surveys as required by the Commonwealth Approval. | Pre-construction | Environmental Advisor<br>Environmental Manager<br>Ecologist | RMM B9<br>Condition C26<br>Commonwealth Approval condition 3<br>Commonwealth Approval condition 5 |
| BD12 | Biodiversity exclusion zones for retained vegetation would be confirmed by a suitably qualified ecologist prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone.<br>Biodiversity exclusion zones would consider:<br>• identified Plains-wanderer habitat; | Pre-construction | Environmental Advisor<br>Environmental Manager<br>Ecologist | RMM B11 |

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| | • identified threatened flora populations; and<br>• PCTs in disturbance area B that are not of a growth form height that would ever require management.<br>Biodiversity exclusion zones would be physically marked and demarcated, and included on sensitive area maps, prior to clearing. | | | |
| BD13 | 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 | Environmental Advisor<br>Environmental Manager<br>Ecologist<br>Construction Manager | RMM B12 |
| BD14 | Any additional requirements relating to pre-clearing or clearing activities in areas of Plains-wanderer habitat would be undertaken in accordance with the *Plains-wanderer Protocol* in Appendix F. | Construction | Environmental Advisor<br>Environmental Manager<br>Construction Manager | RMM B13 |
| BD15 | Activities within vegetated riparian zones will be undertaken in a way so to minimise impacts to aquatic environments.<br>Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of *Water Management Act 2000* and *Guidelines for riparian corridors on waterfront land* (DPI – Office of Water, 2012)) 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 | Environmental Advisor<br>Environmental Manager<br>Ecologist<br>Construction Manager | RMM B16<br>RMM B17 |
| BD16 | Clearing of any hollow bearing trees at the crossing point of the Murrumbidgee River within PCT 8 and PCT 11 will be undertaken outside of the period between September and December. | Construction | Environmental Advisor<br>Environmental Manager<br>Construction Manager | RMM B19 |
| BD17 | Between towers 660-663* a bespoke construction methodology would be employed which would avoid impacts to known individuals of Thyme Rice-flower and minimise impact as far as practicable to the species' habitat. This would include at a minimum:<br>• during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1;<br>• pre-clearing surveys for areas which would be cleared or impacted to identify and clearly mark all Thyme Rice-flower individuals; | Detailed design and construction | Design Manager<br>Environmental Advisor<br>Environmental Manager<br>Construction Manager<br>Supervisors | RMM B22 |

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| | • the ecologists undertaking the pre-clearing survey are to install four (4) 1.5 metre high wooden/metal stakes on all sides of the *Pimelea* individuals (give 1 metre distance off main stem to lower risk of root damage);<br>• attach flagging tape at top of stake to notify clearing machinery where to avoid (where possible);<br>• areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers;<br>• provide a map of all *Pimelea* individuals to all contractors to notify significance;<br>• pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone and the location of *Pimelea* individuals which are to be avoided;<br>• during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone;<br>• A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through habitat is required, with an ecologist walking ahead acting as a spotter;<br>• access being prioritised from existing tracks 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; and<br>• alternative line installation techniques which do not require clearing of Disturbance Area A - centreline;<br>• clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements.<br>Refer to Section 5.4 of the *Pre-clearing and Clearing Procedure* for detail of the measures which are to be implemented within this special biodiversity protection zone. | | | |
| BD18 | Between towers 161–162* a bespoke construction methodology would be employed which would avoid impacts to known individuals of Austral Pillwort individuals and minimise impact as far as practicable to the species habitat. This methodology would include at a minimum:<br>• during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1;<br>• pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all Austral Pillwort individuals; | Detailed design and construction | Design Manager<br>Environmental Advisor<br>Environmental Manager<br>Construction Manager<br>Supervisors | RMM B23 |

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| | • temporary fencing around suitable habitat/acknowledged species polygons within the Final BDAR (along with a 10m buffer – to decrease any potential impacts to geomorphology) prior to construction. Installation of clear signage saying "No Go Zone";<br>• areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers;<br>• pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone and the importance of Austral Pillwort. The importance of maintaining geomorphology where possible should also be raised;<br>• during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone;<br>• A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through habitat is required, with an ecologist walking ahead acting as a spotter;<br>• access being prioritised from existing tracks;<br>• 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; and<br>• alternative line installation techniques which do not require clearing of Disturbance Area A - centreline;<br>• clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements.<br>Refer to Section 5.4 of the *Pre-clearing and Clearing Procedure* for detail of the measures which are to be implemented within this special biodiversity protection zone. | | | |
| BD19 | 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:<br>• during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1;<br>• pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone; | Detailed design and construction | Design Manager<br>Environmental Advisor<br>Environmental Manager<br>Construction Manager<br>Supervisors | RMM B24 |

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| | • areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers;<br>• during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone;<br>• access being prioritised from existing tracks;<br>• 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; and<br>• alternative line installation techniques which do not require clearing of Disturbance Area A - centreline;<br>• clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements.<br>Refer to Section 5.4 of the *Pre-clearing and Clearing Procedure* for detail of the measures which are to be implemented within this special biodiversity protection zone. | | | |
| BD20 | 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:<br>• during detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1;<br>• pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone;<br>• areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers;<br>• during clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone;<br>• A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through the PVP, if required;<br>• access being prioritised from existing tracks;<br>• 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; and | Detailed design and construction | Design Manager<br>Environmental Advisor<br>Environmental Manager<br>Construction Manager<br>Supervisors | RMM B26 |

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| | • alternative line installation techniques which do not require clearing of Disturbance Area A - centreline;<br>• clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements.<br>Refer to Section 5.4 of the *Pre-clearing and Clearing Procedure* for detail of the measures which are to be implemented within this special biodiversity protection zone. | | | |
| BD21 | Areas subject to partial clearance will be monitored within three months from commencement of Stage 2 construction. If partial clearing has not commenced within three months of the commencement of Stage 2 construction, the project will monitor areas of partial clearance within three months of the commencement of partial clearing. A verification report will be produced to confirm whether any changes are required to Appendix A – *Pre-clearing and Clearing Procedure*. | Construction | Environmental Advisor<br>Environmental Manager | Condition C26 |
| **Threatened species management** | | | | |
| BD22 | Detailed design will incorporate conductor line-marking techniques to minimise bird strike within one kilometre of wetland/riverine habitats.<br>Use of bird diverters, most likely of the "flapper" variety, will be implemented.<br>Positioning and diverter model will be finalised during detailed design but at minimum these will 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. | Detailed design and construction | Design Manager<br>Environmental Manager | RMM B6 |
| BD23 | The *Unexpected Threatened Species Finds Procedure* (Appendix B) will be implemented if threatened ecological communities and threatened flora and fauna species, not assessed in the biodiversity assessment, are identified in the disturbance area. | Pre-construction and construction | All personnel | RMM B18 |
| BD24 | Threatened species and their habitats will be identified through the GIS or sensitive area plans (SAPs), which would be updated/confirmed from the results of pre-clearing surveys. Mapping from SAPs would be provided to the construction workforce.<br>Impacts to threatened species will be avoided as far as practicable during detailed design and when determining construction methodologies.<br>In the event that unexpected threatened species are identified, the *Unexpected Threatened Species Finds Procedure* will be implemented. | Detailed design and construction | Design Manager<br>Environmental Advisor<br>Environmental Manager<br>Construction Manager<br>Supervisors | RMM B1<br>RMM B10<br>RMM B18 |
| BD25 | Where clearing of any hollow bearing trees within PCT 8 and PCT 11 at the crossing of the Murrumbidgee River is required, this will be undertaken outside of the Regent Parrot's breeding season (September to December). | Construction | Environmental Advisor<br>Environmental Manager | RMM B19 |

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| **Habitat retention and rehabilitation** | | | | |
| BD26 | Nest boxes will be provided to offset the loss of tree hollow fauna habitat in accordance with a Supplementary Hollow and Nest Strategy. The strategy will include:<br>• a survey of tree hollows and nests within the proposed clearing extents;<br>• the size, type, number and location of nest boxes based on the results of the ecological surveys;<br>• appropriately sized nest boxes will be installed within the vicinity of hollow-bearing trees (subject to landholder agreement and suitable existing trees being present) no more than two weeks prior to clearing of the tree;<br>• nest boxes will include consideration of natural tree hollow re-use and new tree hollow creation; and<br>• measures to address and manage nests (such as raptor nests) pre-clearing will be included. | Pre-construction and construction | Environmental Manager | RMM B8 |
| BD27 | The project will establish a series of 20-metre-wide connectivity corridors near tower locations that occur in woodland vegetation in accordance with the *Connectivity Strategy* (Appendix G). The connectivity corridors will involve native vegetation retention up to the 10-metre-wide temporary construction centreline clearing zone to better facilitate woodland connectivity.<br>In addition to the connectivity corridors, under transmission glider poles will be installed in accordance with the *Connectivity Strategy* to assist Squirrel Glider movement. | Detailed design and construction | Environmental Manager<br>Construction Manager | RMM B7 |
| BD28 | The opportunity to stockpile and supply felled trees for Key Fish Habitat rehabilitation or improvement works would be discussed with DPI Fisheries. | Construction | Environmental Manager | RMM B25 |
| **Biosecurity** | | | | |
| BD29 | The biosecurity controls outlined in the *Biosecurity Management Plan* (Appendix D) will be implemented during construction to minimise the risk of off-site transport or spread of disease, pests or weeds. Controls will include (but not limited to):<br>• inspections and cleaning of vehicles, machinery, and personnel equipment prior to movement on and off the construction work areas; and<br>• minimising movements across adjoining farmland including trip numbers and locations where possible.<br>Additional measures where localised areas of high biosecurity risks have been identified will be implemented. The effectiveness of these controls will be regularly monitored. | Construction | Environmental Manager<br>Environmental Advisor<br>Construction Manager<br>Supervisor | RMM LP2<br>RMM LP7<br>RMM LP8<br>RMM LP9 |
| BD30 | Where present in locations that would be accessed for construction activities, weeds would be managed in consultation with the relevant landholder. Consultation would also occur with the | Construction | Environmental Manager<br>Environmental Advisor | RMM LP8 |

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| | relevant authority (LLS Local Land Services, the relevant local council, or NSW DPI) in relation to notifiable weeds. | | Construction Manager<br>Supervisor | |
| BD31 | In the event of new infestations of notifiable weeds as a result of construction activities, the relevant control authority will be notified as per *Biosecurity Act 2015* and *Biosecurity Regulation 2017*. | Construction | Environmental Manager | RMM LP9 |
| BD32 | Hygiene management measures will be implemented for machinery and vehicles entering and leaving the location(s) where Southern Bell Frog has been identified. The hygiene management measures will be implemented to limit the potential spread of chytrid fungus. | Construction | Environmental Manager<br>Construction Manager<br>Supervisor | - |
| **Soil and water quality** | | | | |
| BD33 | Soil and water quality management measures will be implemented in accordance with the *Soil and Water Management Plan* (45860-HSE-PL-D-0112) to minimise erosion during clearing. | Pre-construction and construction | Environmental Manager<br>Construction Manager<br>Supervisor<br>Engineer | Condition C26 |
| BD34 | An *Erosion and Sediment Control Strategy* (ESCS) (45860-HSE-PR-D-0016) has been provided in Appendix A of the *Soil and Water Management Plan*. It has been prepared in line with the principles and requirements in:<br>• *Managing Urban Stormwater – Soils and Construction*, Volume 1 (Landcom 2004), commonly referred to as the 'Blue Book';<br>• *Managing Urban Stormwater – Soils and Construction*, Volumes 2A and 2C (NSW Department of Environment, Climate Change and Water 2008);<br>• Best Practice Erosion and Sediment Control (IESCA – 2008);<br>• Transgrid's Environmental Guidance Notes; and<br>• Guidelines for Controlled Activities on Waterfront Land (NRAR 2018).<br>The ESCS will be implemented to guide the development of the Progressive Erosion and Sediment Control Plan (PESCPs) for the project. | Construction | Environmental Manager<br>Construction Manager | Condition C26<br>RMM HF6<br>RMM SCG7 |
| BD35 | Transmission line towers will be located and constructed to minimise impact to vegetated riparian corridors, wherever practicable. | Detailed design and construction | Design Manager<br>Environmental Manager | RMM B5 |
| BD36 | The project will ensure that:<br>• all activities on waterfront land are constructed in accordance with the Guidelines for Controlled Activities on Waterfront Land (2012), Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings (NSW Fisheries 2003) and the Policy and | Construction | Environmental Manager<br>Environmental Advisor<br>Construction Manager | Condition C18 |

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| | Guidelines for Fish Habitat and Conservation and Management (NSW Fisheries, 2013), unless DPE Water agrees otherwise; and<br>• the geomorphic condition of the major rivers and distributary channels crossed by the project is not impacted. | | Supervisor | |
| **Bushfire management** | | | | |
| BD37 | Construction activities will be managed in accordance with the *Emergency Plan* (45860-HSE-PL-D-0129). The Emergency Plan includes measures to minimise the potential for bushfire risk and will be prepared in consultation with Rural Fire Service. It will be made publicly available upon approval. | Construction | Environmental Advisor<br>Environmental Manager | Condition C26 |
| BD38 | 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.<br>Any APZ would be regularly maintained to provide a maximum grass height of up to or less than 100 millimetres at substations, compounds and accommodation camps during the prescribed Bushfire Danger Period and when the grassland fuel reaches 70 per cent cured.<br>Vegetation inside the main construction compounds and accommodation camp sites would be regularly maintained to a maximum height of 75 millimetres. | Construction | Design Manager<br>Construction Manager | RMM HR2 |
| BD39 | 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.<br>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 | Construction Manager<br>Supervisor | RMM HR9 |
| **Monitoring** | | | | |
| BD40 | Monitoring will occur in accordance with Section 6.3 of this plan. An annual report will be prepared to summarise the results of the nest box monitoring. | As per the frequency in Section 6.3 | Environmental Manager | Condition C26 |
| BD41 | Clearing of native vegetation will be monitored to confirm actual impacts to biodiversity values to inform any final biodiversity offset requirements and allow for comparison of actual clearing with the predicted clearing extents outlined in Table 12-11 of the Final BDAR. | Pre-construction and construction | Environmental Manager<br>Transgrid (offsets) | RMM B15 |

| ID | Measurement / Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| BD42 | Areas subject to partial clearance will be monitored within three months from commencement of construction. A verification report will be produced to confirm whether any changes are required to the Appendix A – *Pre-clearing and Clearing Procedure*. | Construction | Environmental Manager | Condition C26 |

* Tower numbering is reflective of tower numbering from the Final BDAR.

# 6 Compliance management

## 6.1 Training and awareness

All site personnel will undergo the Elecnor site induction. The induction training addresses elements related to biodiversity management including, but not limited to:

- relevant legislation;
- the environmental management system, including the CEMP;
- biodiversity values;
- land disturbance and clearing;
- biosecurity and weeds; and
- GIS / SAPs.

Targeted training in the form of toolbox talks or specific training will also be delivered to personnel with a key role in biodiversity management. Examples of training topics include:

- clearing procedures;
- no-go zones;
- threatened species within the project area;
- special biodiversity protection zones;
- unexpected finds procedure for threatened species; and
- biosecurity procedures.

Further details regarding the staff induction and training are in Section 6 of the CEMP.

## 6.2 Roles and responsibilities

Elecnor's organisational structure and overall roles and responsibilities are outlined in Section 4 of the CEMP. Specific responsibilities for the implementation of mitigation measures are detailed in Section 5 of this BMP.

## 6.3 Monitoring

The proposed monitoring program relevant to biodiversity is provided within Table 6.1. The monitoring program detailed within this plan will commence upon the commencement of Stage 2 construction. Monitoring will continue during construction and at the timing or frequency detailed within Table 6.1 for each of the monitoring items.

**Table 6.1 - Monitoring program**

| Item | | Scope | Frequency | Responsibility | Records / reporting |
|---|---|---|---|---|---|
| 1 | Weekly inspections | Inspection of the exclusion zones when works are being undertaken in the Stage 2 areas. | Weekly | Environmental Advisor<br>Supervisors | Weekly Environmental Inspection Checklist |
| 2 | Pre-clearing inspection | Inspecting work areas before clearing in accordance with the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027). | Approximately 24 hours prior to clearing as required by Section 5.2 of the *Pre-clearing and* | Ecologist<br>Environmental Advisor | Clearing and Land Disturbance Permit |

| Item | | Scope | Frequency | Responsibility | Records / reporting |
|---|---|---|---|---|---|
| | | | *Clearing Procedure* (45860-HSE-PR-D-0027). | | |
| 3 | Pre-clearance surveys | Pre-clearance surveys will be prepared in accordance with the requirements of the Commonwealth Approval. | Prior to clearing or ground disturbance activities in that area (other than pre-construction minor activities per Commonwealth correspondence). | Environmental Manager<br>Environmental Advisor | Pre-clearance survey report |
| 4 | During clearing supervision | Ecological supervision of clearing operations and removal of habitat trees during two-stage clearing approach in accordance with the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027). | During second stage of two-stage clearing | Ecologist / Fauna handler<br>Environmental Advisor | Clearing report |
| 5 | Monitoring vegetation clearing | Clearing of native vegetation will be monitored to confirm actual impacts to biodiversity values to inform any final biodiversity offset requirements within the biodiversity offset package which will allow comparison of Table 12-11 of the Final BDAR. | Prior to and during clearing | Environmental Manager<br>Transgrid (offsets)<br>Ecologist | Clearing Register |
| 6 | Monitoring areas subject to partial clearance | Areas that are subject to partial clearance (Disturbance Area B4 and Disturbance Area B10) will be monitored within three months from commencement of Stage 2 construction.<br>A verification report will be produced to confirm whether any changes are required to the *Pre-clearing and Clearing Procedure*. | Monitoring within three months of the commencement of Stage 2 construction and provision of a verification report.<br>If partial clearing has not commenced within three months of the commencement of Stage 2 construction, the project will monitor areas of partial clearance within three months of the commencement of partial clearing. | Supervisor<br>Environmental Manager | Verification Report |
| 7 | Monitoring special biodiversity protection zones | The special biodiversity protection zones will be monitored in accordance with Table 5.1 of Appendix A of the *Pre-clearing and Clearing Procedure*. | The timing is dependent on the special biodiversity protection zone and is detailed within Table 5.1 of Appendix A of the *Pre-clearing and Clearing Procedure*. | Environmental Manager<br>Ecologist | |
| 8 | Fauna handling and rescue | Handling and rescue of fauna in accordance with the *Fauna Handling Procedure* (45860-HSE-PR-D-0020). | As discovered | Supervisor<br>Environmental Advisor | Fauna Handling Record Sheet |
| 9 | Nest box monitoring | Determine the use of nest boxes during the construction phase in accordance with the | Annual | Environmental Manager<br>Ecologist | |

| Item | | Scope | Frequency | Responsibility | Records / reporting |
|---|---|---|---|---|---|
| | | *Supplementary Hollow and Nest Strategy* (45860-HSE-PR-D-0021). | | | |

Detail of the monitoring which will be undertaken during construction for each of the measures within condition C26 are provided within Table 6.2.

**Table 6.2 - Monitoring against the measures of condition C26**

| Condition | | Method of monitoring | Method of reporting |
|---|---|---|---|
| C26 | The Biodiversity EMP Sub-Plan required under condition B2 must be prepared in accordance with the *Revised Biodiversity Development Assessment Report* (dated 19 August 2022) and include:<br>a) a description of the measures that would be implemented for:<br>(i) meeting the biodiversity mitigation requirements in condition C23; | 1. Weekly inspections<br>2. Pre-clearing inspection<br>3. Pre-clearance surveys<br>5. Monitoring vegetation clearing<br>7. Monitoring special biodiversity protection zones | Environmental Inspection Checklist (45860-HSE-CHK-G-1008)<br>Clearing and Land Disturbance Permit<br>Pre-clearance survey report<br>Clearing register |
| | (ii) minimising the amount of native vegetation clearing within the approved development footprint; | 1. Weekly inspections | Environmental Inspection Checklist (45860-HSE-CHK-G-1008) |
| | (iii) minimising the loss of key fauna habitat, including tree hollows; | 2. Pre-clearing inspection<br>3. Pre-clearance surveys | Clearing and Land Disturbance Permit<br>Pre-clearance survey report |
| | (iv) minimising the impacts on fauna on site, including undertaking pre-clearance surveys; | 2. Pre-clearing inspection<br>3. Pre-clearance surveys | Clearing and Land Disturbance Permit<br>Pre-clearance survey report |
| | (v) minimising the potential indirect impacts on threatened flora and fauna species, migratory species and 'at risk' species; | 1. Weekly inspections | Environmental Inspection Checklist (45860-HSE-CHK-G-1008) |
| | (vi) rehabilitating and restoring disturbance areas to its pre-existing condition; | Monitoring to occur in accordance with Table 6.3 | Environmental Inspection Checklist (45860-HSE-CHK-G-1008) |
| | (vii) avoiding and minimising impacts on Serious and Irreversible Impact (SAII); | 1. Weekly inspections<br>2. Pre-clearing inspection<br>3. Pre-clearance surveys | Environmental Inspection Checklist (45860-HSE-CHK-G-1008)<br>Clearing and Land Disturbance Permit<br>Pre-clearance survey report |
| | (viii) construction clearing and operation vegetation management protocols; | 1. Weekly inspections<br>2. Pre-clearing inspection<br>3. Pre-clearance surveys<br>4. During clearing supervision<br>5. Monitoring vegetation clearing<br>6. Monitoring areas subject to partial clearance | Environmental Inspection Checklist (45860-HSE-CHK-G-1008)<br>Clearing and Land Disturbance Permit<br>Pre-clearance survey report<br>Clearing register<br>Verification Report |

| Condition | | Method of monitoring | Method of reporting |
|---|---|---|---|
| | | 7. Monitoring special biodiversity protection zones | |
| | (ix) monitoring of the areas of partial clearance within three months of the commencement of construction and provision of a verification report to confirm if any changes are required to the construction vegetation clearing protocols; | 6. Monitoring areas subject to partial clearance | Verification Report |
| | (x) protecting native vegetation and key fauna habitat outside the approved disturbance area; | 1. Weekly inspections<br>2. Pre-clearing inspection<br>4. During clearing supervision | Environmental Inspection Checklist (45860-HSE-CHK-G-1008)<br>Clearing and Land Disturbance Permit |
| | (xi) maximising the salvage of resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and restoration of the site; | 1. Weekly inspections | Environmental Inspection Checklist (45860-HSE-CHK-G-1008) |
| | (xii) a Connectivity Strategy and a Supplementary Hollow and Nest Strategy; | 1. Weekly inspections<br>2. Pre-clearing inspection (field site validation of the connectivity corridors in accordance with Section 6.3 of the Connectivity Strategy)<br>2. Pre-clearing inspection (reporting on tree hollows in accordance with Section 6 of the Supplementary Hollow and Nest Strategy)<br>5. Monitoring vegetation clearing<br>9. Nest box monitoring | Environmental Inspection Checklist (45860-HSE-CHK-G-1008)<br>Clearing register<br>Nest Box Installation Report |
| | (xiii) controlling weeds; | 1. Weekly inspections<br>2. Pre-clearing inspection<br>3. Pre-clearance surveys<br>8. Vehicle and plant hygiene inspections | Environmental Inspection Checklist (45860-HSE-CHK-G-1008)<br>Clearing and Land Disturbance Permit<br>Pre-clearance survey report<br>Vehicle inspection reports |
| | (xiv) controlling erosion; and | Pre rainfall inspection (as required by the *Stage 2 Soil and Water Management Plan* (SWMP)) | Pre rainfall inspection checklist (45860-HSE-CHK-G-1009)<br>Post rainfall inspection checklist (45860-HSE-CHK-G-1010) |

| Condition | | Method of monitoring | Method of reporting |
|---|---|---|---|
| | | Post rainfall inspection (as required by the SWMP)<br>Water quality monitoring (as required by the SWMP)<br>1. Weekly inspections | Water quality record<br>Environmental Inspection Checklist (45860-HSE-CHK-G-1008) |
| | (xv) bushfire management; and | Weather and fire danger ratings forecasts (as required by the Emergency Plan)<br>Vegetation level in APZs (as required by the Emergency Plan)<br>Hot works (as required by the Emergency Plan)<br>Fire watch (as required by the Emergency Plan)<br>Bushfire preparedness inspections (as required by the Emergency Plan)<br>1. Weekly inspections | BOM website, NSW RFS website and Pre-starts<br>Reporting within Daily Diary<br>Plant and vehicle inspection logs<br>Environmental Inspection Checklist (45860-HSE-CHK-G-1008) |

Further to the monitoring identified within Table 6.1, a detailed monitoring program is provided within Table 6.3 which monitors performance of the project against the objectives and targets provided within Table 1.2 of the plan.

Table 6.3 provides the objectives, completion criteria, performance indicators, method of monitoring and frequency of monitoring for the biodiversity and rehabilitation objectives.

A Trigger Action Response Plan (TARP) is included within Table 6.3, with triggers and actions identified against each of the objectives and completion criteria. The TARPs identify trigger levels which require action to occur to ensure that the biodiversity-related objectives of the project are met.

## Table 6.3 - Detailed biodiversity monitoring program and TARP

| Project location/work area | Feature | Objective | Baseline | Targets / Completion criteria | Performance indicators | Method of monitoring (how the performance indicator will be validated) | Frequency / timing | Trigger | Action / Response |
|---|---|---|---|---|---|---|---|---|---|
| **Biodiversity** | | | | | | | | | |
| **All** | All | Minimise and manage the impacts of the project on biodiversity | Baseline conditions vary across the project based on land use and vegetation type<br><br>Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping | • No exceedance to clearing values of known biodiversity including flora and fauna species as specified in condition C23 a). | • Clearing limits to be within those set in Appendix 2 of the Infrastructure Approval and Section 5.3.1 of this BMP | • Total clearing area as recorded on clearing register. | • Monthly | • Forecast clearing may exceed the clearing limits | • Design or construction methodology to be reviewed to determine an approach which will minimise impacts to this vegetation type<br>• Measures to be implemented<br>• Weekly environmental inspections to review and assess performance<br>• If an exceedance of the clearing limits within Appendix 2 of the Infrastructure Approval and Section 5.3.1 of the BMP is recorded, a non-compliance will be reported to the Department. |
| | | | | • Minimise the risk of injury and mortality of fauna. | • Zero fauna injured as a result of procedures not being adhered to | • Fauna strike register | • Updated as required (based on fauna strike) | • Fauna injured as a result of procedure not being adhered to | • Investigate the event<br>• Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114)<br>• Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented |
| | | | | • Clearing and management of the Plains-wanderer habitat to occur in accordance with the *Plains-wanderer Protocol* | • Compliance with the requirements of the *Plains-wanderer Protocol* in Appendix F of the BMP | • Inspections | • Weekly (as part of the Weekly Environmental Inspections) | • Clearing or management of the Plains-wanderer habitat is not in accordance with the *Plains-wanderer Protocol* | • Stop work immediately if a breach of the *Plains-wanderer Protocol* occurs<br>• Investigate the event<br>• Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114)<br>• Measures to be implemented<br>• Weekly environmental inspections to review and assess performance<br>• Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented |
| | | | | • Bespoke construction methodology to be applied within the special biodiversity protection zones | • Compliance with the requirements of the *Pre-clearing and Clearing Procedure* in Appendix G of the BMP, for the special biodiversity protection zones | • Inspections | • Weekly (as part of the Weekly Environmental Inspections) | • Clearing or management of the special biodiversity protection zones is not in accordance with the *Pre-clearing and Clearing Procedure* | • Stop work immediately if a breach of the *Pre-clearing and Clearing Procedure* occurs for the special biodiversity protection zones<br>• Investigate the event<br>• Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114)<br>• Measures to be implemented<br>• Weekly environmental inspections to review and assess performance<br>• Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented |

| Project location/work area | Feature | Objective | Baseline | Targets / Completion criteria | Performance indicators | Method of monitoring (how the performance indicator will be validated) | Frequency / timing | Trigger | Action / Response |
|---|---|---|---|---|---|---|---|---|---|
| | | | | • Nest box installation for squirrel gliders to commence prior to clearing in a particular location | • Nest box installation for squirrel gliders will commence prior to clearing in a particular location. | • Progress updates from the ecologists via meetings and Nest Box Installation Checklist | • Fortnightly | • Nest box installation for squirrel gliders does not occur in a particular location prior to clearing | • Determine why nest boxes cannot be installed and address barriers to installation where possible.<br>• Reinspect to confirm this has occurred |
| | | | | • Nest box installation for other species to commence prior to clearing in a particular location | 30% of nest boxes for other species will be installed prior to clearing in a particular location.<br>All remaining nest boxes (100%) to be installed within three months of clearing in a particular location. | • Progress updates from the ecologists via meetings and Nest Box Installation Checklist | • Fortnightly | Nest box installation for other species does not occur as follows:<br>• 30% of nest boxes to be installed prior to clearing in a particular location;<br>• all remaining nest boxes (100%) will be installed within three months of clearing within a particular location. | • Determine why nest boxes cannot be installed and address barriers to installation.<br>• Reinspect to confirm this has occurred. |
| **Rehabilitation** | | | | | | | | | |
| **Easement** | Tower pads, laydowns and brake and winch sites | Rehabilitate and restore disturbance areas to its pre-existing condition | Baseline conditions vary across the project based on land use and vegetation type<br>Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping | • All temporary infrastructure is removed | • Temporary infrastructure removed | • Inspection | • Once following completion of construction and demobilisation from the area | • Temporary infrastructure remains on site | • Determine why infrastructure cannot be removed and address barriers to removal. Reinspect until removed<br>• If infrastructure must stay, then ensure that any relevant approvals which may be required are obtained and landowner agreement is in place |
| | | | | • Topsoil reinstated | • Topsoil has been reinstated on the previously disturbed areas | • Inspection | • Once following completion of construction and demobilisation from the area | • Topsoil not reinstated | • Topsoil to be reinstated<br>• Reinspect to confirm this has occurred |
| | | | | • Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration | • Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm) | • Progressive photos of select areas<br>• Assessment to determine if area is stable and non-polluting (may be undertaken by CPESC) | • Monthly until confirmation is received that the area is stable and non-polluting | • Area confirmed to be unstable and requires further measures | • Seek advice from the Soil Conservationist<br>• Implement additional measures (as may be deemed necessary based on location and site aspects)<br>• Reinspect until location is deemed to be stable |
| | | | | • All rubbish and waste materials are removed | • No visible rubbish or waste | • Inspection | • Once following completion of construction and demobilisation from the area | • Waste remains on site | • Waste to be removed<br>• Reinspect to confirm this has occurred |
| | Access tracks and access points | Rehabilitate and restore disturbance areas to its pre-existing condition | Baseline conditions vary across the project based on land use and vegetation type<br>Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping | • Operational requirements for access, and consultation with landowner, confirms final land use | • Transgrid and/or landowner confirmation of final land use of the access track/point | • Written confirmation or record of conversation confirming consultation with landowner on final land use | • Prior to commencement of decommissioning or rehabilitation works | • Final land use of the access track/point is not in accordance with landowner consultation outcomes | • Determine why this has occurred<br>• Liaise again with landowner<br>• Determine if additional rectification works are required |
| | | | | • Where access track/point is restored, all infrastructure required to be removed has been removed | • Where access track/point is restored, infrastructure is removed | • Inspection | • Once following completion of construction and demobilisation from the area | • Infrastructure remains on site for an access track/point that needs to be restored | • Determine why infrastructure cannot be removed and address barriers to removal. Reinspect until removed<br>• If infrastructure must stay, then ensure that any relevant approvals which may be required are obtained and landowner agreement is in place |

| Project location/work area | Feature | Objective | Baseline | Targets / Completion criteria | Performance indicators | Method of monitoring (how the performance indicator will be validated) | Frequency / timing | Trigger | Action / Response |
|---|---|---|---|---|---|---|---|---|---|
| | | | | • Where access track/point is restored, topsoil is reinstated | • Where access track/point is restored, topsoil has been reinstated | • Inspection | • Once following completion of construction and demobilisation from the area | • Topsoil not reinstated for an access track/point that needs to be restored | • Topsoil to be reinstated<br>• Reinspect to confirm this has occurred |
| **Ancillary facilities, accommodation camps and earthworks material site** | Ancillary facilities | Safe, stable and non-polluting | Baseline conditions vary for the ancillary facilities, accommodation camps and earthworks material site based on land use and vegetation type<br><br>Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping | • Progressive erosion and sediment control plan prepared and implemented | • Erosion controls have been implemented. No further sediment controls are required as appropriate cover has been achieved | • Inspection | • Weekly (as part of the Weekly Environmental Inspections when the area is inspected) | • Controls not installed in accordance with the PESCPs | • Controls to be installed<br>• Site to be reinspected |
| | | | | • Topsoil reinstated | • Topsoil has been reinstated on the previously disturbed areas | • Inspection | • Once following completion of construction and demobilisation from the area | • Topsoil not reinstated | • Topsoil to be reinstated<br>• Reinspect to confirm this has occurred |
| | | | | • Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration | • Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm) | • Progressive photos of select areas<br>• Assessment to determine if area is stable and non-polluting (may be undertaken by CPESC) | • Monthly until confirmation is received that the area is stable and non-polluting | • Area confirmed to be unstable and requires further measures | • Seek advice from the Soil Conservationist<br>• Implement additional measures (as may be deemed necessary based on location and site aspects)<br>• Reinspect until location is deemed to be stable |
| | | | | • No significant erosion is present that would compromise the establishment of vegetation | • Controls that relate to rehabilitation are implemented in accordance with the Progressive Erosion and Sediment Control Plans (PESCPs) | • Inspection | • Weekly (as part of the Weekly Environmental Inspections) | • Controls not installed in accordance with the PESCPs | • Controls to be installed<br>• Site to be reinspected |
| | | Progressively rehabilitate the site as soon as possible following disturbance | Baseline conditions vary for the ancillary facilities, accommodation camps and earthworks material site based on land use and vegetation type<br>Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping | • Commence decommissioning and/or rehabilitation within 1-2 months of completion of use of the site, unless the Planning Secretary agrees otherwise. | • Controls that relate to rehabilitation are implemented in accordance with the PESCPs. | • Inspection | • Weekly (as part of the Weekly Environmental Inspections) | • Controls not installed in accordance with the PESCPs | • Controls to be installed<br>• Site to be reinspected |
| | | | | • Topsoil reinstated | • Topsoil has been reinstated on the previously disturbed areas | • Inspection | • Once following completion of construction and demobilisation from the area | • Topsoil not reinstated | • Topsoil to be reinstated<br>• Reinspect to confirm this has occurred |
| | | | | • Disturbed surfaces are adequately prepared, as per the Blue Book, to encourage and facilitate natural regeneration | • Disturbed surfaces are confirmed as stable and non-polluting (CPESC to confirm) | • Progressive photos of select areas<br>• Assessment to determine if area is stable and non-polluting (may be undertaken by CPESC) | • Monthly until confirmation is received that the area is stable and non-polluting | • Area confirmed to be unstable and requires further measures | • Seek advice from the Soil Conservationist<br>• Implement additional measures (as may be deemed necessary based on location and site aspects)<br>• Reinspect until location is deemed to be stable |
| | | To be decommissioned and removed, unless the Planning | Baseline conditions vary for the ancillary facilities, accommodation camps and | • Redundant services including power are disconnected | • Services are no longer connected | • Inspection | • Once following completion of construction and demobilisation from the area | • Redundant services remain connected | • Determine why service needs to be connected (if it does)<br>• If connection is not required, ensure that disconnection occurs.<br>• Reinspect to confirm disconnection. |

| Project location/work area | Feature | Objective | Baseline | Targets / Completion criteria | Performance indicators | Method of monitoring (how the performance indicator will be validated) | Frequency / timing | Trigger | Action / Response |
|---|---|---|---|---|---|---|---|---|---|
| | | Secretary agrees otherwise. | earthworks material site based on land use and vegetation type<br><br>Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping | • All temporary infrastructure required to be removed is removed including accommodation facilities and temporary buildings | • Temporary infrastructure removed<br>• Agreement is to be obtained from the Planning Secretary if removal is not proposed | • Inspection | • Once following completion of construction and demobilisation from the area | • Temporary infrastructure remains on site | • Determine why infrastructure cannot be removed and address barriers to removal. Reinspect until removed<br>• If infrastructure must stay, then ensure that approval of the Planning Secretary is obtained and landowner agreement is in place |
| | | | | • Temporary construction fencing removed | • Temporary construction fencing removed | • Inspection | • Once following completion of construction and demobilisation from the area | • Temporary construction fencing remains on site | • Determine why fencing cannot be removed and address barriers to removal. Reinspect until removed<br>• If fencing must stay, then ensure that approval of the Planning Secretary is obtained as required and landowner agreement is in place |
| | | | | • For access tracks/ points, operational requirements for access, and consultation with landowner, confirms final land use | • Transgrid and/or landowner confirmation of final land use of the access track/point | • Written confirmation or record of conversation confirming consultation with landowner on final land use | • Prior to commencement of decommissioning or rehabilitation works | • Final land use of the access track/point is not in accordance with landowner consultation outcomes | • Determine why this has occurred<br>• Liaise again with landowner<br>• Determine if additional rectification works are required |
| | Land use | Restore land capability to pre-existing use | Baseline conditions vary for the ancillary facilities, accommodation camps and earthworks material site based on land use and vegetation type<br><br>Refer to Section 3 (Existing environment) and Appendix E - Biodiversity mapping | • Final land use agreed with landowner | • Landowner confirmation of final land use of the access track/point | • Written confirmation or record of conversation confirming final land use | • Prior to commencement of decommissioning or rehabilitation works | • Final land use is not in accordance with landowner agreement | • Determine why this has occurred<br>• Liaise again with landowner<br>• Determine if additional rectification works are required |
| | | | | • All temporary infrastructure required to be removed is removed | • Temporary infrastructure removed<br>• Agreement is to be obtained from the Planning Secretary if removal is not proposed | • Inspection | • Once following completion of construction and demobilisation from the area | • Temporary infrastructure remains on site | • Determine why infrastructure cannot be removed and address barriers to removal. Reinspect until removed<br>• If infrastructure must stay, then ensure that approval of the Planning Secretary is obtained as required and landowner agreement is in place |
| | Community | Ensure public safety at all times. | | • Implementation of the Health and Safety Plan during all decommissioning and rehabilitation works | • Public access to the site is not provided until it is considered safe to do so | • Inspections by WHS staff | • Safety inspections to occur at the rate and timing required by the Health and Safety Plan | • Inspection deems that the site is not safe during decommissioning and rehabilitation works | • Controls to be implemented as identified by WHS staff<br>• Reinspection to occur to determine controls have been implemented |

### 6.3.1 Monitoring during Stage 3 (Operation)

During the operational phase of the project, Transgrid will monitor the vegetation within selected vegetation integrity plots from the Final BDAR that the project impacts during construction and are then subject to rehabilitation and restoration in a manner that aims to regenerate the pre-existing native vegetation (refer to section 5.9 of the Final BDAR). Transgrid will monitor the vegetation integrity scores within the selected affected plots and compare them to the baseline data collected during the preparation of the Final BDAR to monitor the progress of regeneration.

Noting the vegetation integrity plot surveys for the project occurred during an extended period of wet weather, it unlikely that vegetation integrity scores will return to pre-existing conditions in the short to medium term. Transgrid, therefore, proposes to monitor representative plots for up to three years/growing seasons following the commencement of operation or until the surveys indicate that vegetation integrity within a plot has returned to 70% of the pre-existing value. The objective of the monitoring is to obtain data that indicates how disturbed areas regenerate back to pre-existing conditions over time. The monitoring program will be designed and implemented in a manner consistent with the requirements of the BAM.

Transgrid will include details of the monitoring program in the Biodiversity EMP Sub-plan for Stage 3 (Operation), which will be prepared in consultation with CPHR and approved by the Planning Secretary, as required by condition B1. The Stage 3 Biodiversity EMP Sub-plan will:

- confirm the vegetation integrity plot locations from the Final BDAR affected during construction;
- propose target representative vegetation integrity plot locations at which ongoing monitoring will occur. The plots will be within a range of plant community types and will, where possible, reflect different levels of construction impact; and
- confirm requirements, including timing, for surveys of the target vegetation integrity plot locations, consistent with relevant BAM requirements.

A monitoring report would be prepared and provided to CPHR and the Planning Secretary for information and discussion. The report would compare vegetation integrity within the plots to baseline data from the Final BDAR.

## 6.4 Inspections

Weekly inspections will be performed by members of the Environmental team and documented in the Weekly Environmental Checklist. The inspections will check the implementation and effectiveness of the management measures identified in Section 5 and the environmental performance of the project relevant to biodiversity. Visual monitoring of delineated/fenced disturbance boundaries will be undertaken.

## 6.5 Auditing

Audits will be undertaken to assess the effectiveness of the management measures and overall compliance with this plan, and other relevant approvals, licences and guidelines. Audit requirements are detailed in Section 9.3 of the CEMP.

In accordance with condition D11 of the Infrastructure Approval, independent audits will be undertaken in accordance with the *Independent Audit Post Approval Requirements* (2020) unless otherwise agreed or directed by the Planning Secretary. An independent audit will be undertaken within 12 weeks from the commencement of construction, followed by six-monthly intervals for each subsequent audit until the completion of the construction phase of the project.

The independent audits will be undertaken in accordance with the requirements set out in Section 3 of the *Independent Audit Post Approval Requirements* (2020). At the end of each audit, the

auditor will prepare an independent audit report. The report includes details such as the audit methodology, audit findings and recommendations and opportunities for improvement. Elecnor will review the draft report and provide a response of the audit findings. If the audit findings identify any non-compliances, the nominated action and completion timing of the action will be provided as part of the response to each non-compliance.

Corrective and preventative actions will be identified from the audit findings, and the implementation of those actions managed and monitored as per the process outlined in Section 11 of the CEMP.

## 6.6 Reporting

Reporting which will be undertaken in accordance with the BMP is summarised within Table 6.4.

**Table 6.4 - Reporting program**

| Item | Scope | Frequency | Responsibility | Recipient |
|---|---|---|---|---|
| Pre-clearance survey report (Commonwealth Approval) | Preparation of a pre-clearance survey report which identifies the quantum of habitat (in hectares) of all protected matters and indicates the management measures to avoid or minimise impacts. | Prior to clearing or ground disturbance activities in that area (other than pre-construction minor activities per Commonwealth correspondence).<br>The report must be published on the website prior to clearing in that area. | Environmental Manager<br>Environmental Advisor | Transgrid<br>Published on website |
| Clearing report | Following completion of clearing a clearing report will be prepared summarising clearing details. The clearing report will be provided within two months of completion of clearing. | Following clearing | Environmental Manager | Transgrid |
| Monitoring reporting | Reporting of biodiversity matters on the project website in accordance with condition D12. | As required | Environmental Manager | Transgrid |
| Verification report | A verification report will be produced to confirm whether any changes are required to Appendix A – *Pre-clearing and Clearing Procedure*. | Within three months of construction commencing | Supervisor<br>Environmental Manager | Transgrid |
| Audit reports | Independent audits undertaken in accordance with the Infrastructure Approval will include audits of biodiversity measures (based on the Independent Auditor's program). Audit reports will be prepared. Further detail in relation to auditing is provided within Section 9.3 of the CEMP. | At intervals, no greater than 26 weeks from the date of the initial Independent Audit or as otherwise agreed by the Secretary. | Environmental Manager / Independent Auditor | Transgrid<br>DPHI |
| Nest box monitoring reports | An annual report will be prepared to summarise the results of the nest box monitoring. | Annually | Environmental Manager | Transgrid |

The clearing reports will include:

- information on clearing operations, dates, procedures and areas;
- the type of clearing (i.e. Disturbance Area A), as relevant;

- the spatial extent and type of clearing of each PCT;
- the spatial extent and type of clearing of threatened ecological communities and threatened flora;
- live animal sightings, captures, any releases or injured/shocked wildlife;
- fauna that may have died as a result of clearing; and
- photographs of any rescued fauna (where obtained).

The spatial extent of clearing will be recorded in GIS file format. The spatial data will include information concerning features of biodiversity conservation significance that remain (such as threatened ecological communities). Clearing of native vegetation will be monitored and recorded to inform any final biodiversity offset requirements within the biodiversity offset package. This information will be tracked in the *Clearing and Land Disturbance Register* (45860-HSE-REG-1008).

## 6.7 Emergencies, incidents and non-compliances

### 6.7.1 Emergencies

Emergency management and planning including emergencies related to biodiversity matters will be undertaken in accordance with the management system and relevant procedures.

Refer to Section 8.1 of the CEMP.

### 6.7.2 Environmental incidents

In the event of an environmental incident, the Incident, Notification and Investigation Procedure Flowchart provided Appendix A4 of the CEMP will be implemented. The flowchart applies to:

- incidents causing harm to the environment (in excess of predicted impacts described and assessed in the EIS, Submissions Report, Amendment Report);
- incidents resulting in non-compliance with approvals, licences, permits, consents and other legislative requirements; and
- near misses including high potential incidents and/or hazards.

Environmental incidents may include the following events caused by the works:

- chemical spills and leaks (including hydrocarbons);
- accidental spills or other incidents associated with the wastewater treatment plants;
- unauthorised discharge of contaminated waters to the environment;
- unauthorised/unapproved impact to heritage items, artefacts or sites;
- clearing or damage to vegetation that exceeds clearing limits from the Approval;
- unauthorised/unapproved damage or interference to threatened species, threatened ecological communities or special biodiversity protection zones;
- unauthorised death or injury of native fauna;
- any non-compliance with legislation; and
- inappropriate waste disposal.

Environmental incidents, including incidents related to biodiversity matters (i.e. unauthorised/unapproved damage or interference to threatened species, threatened ecological communities or special biodiversity protection zones) will be managed as described in Section

8.2 of the CEMP – Environmental incidents and the Incident, Notification and Investigation Procedure Flowchart provided in Appendix A4 of the CEMP. All site personnel are authorised to suspend a work activity that is likely to cause or actually causing or contributing to an incident. A supervisor/manager may request additional staff be deployed to the site to provide additional capacity or capability to manage the incident.

Incident reporting is described in Section 8.3 of the CEMP – Incident notification and reporting.

All environmental incidents that occur on the project, regardless of how minor, must be reported to a supervisor by personnel involved or witnesses to the incident immediately after the incident occurs. The Environmental Manager will be notified immediately of any environmental incident. Transgrid will be notified of incidents and near misses immediately. Formal, documented reporting of incidents will be completed, and will be submitted to Transgrid in accordance with requirements under the Contract.

An incident is defined within the Infrastructure Approval as an 'occurrence or set of circumstances that causes or threatens to cause material harm and which may or may not be or cause a non-compliance'. In addition, material harm is defined in the Infrastructure Approval as the following:

[Material harm] is harm that:

a) *involves actual or potential harm to the health or safety of human beings or to the environment that is not trivial, or*

b) *results in actual or potential loss or property damage of an amount, or amounts in aggregate, exceeding $10,000, (such loss includes the reasonable costs and expenses that would be incurred in taking all reasonable and practicable measures to prevent, mitigate or make good harm to the environment).*

This definition excludes "harm" that is authorised under either this approval or any other statutory approval.

Incidents which cause or threaten to cause material harm as defined by the Infrastructure Approval are reportable to DPHI.

Notification will occur to DPHI via the Major Projects website immediately after becoming aware that an incident has occurred. The notification must identify the development (including the development application number and the name of the development), and set out the location and nature of the incident.

A written notification will then be provided to DPHI via the Major Projects website within seven days after becoming aware of the incident. The written notification will include the following details:

- identify the development and application number;
- provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident);
- identify how the incident was detected;
- identify when the Proponent became aware of the incident;
- identify any actual or potential non-compliance with conditions of approval;
- describe what immediate steps were taken in relation to the incident;
- identify further action(s) that will be taken in relation to the incident; and
- identify a development contact for further communication regarding the incident.

Within 30 days of the date on which the incident occurred, or as otherwise agreed by the Planning Secretary, Transgrid will provide the Department and any relevant public authorities with a

detailed report on the incident addressing the following requirements, and any further reports that may be requested.

- a summary of the incident;
- outcomes of an incident investigation, including identification of the cause of the incident;
- details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence; and
- details of any communication with other stakeholders regarding the incident.

An exceedance is an event where the impacts of the project are greater than the biodiversity limits set by condition C23 and Appendix 2 of the Infrastructure Approval. Any exceedance of the biodiversity limits will be investigated and reported either as an incident (if the event caused or threatened to cause material harm) or as a non-compliance of the Infrastructure Approval. Reporting of an incident to DPHI will occur in accordance with this section (Section 6.7.2), whilst reporting of non-compliances will occur in accordance Section 6.7.3.

### 6.7.3 Non-compliances

A non-compliance is defined in the Infrastructure Approval as '*an occurrence, set of circumstances or development that is a breach of this approval*'. The procedure to respond to any non-compliance will be in accordance with conditions D7 and D8 of the Infrastructure Approval.

Where a non-compliance with the Infrastructure Approval or Commonwealth Approval has been identified, including those relevant to biodiversity matters (e.g. not installing nest boxes within the required timeframe), corrective actions will be developed as required and implemented to address the non-compliance that occurred.

Reporting of non-compliances of the Infrastructure Approval will be undertaken as described in Section 10.1 of the CEMP. The Planning Secretary will be notified in writing via the Major Projects website within seven days after Transgrid becomes aware of any non-compliance. The written non-compliance notifications, in line with condition D7, will contain the requirements set out in Appendix 4 of the Infrastructure Approval and will include details such as:

- the non-compliance;
- the reasons for the non-compliance (if known); and
- what actions have been taken, or will be taken, to address the non-compliance.

Refer to Section 10.1.1 of the CEMP for further detail of the notification.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

Failure to comply with other statutory requirements such as the Commonwealth Approval will be reported in accordance with Section 10.1.2 of the CEMP. Any other reporting will occur in accordance with Section 10.1.3 of the CEMP.

Where a non-compliance has been identified, the non-compliance will be reviewed by the Environmental Manager to determine the reason for the non-compliance, and what corrective actions have, or will be taken, to address the non-compliance. Preventative actions will be developed as required and implemented to minimise the potential for recurrence.

Section 11 of the CEMP describes the process for non-compliance management.

## 6.8 Contingency plan

Although the project has been assessed through the environmental impact assessment process and potential impacts identified, unpredicted impacts may occur as the project progresses. In the

event that unexpected impacts are identified, the action or cause will be categorised and as required will be managed as:

- an emergency or environmental incident in accordance with Section 8 of the CEMP – Incidents and emergencies; and/or
- a non-compliance or non-conformance in accordance with Section 11 of the CEMP – Non-compliance, non-conformance, corrective and preventative action.

Reporting of the unpredicted impacts would be in line with the above processes and as described in Section 10 of the CEMP – Reporting.

Through the identification of corrective and/or preventative actions through the above processes, the following steps will be considered as relevant:

a) determine the relevant impact assessment criterion/criteria, below which the impact should be reduced, consistent with the requirements of this BMP;

b) identify options to reduce the unexpected impacts to below the relevant criterion/criteria and appropriate timeframe for implementation;

c) implement the selected measure(s) to reduce the unexpected impacts; and

d) identify and implement an appropriate monitoring program to determine the effectiveness of the selected measure(s) to reduce the unexpected impact.

If the above monitoring program identifies that the unexpected impacts have not been reduced to below the nominated criterion/criteria, items b) to d) of the contingency process will be repeated.

This section does not apply to unexpected threatened species finds. These will be managed in accordance with the *Unexpected Threatened Species Finds Procedure* included in Appendix B of this BMP.

## 6.9 Continuous improvement

Continuous improvement will be achieved by the ongoing evaluation of policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- identify areas of opportunity for improvement of management and performance;
- determine the cause or causes of non-conformances and deficiencies;
- develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies;
- verify the effectiveness of the corrective and preventative actions;
- document any changes in procedures resulting from process improvement; and
- make comparisons with objectives and targets.

# Appendix A – Pre-clearing and Clearing Procedure

PUBLIC

# Pre-clearing and Clearing Procedure EnergyConnect (NSW – Eastern Section) Stage 2

45860-HSE-PL-D-0027

| REV | DATE | GENERAL DESCRIPTION | PREPARED | REVIEWED | VERIFIED | APPROVED |
|---|---|---|---|---|---|---|
| E | 2/02/2023 | Issued in response to agency consultation and ER comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| F | 15/03/2023 | Issued in response to agency comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| G | 4/05/2023 | Issued in response to DPE comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| H | 19/06/2023 | Issued in response to DPE comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| I | 5/07/2023 | Issued in response to DPE comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| J | 27/05/2025 | Revised to Elecnor template | N.Dwyer | R.Walker-Edwards | G.Crighton | F.Delgado |

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| Revision History | |
|---|---|
| **Rev.** | **Detailed Description** |
| A | Issued for internal review |
| B | Issued for Squad Check review |
| C | Issued for Transgrid review |
| D | Issued to agencies |
| E | Issued in response to agency and ER comments |
| F | Issued in response to agency comments |
| G | Issued in response to DPE comments |
| H | Issued in response to DPE comments |
| I | Issued in response to DPE comments |
| J | Revised to Elecnor template |
| | |
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| Key Document Stakeholders |
|---|
| **To be communicated with during reviews and revisions of this document** |
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# 1 Introduction

This Pre-clearing and Clearing Procedure is an appendix to the *Biodiversity Management Plan* (45860-HSE-PL-D-0117) and forms part of the overall environmental management framework for the project.

## 1.1 Purpose

The purpose of this Pre-clearing and Clearing Procedure is to describe how Elecnor proposes to manage clearing during construction of the Stage 2 works to minimise impacts on biodiversity.

# 2 Induction/training

Personnel taking part in construction activities shall be informed of this Pre-clearing and Clearing Procedure through the site-specific induction, daily prestart briefings or targeted training as required. Personnel involved in clearing activities will be subject to toolbox talks and daily prestart meetings which will discuss items such as:

- the proposed clearing for the day;
- the limits of clearing;
- processes to follow;
- known or potentially occurring threatened species; and
- sensitive areas.

# 3 Scope

This procedure is applicable for the pre-clearing and clearing activities conducted by site personnel (including sub-contractors) for Stage 2 of the project. This includes, but is not limited to, clearing and grubbing at the following locations:

- on access tracks;
- along the transmission line easement;
- at the tower pads (and associated ancillary sites such as laydown and parking areas); and
- any remaining Stage 1 clearing which may be required.

# 4 Pre-clearing

The following tasks are required to occur prior to clearing:

- a suitably qualified and experienced ecologist will be engaged for the project (the project ecologist);
- a clearing and grubbing work pack or Environmental Work Method Statement will be developed for construction teams;
- opportunities to retain and protect existing vegetation, including threatened species habitat, within the disturbance area will be identified during construction planning through review of temporary design and construction methodologies;
- the predicted extent of clearing of native vegetation will be monitored against the extent of clearing as permitted by condition C23 of the Infrastructure Approval. The predicted extent of clearing will also consider the type of clearing (i.e. Disturbance Area A);
- the project ecologist is to confirm the location and mark out the extent of the biodiversity exclusion zones, as well as any special biodiversity protection zones;
- the Supervisor will ensure the clearing limit is identified. The clearing limits will be identified using GIS mapping, placed pegs or identification markers in areas which are not adjacent to sensitive areas (such as threatened ecological communities); or highly visible barrier or star pickets with tape such as colour-coded UV-stabilised rope, bunting, nightline or other similarly robust and durable material in locations adjacent to sensitive areas or where pegs and identification markers will not be suitably visible (for example of obscured by existing vegetation). Three key exclusion zones are:
  - **heritage exclusion zones** - for heritage sites (including Potential Archaeological Deposits, scarred trees and artefact sites). These will be clearly identified in accordance with the *Heritage Management Plan* (45860-HSE-PL-D-0119) prior to the commencement of construction at each location;
  - **biodiversity exclusion zones** - these will be clearly identified by a suitably qualified ecologist prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone. They will 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;
  - **special biodiversity protection zones** – areas within the special biodiversity protection zones which do not require clearing will be delineated. Clearing within the special biodiversity protection zones will be limited to that detailed within Section 5.4 of this procedure;
- the Environment team will ensure delineation is installed consistently to reduce the risk of error or misinterpretation of boundaries;
- prior to clearing commencing, the project ecologist will:
  - survey the clearing extent, including any special biodiversity protection zones;
  - identify and mark all individuals of Austral Pillwort between towers 161-162* and all individuals of Thyme Rice-flower between towers 660-663* (*Tower numbering is reflective of tower numbering from the Final BDAR);
  - identify and demarcate hollow bearing trees that are suspected to accommodate fauna;
  - record GPS coordinates for all identified hollow bearing trees during the pre-clearing survey;

  - record the total number of hollows which will be incorporated into the Supplementary Hollow and Nest Strategy;
  - survey and confirm the presence of raptor nests within and adjacent to the clearing extents;
  - confirm that either nest boxes are in place, or suitable locations for the installation of nest boxes have been identified;
  - check for the presence of threatened flora and fauna species by visual inspection of potential habitat features. If found, the *Unexpected Threatened Species Finds Procedure* (45860-HSE-PR-D-0012) will be followed;
  - the project ecologist will capture and/or remove fauna that have the potential to be disturbed as a result of clearing activities and relocate any captured fauna into nearby habitat (refer to Section 5);
- any relevant findings from the pre-clearing inspections will be used to update and confirm the accuracy of sensitive area mapping and/or geospatial information system (GIS);
- the construction workforce will be supplied with sensitive area mapping and/or GIS (showing clearing boundaries, exclusion zones and the location of threatened flora or vegetation which is to be retained) if working in the vicinity of sensitive areas through the relevant Work Packs or work method statements;
- all contractors working near special biodiversity protection zones will undertake a pre-clearing induction, which specifically discusses the special biodiversity protection zones;
- the Supervisor, clearing operators and Environment team to discuss any findings from the pre-clearing inspection during the daily pre-start meetings as required including changes to sequence of clearing, sensitive areas, avoidance areas, or habitat features;
- in accordance with the Commonwealth Approval, pre-clearance surveys will be undertaken prior to clearing or ground disturbance activities in a given area (other than pre-construction minor activities in line with the Commonwealth correspondence). The pre-clearance survey will be developed and supervised by a suitably qualified ecologist. A pre-clearance survey report will be prepared and published on the project website prior to clearing in that area; and
- the *Clearing and Land Disturbance Permit* (45860-HSE-FO-G-1004) will be approved by the Environment Manager or delegate prior to clearing activity commencing.

## 4.1 Changed impacts and BAM assessments

Changed impacts may affect areas either inside or outside of the biodiversity study area.

Project changes within the biodiversity study area can be considered against the known biodiversity values that were confirmed in accordance with the BAM, as documented in the Final BDAR. Most commonly, these types of changes include altered tower locations to minimise environmental disturbance and improve constructability, changes to construction site layouts, and the provision of alternative access. This can result in slight differences in impacts compared to the Final BDAR.

If a proposed change could affect a location outside of the biodiversity study area, an additional BAM assessment would be carried out by an accredited assessor to confirm the biodiversity values present, and to allow potential impacts to identified and considered.

Typical situations that can require additional BAM assessment outside of the biodiversity study area may include the following:

- areas adjacent to assessed access tracks to allow for spatial inaccuracies in the georeferenced aerial imagery used for impact assessment purposes and alterations based on actual site conditions;

- areas where alternative access arrangements might be required based on landholder preferences, ground conditions or topography not understood during the EIS phase;
- areas where alternative access is required to avoid access through, and impacts within, locations with sensitive heritage and biodiversity values (for example, avoiding access through Plains-wanderer habitat);
- parts of road corridors in the vicinity of approved access points and internal property access roads to account for all potential ground disturbance during access point installation, including signage within the road reserve on approach to the access points, track installation, upgrades and maintenance; and
- areas around water supply points to account for any disturbance to vegetation required during access upgrades or that might occur due to project-related vehicle movements.

When finalising the design and construction methodology, the project will reduce impacts to the greatest extent practicable in accordance with the commitment in Revised mitigation measure B1 and the requirements of condition A1.

The project will assess any of these proposed changes to confirm that:

- the works can be carried out in compliance with the conditions of the Infrastructure Approval;
- the works can be carried out generally in accordance with the EIS (including the Final BDAR);
- the works can be carried out generally in accordance with the Layouts included in Appendix 1.

Clearing that would result in an exceedance of the limits included within Appendix 2 of the Approval will not occur.

# 5 Vegetation clearing

## 5.1 Disturbance areas

As outlined in the Biodiversity Management Plan, the key disturbance areas are as follows:

1. Disturbance Area A;
2. Disturbance Area A - centreline;
3. Disturbance Area B;
4. Plains-wanderer key habitat;
5. special biodiversity protection zones; and
6. other areas (e.g. hazard/high risk trees, fauna connectivity corridors and watercourses).

Figure 5.1 and Figure 5.2 reflect Disturbance Area A, Disturbance Area A - centreline, Disturbance Area B, as well as hazard/high risk trees.

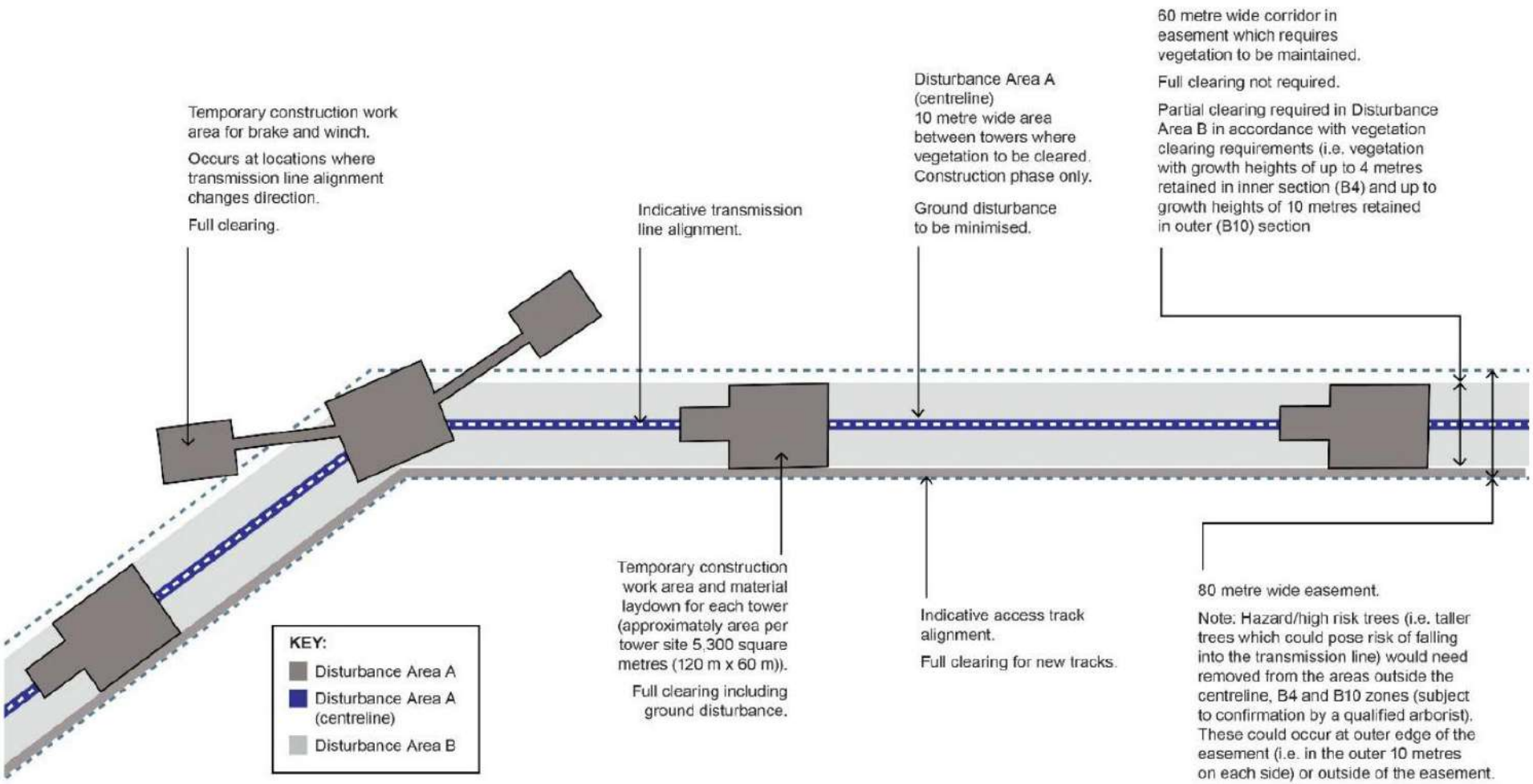



**Figure 5.1 - Indicative disturbance area definition (330kV transmission line)**

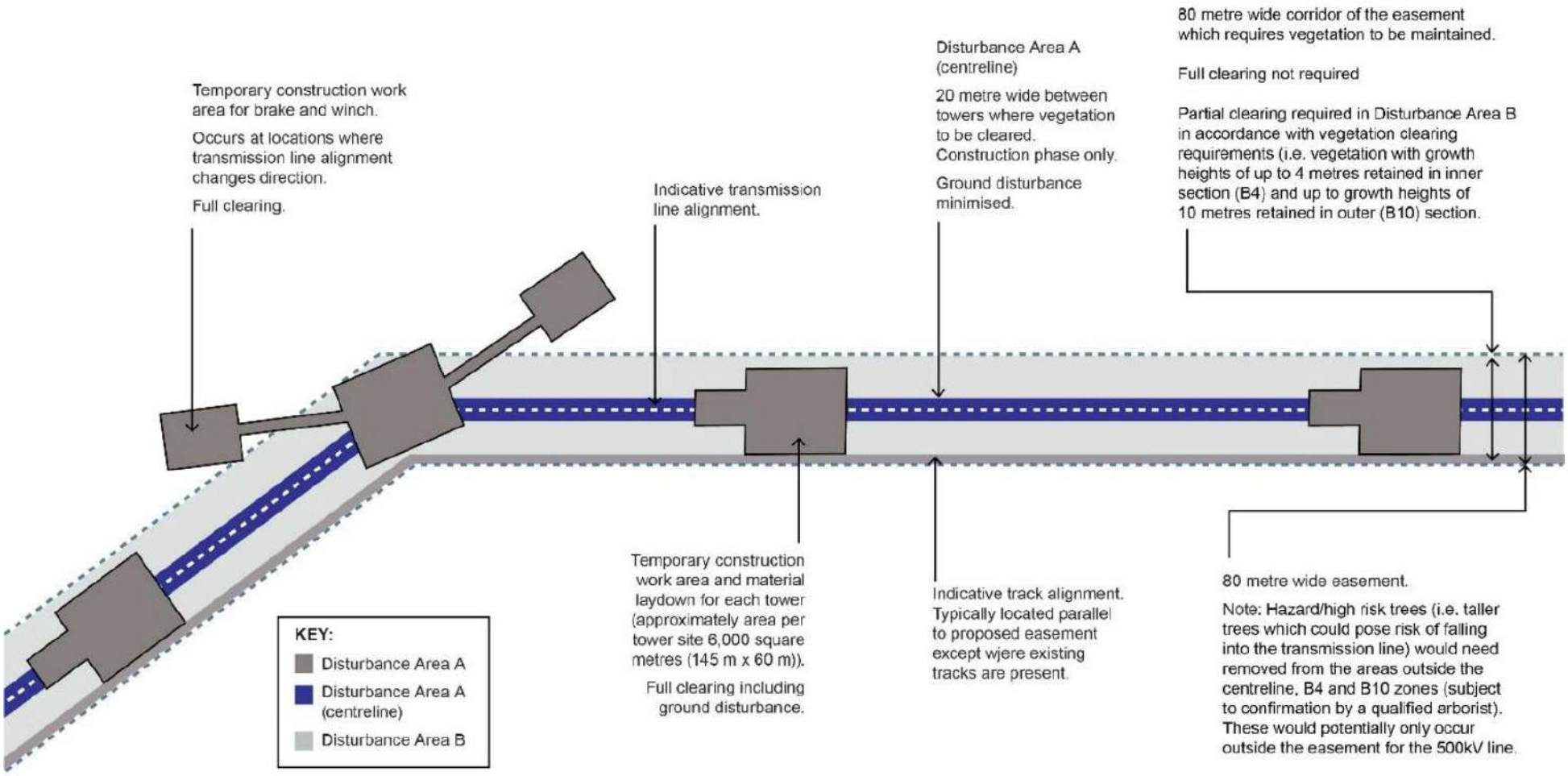



**Figure 5.2 - Indicative disturbance area (500kV transmission line)**

### 5.1.1 Disturbance Area A

Disturbance Area A includes the tower pads, access tracks, laydowns, parking areas, accommodation camps, construction compounds, asset protection zones and the substations.

Vegetation is permitted to be removed to ground within Disturbance Area A. Where possible opportunities to retain vegetation will occur through review of temporary design and construction methodologies.

### 5.1.2 Disturbance Area A – centreline

Disturbance Area A centreline clearing is the area required for line stringing activities. Disturbance Area A centreline clearing is 10 metres in width for a typical 330kV transmission line section and 20 metres in width for a typical 500kV transmission line section.

For the Plains-wanderer habitat (Section 5.1.4) and the special biodiversity protection zones (Section 5.1.5), Disturbance Area A – centreline will not be cleared, other than for the removal of a tree that exceeds the vegetation clearance requirements. In this circumstance the tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place).

For other locations within the transmission line easement, vegetation in this area will be removed, however topsoil and ground material would be retained (where possible). Tree stumps will be removed.

### 5.1.3 Disturbance Area B

Disturbance Area B is the area within the easement between the transmission towers. Disturbance Area B consists of:

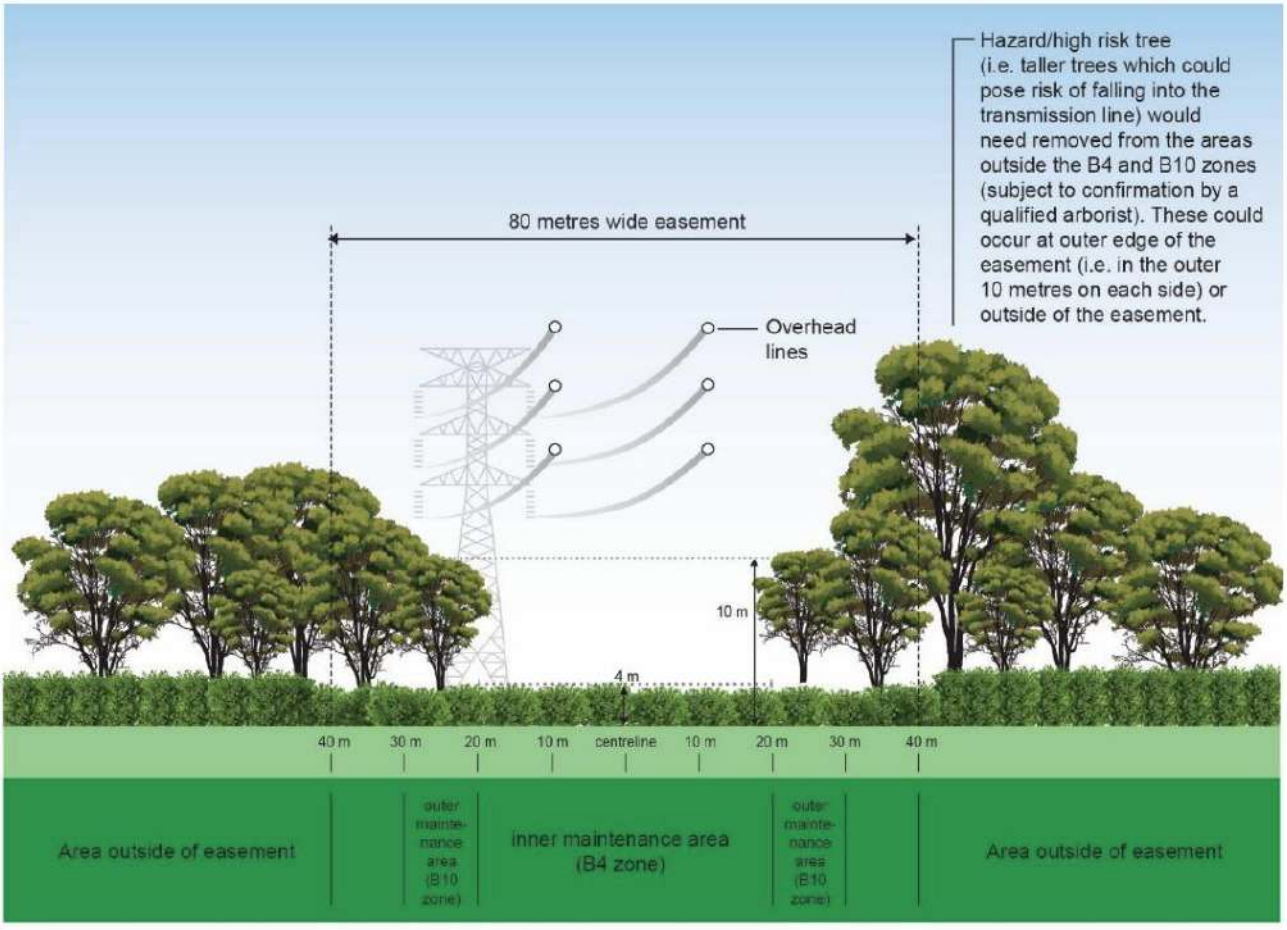
- Disturbance Area B4; and
- Disturbance Area B10.

*330kV transmission line*

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 20 metres distance from the centreline (i.e. a 40 metre wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10 metres would be able to be retained in the easement section which is 20 metres to 30 metres from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

Areas that are subject to partial clearance (Disturbance Area B4 and Disturbance Area B10) will be monitored within three months from commencement of Stage 2 construction. If partial clearing has not commenced within three months of the commencement of Stage 2 construction, the project will monitor areas of partial clearance within three months of the commencement of partial clearing. A verification report will be produced to confirm whether any changes are required to the Pre-clearing and Clearing Procedure.




Vegetation in the centre 60 metres wide section of 80 metres wide easement to be maintained to achieved minimum clearance requirements (based on growth heights).(Assessed as up to 4 metres growth heights in inner maintenance area and up to 10 metres in outer maintenance area)

**Figure 5.3 - Indicative disturbance area locations and widths applied for a typical 330kV transmission line section (centreline clearing not indicated)**

*500kV transmission line*

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 30 metres distance from the centreline (i.e. a 60 metre wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10 metres would be able to be retained in the easement section which is 30 metres to 40 metres from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

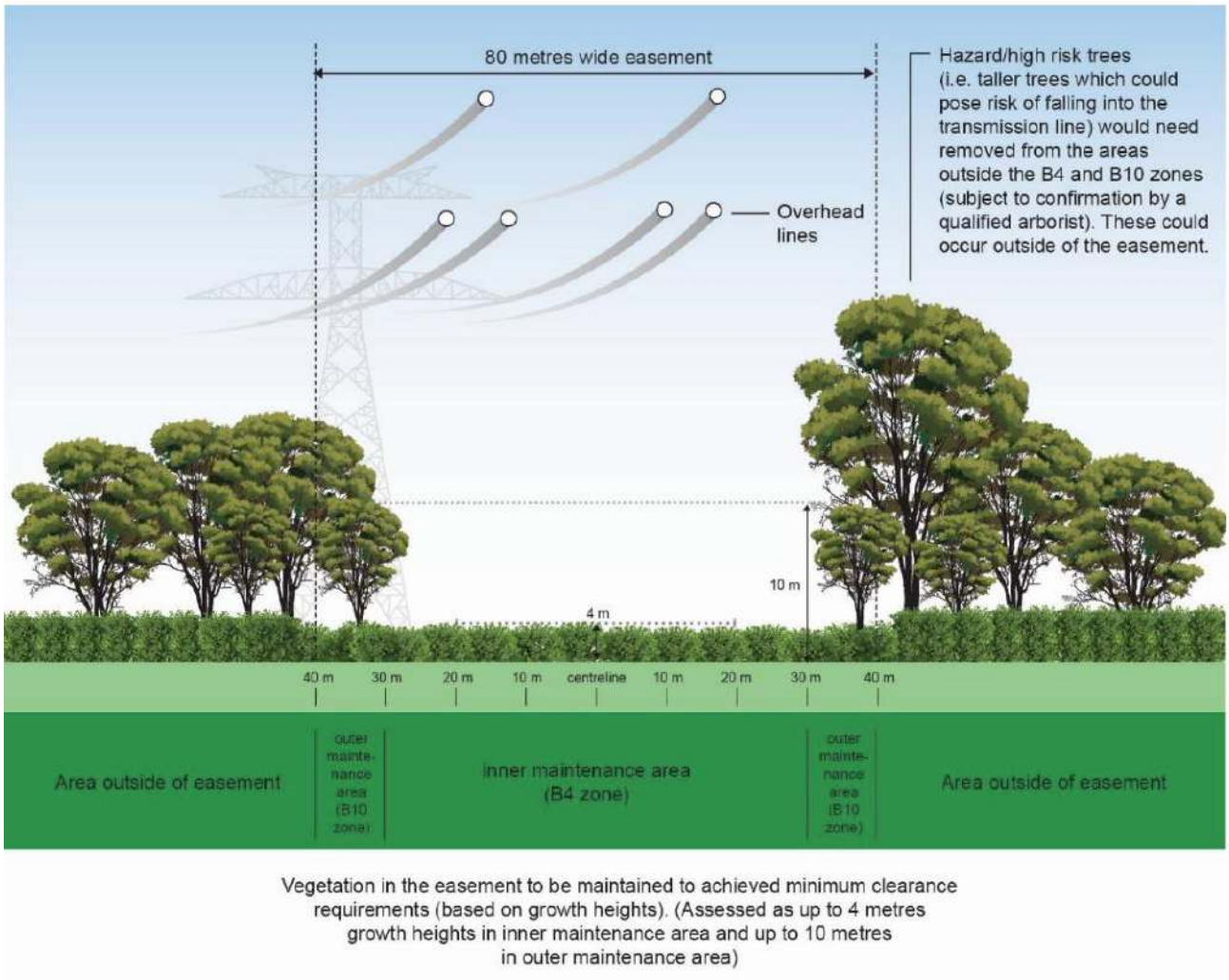



**Figure 5.4 - Indicative disturbance area locations and widths applied for a typical 500kV transmission line section (centreline clearing not indicated)**

### 5.1.4 Key Plains-wanderer habitat

The Plains-wanderer is listed as Endangered under the NSW *Biodiversity Conservation Act 2016* and listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The Plains-wanderer is a relatively small grassland bird that has highly specific habitat preferences for grassland structure, due to their inability to navigate through dense grassland habitats. Therefore, they prefer open grasslands with relatively high percentages of bare soil, where dense grass growth is suppressed, and the growth of herby native groundcover flora is promoted.

Although the Plains-wanderer is a diurnally (daytime) active species they are not easily observable during those times. Their strategy for survival in an open environment is reliant on their cryptic plumage, while remaining motionless, and they do not readily flush as other grassland birds do, unless an observer almost steps on them.

Key habitat for the Plains-wanderer relevant to the project is identified in the *Plains-wanderer Protocol* (45860-HSE-PL-D-0135).

### 5.1.5 Special biodiversity protection zones

Special biodiversity protection zones have been identified by revised mitigation measures B22, B23, B24 and B26 at the following locations and for the following species, threatened ecological communities (TECs) and/or Property Vegetation Plans (PVPs):

- between towers 161-162* (Austral Pillwort);
- between towers 660-663* (Thyme Rice-flower);
- between towers 241-242* (Natural Grasslands of the Murray Valley Plains TEC); and
- between towers 243-249* (PVP H114).

* Tower numbering is reflective of tower numbering from the Final BDAR.

Information regarding how special biodiversity protection zones will be managed during pre-clearing and clearing is included in Section 5.4.

### 5.1.6 Other areas

#### 5.1.6.1 Hazard/high risk trees

Hazard/high risk trees (i.e. trees that are sufficiently tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist.

*330kV transmission line*

Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees have a potential growth height of 30m or more occur within a 10m zone adjacent to the 330kV transmission line easement.

*500kV transmission line*

Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees with a potential growth height of 20m or more occur within a 10m zone adjacent to the 500kV transmission line easement.

#### 5.1.6.2 Fauna connectivity corridors

A wildlife corridor or connectivity corridor is an area of habitat connecting wildlife populations separated by human activities or structures (such as roads or easements). Wildlife corridors are a link of wildlife habitat, generally native vegetation, that connect two or more larger areas of similar habitat. Wildlife corridors can range in size from small, local corridors, to large corridors that stretch across various landscapes.

The following locations will be considered for connectivity corridors:

- key riparian crossings (Murrumbidgee River, Yanco Creek and Colombo Creek);
- areas of the alignment joining proposed biodiversity stewardship sites and/or conservation reserve estates; and
- areas of existing dense mallee/belah/buloke.

The connectivity corridors will be 20m wide and will typically be located adjacent to towers where the height of the transmission line is greater, and an increased vegetation height can be accommodated. These connectivity corridors will involve native vegetation retention up to the 10 metre (330kV line) or 20 metre (500kV line) wide temporary construction centreline clearing zone to better facilitate woodland connectivity (refer to Figure 5.5 for an example of the connectivity corridor within the 330kV line).

Centreline clearing will occur in the connectivity corridor, however clearing on either side of the centreline will only occur to trees that are above 10m in height or have the potential to grow above 10m in height. The last 10m of the easement (the hazard tree location) will have no clearing at all. Where new or existing access tracks intersect with the connectivity corridor, these access tracks will be used during the construction period (to limit the need for additional clearing which would otherwise be required outside of, or around, the connectivity corridor).

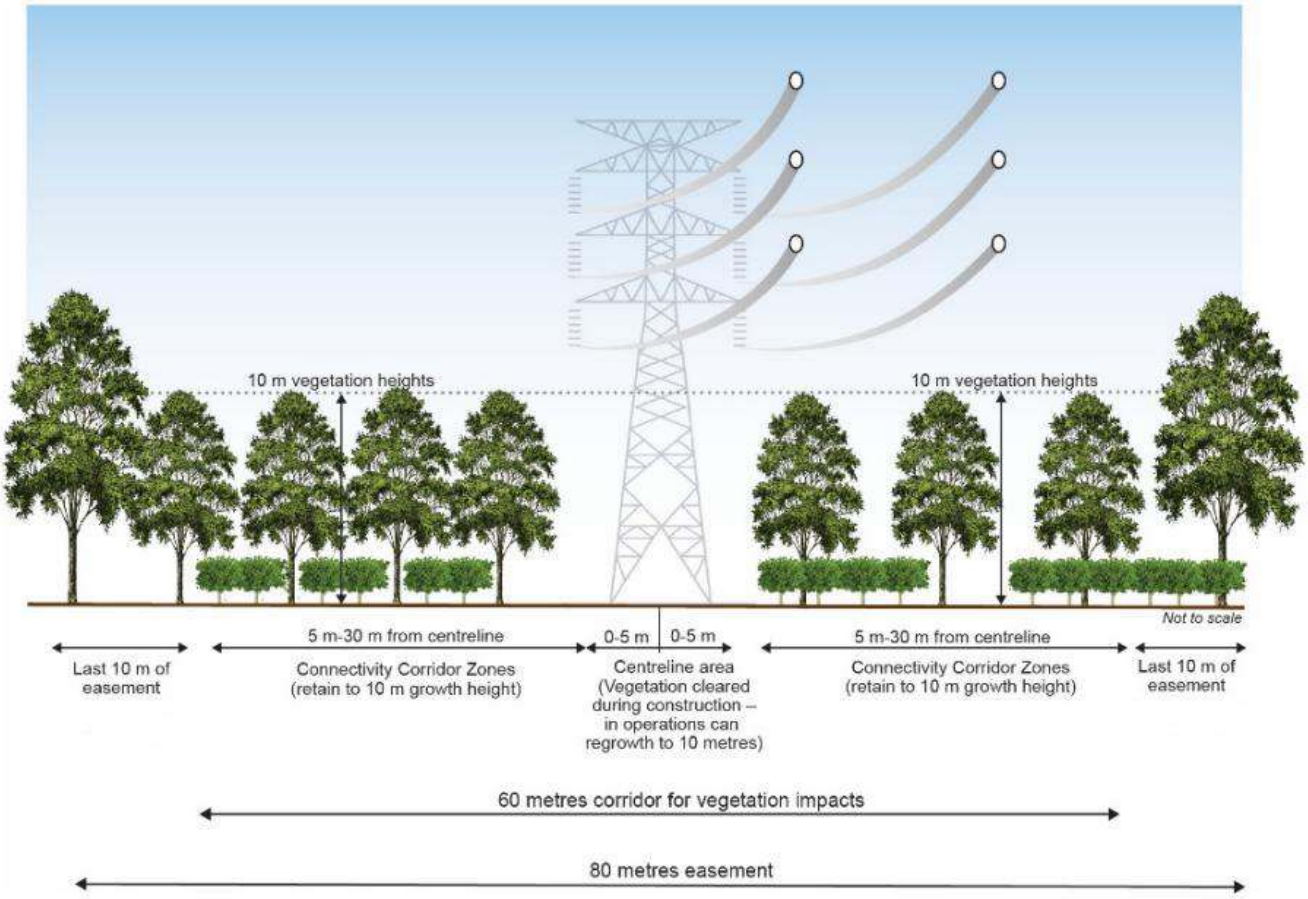



**Figure 5.5 - Fauna connectivity corridors (330kV transmission line)**

### 5.1.6.3 Watercourses

The key watercourses which the transmission line traverses include:

- the Murrumbidgee River;
- Abercrombie Creek;
- Curtains Creek;
- Eurrolie Creek;
- Yanko Creek;
- Colombo Creek; and
- the Coleambally irrigation channels.

Activities within the riparian zones of these watercourses will be managed to minimise impacts to aquatic environments wherever practicable. The riparian zone is defined by the *Guidelines for riparian corridors on waterfront land* (DPI – Office of Water, July 2012).

Shrub or ground stratum native vegetation within vegetated riparian zones (within the definition of *Water Management Act 2000*) of the Murrumbidgee River, the Coleambally irrigation channels, Yanco Creek, Columbo Creek and Lake Cullivel (and other defined riparian areas) will be protected to the greatest extent practicable.

Vegetation clearing will be limited to the tree stratum only, with trunk bases retained in-situ (vegetation to remain at four metres and 10 metres based on the disturbance area). Should the riparian zone be subject to a connectivity corridor, then vegetation within this connectivity corridor will be cleared at 10 metres in height.

## 5.2 Staged or non-staged clearing

All areas that need to be cleared will be subject to staged or non-staged clearing. Staged clearing occurs in locations where the ecologist identifies habitat and is typically referred to as 'two-stage clearing'.

Areas where two-stage clearing is required will clear non-habitat vegetation first, with habitat vegetation removed approximately 24 hours following this. Habitat vegetation will be removed following an inspection by the ecologists / fauna handlers. Relocation of fauna will occur.

Areas where no staging is required may be removed in one step. No habitat has been identified in these locations.

Both two-staged and non-staged areas are also subject to the requirements of the disturbance areas.

Whether clearing is staged or non-staged, during clearing in a special biodiversity protection zone, the project ecologist will be on site at all times to monitor activities within the zone.

### 5.2.1 Clearing where there are no habitat features (One-stage clearing)

If no habitat features have been identified in the pre-clearing surveys, then a two-stage clearing process is not required and clearing can be undertaken in a single-step without the ecologist present. An example is crop land/agricultural pasture area.

All other demarcation and flagging is to occur as required by the *Clearing and Land Disturbance Permit* (45860-HSE-FO-G-1004).

### 5.2.2 Clearing where there are habitat features (Two-stage clearing)

Where habitat features have been identified during the pre-clearing surveys, two-stage clearing is required. Habitat vegetation will be identified with flagging (typically yellow) and unique identifier numbers indicated by identification tags. GPS coordinates for reach tree will be recorded and uploaded in the GIS mapping. For these locations, the clearing area will be surveyed by the project ecologist within 24 hours or immediately prior to clearing to:

- obtain updated information on fauna and flora habitat that is present, including:
  - inspection of identified habitat features for evidence of fauna habitation, including but not limited to Plains-wanderer species;
  - identify any fauna that will require relocation prior to clearing;
  - demarcate any newly identified habitat and confirm that hollow-bearing trees are prominently marked/tagged;
  - capture and relocate any identified non-mobile fauna;
  - confirm that nest boxes are in place (where required) or suitable locations for installation have been identified; and
- collect data on any newly identified threatened species in the area.

### 5.2.3 Initial clearing – removal of non-habitat vegetation

In this first stage, non-habitat vegetation will be removed. All marked habitat features will be retained until the final stage of clearing. This allows respite between the initial disturbance and the final removal of habitat. The changed environment and the disturbance from clearing should encourage residing fauna to relocate voluntarily without human handling.

A respite period of approximately 24 hours after removal of non-habitat vegetation is intended to allow resident fauna the opportunity to vacate remaining habitat before final clearing commences.

### 5.2.4 Final clearing

A suitably qualified and experienced fauna handler will be onsite to:

- thoroughly inspect all hollows that are accessible from the ground immediately prior to clearing;
- carefully supervise removal of habitat features and hollows when trees are dropped to the ground;
- ensure detected fauna will be encouraged to self-relocate or will be captured and released in the identified release areas;
- to capture and relocate any encountered fauna to pre-identified release sites;
- ensure that any injured wildlife is transported to veterinarian or wildlife carer; and
- where breeding fauna or dependent young are detected during the clearing works, consult with a licensed carer to determine whether the animal/s require ongoing care or can be safely relocated to adjacent habitat.

Locations of fauna release (including GPS coordinates) will be recorded in a post-clearing report.

Once all fauna habitat inspection and any required fauna removal is complete, the remaining vegetation clearing will commence.

## 5.3 Clearing in Plains-wanderer primary habitat

Where a tree that would exceed the vegetation clearing requirements is identified within one of the biodiversity conservation zones relating to 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). A methodology will be selected that will minimise potential impact to key habitat and to ensure avoidance of impact to bird individuals. This would occur under supervision of an ecologist.

The *Plains-wanderer Protocol* (45860-HSE-PL-D-0135) should be implemented in all instances where works, including clearing, will occur in Plains-wanderer habitat.

## 5.4 Special biodiversity protection zones

The revised mitigation measures (RMMs) highlight several special biodiversity protection zones which require a tailored approach during pre-clearing and clearing. Details of these requirements and how they will be addressed during pre-clearing and clearing are included in Table 5.1.

## Table 5.1 - Management and monitoring of special biodiversity protection zones (pre-clearing and clearing)

| Location | Species | Management | Monitoring | Trigger Action Response Plan | Trigger Action Response Plan (management measures) |
|---|---|---|---|---|---|
| Between towers 660-663* | *Pimelea serpyllifolia subsp. serpyllifolia* (Thyme Rice-flower)  (Source: WSP) | • During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1.<br>• Pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all *Pimelea serpyllifolia subsp. serpyllifolia* (Thyme Rice-flower) individuals.<br>• The ecologists undertaking the pre-clearing survey are to install four (4) 1.5 metre high wooden/metal stakes on all sides of the *Pimelea* individuals (give 1 metre distance off main stem to lower risk of root damage).<br>• Attach flagging tape at top of stake to notify clearing machinery where to avoid (where possible).<br>• Areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers.<br>• Provide a map of all *Pimelea* individuals to all contractors to notify significance.<br>• Pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone and the location of *Pimelea* individuals which are to be avoided.<br>• During clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone.<br>• A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through habitat is required, with an ecologist walking ahead acting as a spotter.<br>• Access being prioritised from existing tracks.<br>• 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 | Monitoring for this species within the species polygon will be undertaken as follows:<br>• before clearing – confirm number of individuals and recent health checks (use GPS to record location, health and height of each individual/cluster – health checks will confirm natural mortality and not proposal induced);<br>• during clearing – rapid assessment if any have been accidentally impacted upon (in an area which was not to be impacted), or were needed to be removed due to location (ie the removal of some individuals during tower footprint clearance); and<br>• post construction (between towers 660-663) – to assess the number remaining/overall impact of clearing with an updated map showing the locations of all individuals remaining and ones removed (if so). | • Stop work immediately if construction activities occur which result in unauthorised disturbance and/or impacts which are not permitted.<br>• Ecologist to assess to determine if any *Pimelea* individuals have been impacted upon.<br>• Investigate the event.<br>• Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114).<br>• Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented. | • Stop work immediately if a breach of the management measures detailed within this table for this special biodiversity protection zone occurs.<br>• Investigate the event.<br>• Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114)<br>• Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented. |

| Location | Species | Management | Monitoring | Trigger Action Response Plan | Trigger Action Response Plan (management measures) |
|---|---|---|---|---|---|
| | | alignment and the tower 660–663* worksite locations.<br>• Alternative line installation techniques which do not require clearing of Disturbance Area A - centreline.<br>• Clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements. | | | |
| Between towers 161–162* | *Pilularia novaehollandiae*<br>(Austral Pillwort)<br>  <br>(Source: WSP) | • During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1.<br>• Pre-clearing threatened flora survey for areas which would be cleared or impacted to identify and clearly mark all *Pilularia novae-hollandiae* (Austral Pillwort) individuals.<br>• Temporary fencing around suitable habitat/acknowledged species polygons within the Final BDAR (along with a 10m buffer – to decrease any potential impacts to geomorphology) prior to construction. Installation of clear signage saying "No Go Zone".<br>• Areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers.<br>• Pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone and the importance of Austral Pillwort. The importance of maintaining geomorphology where possible should also be raised.<br>• During clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone.<br>• The ecologist will be present during clearing to review and ensure that impacts to geomorphology are minimised as much as possible (for example consideration is to be made of the direction of stormwater runoff due to construction activities or the location of stockpiles).<br>• A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special | Monitoring for this species within this special biodiversity protection zone will be as follows:<br>• Post-construction (in this location) – when rainfall and flooding conditions are present (to confirm if the species is still present). | • Stop work immediately if construction activities occur which result in unauthorised disturbance and/or impacts which are not permitted.<br>• Investigate the event.<br>• Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114).<br>• Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented. | • Stop work immediately if a breach of the management measures detailed within this table for this special biodiversity protection zone occurs.<br>• Investigate the event.<br>• Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114)<br>• Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented. |

| Location | Species | Management | Monitoring | Trigger Action Response Plan | Trigger Action Response Plan (management measures) |
|---|---|---|---|---|---|
| | | biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through habitat is required, with an ecologist walking ahead acting as a spotter.<br>• Access being prioritised from existing tracks.<br>• 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.<br>• Alternative line installation techniques which do not require clearing of Disturbance Area A – centreline.<br>• Clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements. | | | |
| Between towers 241–242* | Natural Grasslands of the Murray Valley Plains | • During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1.<br>• Pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone.<br>• Areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers.<br>• During clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone.<br>• Access being prioritised from existing tracks.<br>• A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through the TEC is required, with an ecologist walking ahead acting as a spotter.<br>• 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 | No specific monitoring for this special biodiversity protection zone.<br>Monitoring to occur in accordance with Section 6.3 of the BMP. | - | • Stop work immediately if a breach of the management measures detailed within this table for this special biodiversity protection zone occurs.<br>• Investigate the event.<br>• Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114)<br>• Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented. |

| Location | Species | Management | Monitoring | Trigger Action Response Plan | Trigger Action Response Plan (management measures) |
|---|---|---|---|---|---|
| | | along the proposal alignment and the tower 241 and 242* worksite locations.<br>• Alternative line installation techniques which do not require clearing of Disturbance Area A - centreline.<br>• Clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements. | | | |
| Property Vegetation Plan on holding H114, between towers 243–249* | N/A | • During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity conservation significance are reduced, will occur, in accordance with RMM B1.<br>• Pre-clearing induction of all contractors that work in this area to discuss this special biodiversity protection zone.<br>• Areas within this special biodiversity protection zone which will not be cleared will be delineated with flagging or other highly visible markers.<br>• During clearing an ecologist shall be on site at all times to monitor activities within this special biodiversity protection zone.<br>• A-Frame Fence Hurdles will be utilised when stringing transmission lines within the special biodiversity protection zones and / or the transmission cable will be walked through on foot if traversing through the PVP, if required.<br>• Access being prioritised from existing tracks.<br>• 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.<br>• Alternative line installation techniques which do not require clearing of Disturbance Area A - centreline.<br>• Clearing will not occur within Disturbance Area B4 and B10 unless absolutely required to meet the transmission line clearance requirements. | No specific monitoring for this special biodiversity protection zone.<br>Monitoring to occur in accordance with Section 6.3 of the BMP. | - | • Stop work immediately if a breach of the management measures detailed within this table for this special biodiversity protection zone occurs.<br>• Investigate the event.<br>• Determine if an incident or non-compliance has occurred in accordance with Section 8 and Section 10 of the *Construction Environmental Management Plan* (45860-HSE-PL-D-0114)<br>• Works can only recommence once the Environmental Manager has confirmed that appropriate measures to limit the potential recurrence of the event, have been implemented. |

* Tower numbering is reflective of tower numbering from the Final BDAR

# 6 Unexpected Threatened Species Finds Procedure

If during construction activities the project ecologist (or other project personnel) identify a threatened species or threatened ecological community that has not been (or is suspected to have not been) assessed as a part of the project assessment, the *Unexpected Threatened Species Finds Procedure* (45860-HSE-PR-D-0012) will be followed.

# 7 Reporting

Post-clearing reports will be prepared by project ecologists and will include:

- information on clearing operations, dates, procedures and areas;
- the type of clearing (i.e. Disturbance Area A);
- a breakdown of the spatial extent and type of clearing of each Plant Community Type (PCT);
- a breakdown of the spatial extent and type of clearing of threatened ecological communities and threatened flora;
- live animal sightings, captures, any releases or injured/shocked wildlife;
- fauna that may have died as a result of clearing; and
- photographs of any rescued fauna.

The spatial extent and type of clearing will be recorded in GIS file format and provided to TransGrid to allow the final offset requirements to be calculated based on the recorded clearing in accordance with RMM B15.

Clearing of native vegetation will be monitored and recorded to inform any final biodiversity offset requirements within the biodiversity offset package. This information will be tracked in the *Clearing and Land Disturbance Register* (45860-HSE-REG-1008).

# Appendix B – Unexpected Threatened Species Find Procedure

PUBLIC

# Unexpected Threatened Species Finds Procedure EnergyConnect (NSW – Eastern Section)

45860-HSE-PR-D-0012

| REV | DATE | GENERAL DESCRIPTION | PREPARED | REVIEWED | VERIFIED | APPROVED |
|---|---|---|---|---|---|---|
| A | 26/07/2022 | Issued for internal review | C.Cahill | R.Walker-Edwards | A.Boyd | S.Basanta |
| B | 28/07/2022 | Issued for Transgrid review | K. Baxter | R.Walker-Edwards | A.Boyd | S.Basanta |
| C | 14/10/2022 | Issued for agency review | K. Baxter | R.Walker-Edwards | A.Boyd | S.Basanta |
| D | 27/05/2025 | Revised to Elecnor template | N.Dwyer | R.Walker-Edwards | G.Crighton | F.Delgado |

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| Revision History | |
|---|---|
| **Rev.** | **Detailed Description** |
| A | Issued for internal review |
| B | Issued for Transgrid review |
| C | Issued for agency review |
| D | Revised to Elecnor template |
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# 1 Introduction

This Unexpected Threatened Species Finds Procedure is part of the *Biodiversity Management Plan* (45860-HSE-PL-D-0117) prepared for EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

## 1.1 Purpose

The purpose of this procedure is to detail the actions to be taken in the event that an unexpected actual or potential threatened species or endangered ecological communities is encountered during project works.

# 2 Induction/Training

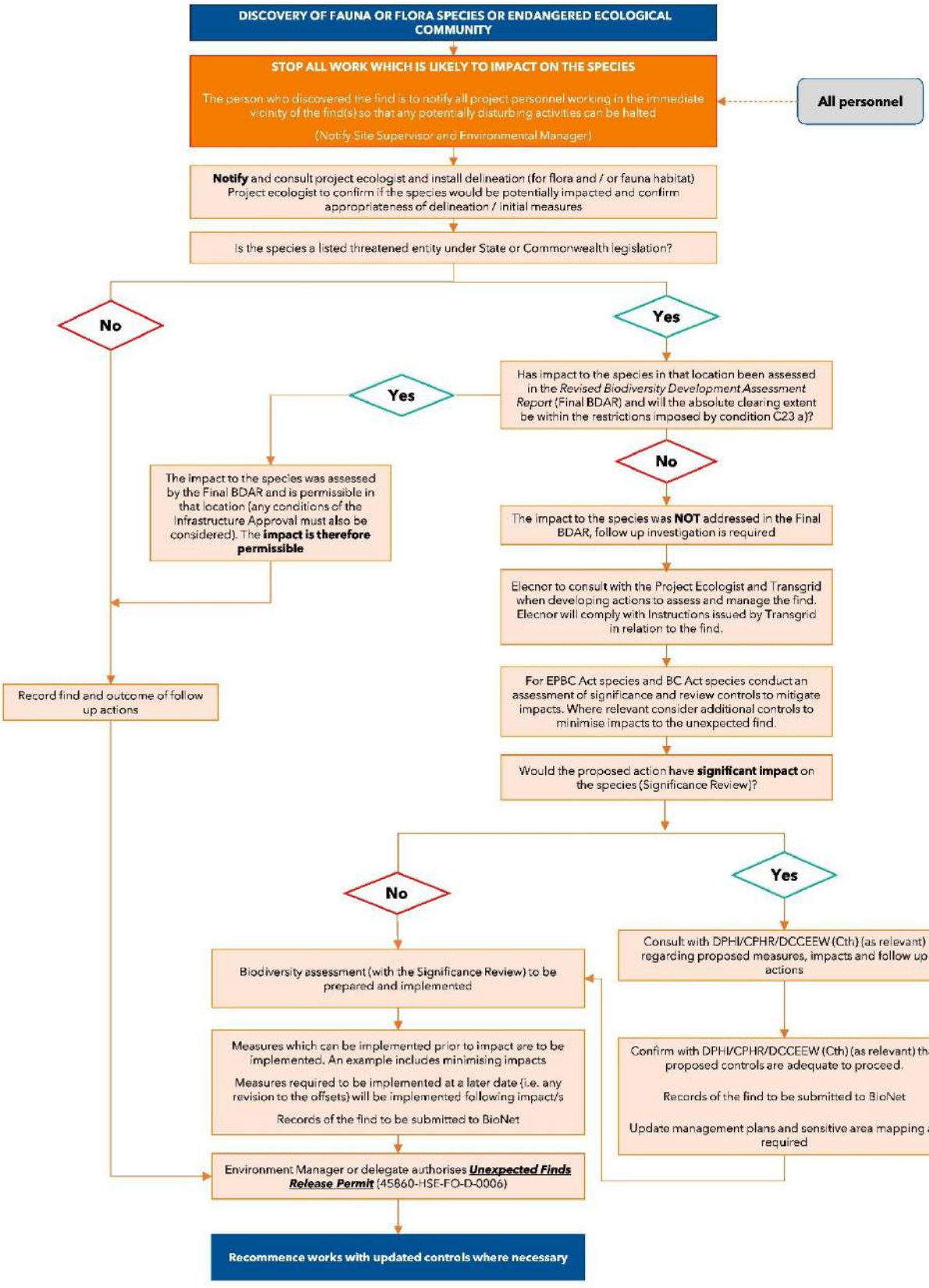
All site personnel (including subcontractors) will undertake an induction which will include details relating to this procedure. Training may also occur through toolbox talks, pre-starts and targeted training as required.

# 3 Scope

This procedure is applicable for the following:

- all activities conducted by site personnel (including sub-contractors) that have the potential to encounter unexpected threatened species finds (usually during pre-clearing inspections and construction);
- where the project does not have approval to impact the threatened species; and
- where mitigation measures for managing the disturbance (apart from this procedure) are not contained in the environmental impact assessment.

**Biodiversity Management Procedure**
**Unexpected Threatened Species Finds Procedure**



# Appendix C – Fauna Handling Procedure

PUBLIC

# Fauna Handling Procedure
# EnergyConnect (NSW – Eastern Section)

45860-HSE-PR-D-0020

| REV | DATE | GENERAL DESCRIPTION | PREPARED | REVIEWED | VERIFIED | APPROVED |
|---|---|---|---|---|---|---|
| A | 26/05/2022 | Issued for internal review | R.Walker-Edwards | M.Lee | A.Boyd | D.Whatmough |
| B | 8/06/2022 | Issued for Transgrid review | R.Walker-Edwards | M.Lee | A.Boyd | D.Whatmough |
| C | 19/10/2022 | Issued for Transgrid review | R.Walker-Edwards | M.Lee | A.Boyd | S.Basanta |
| D | 16/11/2022 | Issued for agency review | K.Baxter | R.Walker-Edwards | A.Boyd | S.Basanta |
| E | 19/05/2025 | Revised to Elecnor template | N.Dwyer | R.Walker-Edwards | G.Crighton | F.Delgado |

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| Revision History | |
|---|---|
| **Rev.** | **Detailed Description** |
| A | Issued for internal review |
| B | Updated following internal review and issued for Transgrid review |
| C | Updated and reissued for Transgrid review |
| D | Issued for agency review |
| E | Revised to Elecnor template |
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# 1 Introduction

This Fauna Handling Procedure is part of the *Biodiversity Management Plan* (BMP) (45860-HSE-PL-D-0111) for EnergyConnect (NSW – Eastern Section) and forms part of the overall environmental management framework for the project.

## 1.1 Purpose

This procedure is applicable to the handling of any fauna encountered during construction if required.

Handling of fauna may be necessary when they are encountered and need to be relocated or if injured, taken to a vet or wildlife carer. Fauna handling should be undertaken either by the project ecologist or a person skilled in handling the species of fauna encountered.

Should any threatened species be identified, the *Unexpected Threatened Species Find Procedure* (45860-HSE-PR-D-0012) would be implemented.

# 2 Induction/Training

All site personnel will undertake a site induction which will include details relating to this procedure. Training may also occur through toolbox talks, pre-starts meetings and targeted training as required.

# 3 Scope

This procedure is applicable for the following:

- all activities conducted by site personnel (including subcontractors) that have the potential to encounter fauna; and
- vegetation clearing and land disturbance.

# 4 General fauna handling requirements

Fauna may be encountered in a variety of situations during delivery of the project.

During staged clearing activities, any fauna handling will be carried out by the project ecologist or a trained fauna handler.

During other construction activities or non-staged clearing (when the project ecologist or fauna handler may not be present on site), fauna may require handling by other project personnel. Wherever possible, the project ecologist or trained fauna handler will be used. Due to the remoteness and large distances between work sites, there may however be times when the project ecologist or fauna handler will not always be present onsite and it is more important to move the fauna from danger or harm. In these circumstances, Elecnor personnel may be required to handle the fauna (i.e. where that movement removes the fauna from danger or harm).

The general fauna handling requirements during construction are as follows:

- any fauna removed from hollows will only be removed in accordance with the *Pre-clearing and Clearing Procedure*. Fauna will be removed by hand. Removal may require cutting the entrance of the hollow with a chainsaw, therefore extreme care is advised. If a chainsaw must be used to increase the entrance size, a suitable plug (for example, several scrunched-up cloth capture bags or towels) must be placed between the animal and the chainsaw wherever feasible. Care must be taken not to injure the animal during the extraction process. Where it is not possible to extract the animal from a hollow, the log can be carefully removed intact and

located outside of the disturbance area so that the fauna can leave of their own accord. Ensure that egress from the hollow is not blocked when placing the log down;

- if nocturnal fauna is required to be kept during the day, they will be kept in either standard pet carrying cages, ventilated cardboard/plastic animal boxes or cloth capture bags. Captured fauna will be kept in accordance with recommendations from the project ecologist;
- if juvenile fauna is displaced and cannot be re-united with its parent(s), it will be taken to an authorised wildlife shelter within the region; and
- in the event that fauna is injured during construction, the animal should be assessed, and first aid rendered by the project ecologist (if available) and subsequently taken to a Veterinarian for further assessment and treatment. Euthanasia may be deemed necessary by the project ecologist and/or fauna handler and carried out according to this procedure. Injured fauna will be kept in shaded conditions with water provided if necessary. Providing external heat (where available) may assist.

If fauna is handled or moved during clearing activities, this will be recorded in clearing reports.

Due to the linear nature of the project, there will be a range of different roads and access tracks in which project personnel or subcontractors may encounter fauna. The likelihood of encountering fauna during dawn and dusk is increased.

If fauna is struck by a project-related vehicle this is recorded by the Environment team in the *Fauna Strike Register* (45860-HSE-REG-D-0001) or within the fauna strike records retained within Hammertech.

For any livestock interactions, refer to the Livestock and Construction Conflict Management Procedure.

# 5 Specific handling requirements

The general approach for handling fauna is provided within the sections below. There may be times when changes to the approach is required due to recommendations from the ecologist / fauna handler or, for example, different available resources.

## 5.1 Birds

General rescue approach for birds:

- where possible and safe to do so, gain access to nests. Capture and remove any nestlings;
- place nestlings in cotton capture bags and assess for injuries. Store bags containing nestlings in a pet carrying cage or ventilated cardboard box. The animal container will be covered to reduce stress on the bird. Deliver to specialist wildlife carer; and
- if adult birds are captured, they will be released away from construction activities.

## 5.2 Ground dwelling mammals: Echidna

General rescue approach for echidnas:

- if an echidna is within the construction zone, activities in the area which may impact the macropod may need to cease;
- echidnas should be calmly encouraged or left to leave the work area;
- if echidnas are found during habitat removal, they will need to be captured and relocated;
- dig echidna out by hand or carefully by shovel to the side of the echidna. The aim is to get a hand(s) beneath the echidna and to lift the echidna from the soil; and

- place in a container, such as a ventilated plastic box or garbage bin. Captive echidnas will be kept in a cool, well ventilated location, out of direct sun. Uninjured echidnas will be translocated and released as soon as possible.

### 5.3 Ground dwelling mammals: Native rodents

General rescue approach for native rodents:

- capture rodents using a hand net; and
- once captured, rodents will be placed into a cloth capture bag, assessed and if not injured, retained until dusk and then released into appropriate habitat.

### 5.4 Ground dwelling mammals: Kangaroos, wombats and wallabies

General rescue approach for kangaroos, wallabies and wombats:

- if a macropod is within the construction zone, activities in the area which may impact the macropod may need to cease;
- macropods should be calmly encouraged of left to leave the work area; and
- in the event that a juvenile macropod is displaced (thrown from a pouch) and cannot be re-united with its parent, orphaned macropods will be taken to a vet or wildlife carer.

### 5.5 Reptiles: Snakes, lizards, turtles

General rescue approach for reptiles:

- reptiles will be captured by the project ecologist (when they are available) or with a person who is licensed under the *Biodiversity Conservation Act 2016* to catch and release reptiles;
- snakes will only be captured and relocated if they present a potential threat to construction personnel or are likely to be harmed by the works. In most cases, snakes will attempt to move away from a disturbed area; and
- lizards will be released as soon as possible after capture into suitable habitat outside of the construction zone.

### 5.6 Amphibians: Frogs

General rescue approach for frogs:

- the capture and relocation of frogs require specific attention to minimise disease transmission. The following hygiene protocol applies:
  - capture, handling and housing of wild frogs will be minimised or avoided where possible;
  - single-use latex, nitrile or vinyl gloves or single-use plastic bags will be used when handling/capturing frogs (where available);
  - hand washing with 70% ethanol (allowing hands to dry) between handling individual frogs is acceptable if no gloves are available (note, repeated use on human skin is not recommended). Alcohol is toxic to frogs so hands must be washed thoroughly in water after treatment with alcohol;
  - each frog is to be housed in plastic containers or zip lock bags (with air holes punched into the bag prior to frog capture). Frogs are to be kept in a cool, quiet location and released into suitable habitat at the earliest opportunity.

## 5.7 Arboreal mammals: Possums

General rescue approach for arboreal mammals:

- if possums are found during vegetation clearing, the project ecologist / fauna handler will determine if capture and relocation is warranted;
- possums will be captured either by hand or net and placed into a suitable cage;
- captured possums will be released at a location deemed suitable by the project ecologist; and
- in the event that juvenile possums/gliders are displaced and cannot be re-united their mother, they will be managed in accordance with the recommendations of the project ecologist or fauna handler. As required the juvenile will be taken to a vet or wildlife carer.

## 5.8 Other mammals: Microbats

General rescue approach for microbats:

- there is potential for microbats to carry the Australian Bat Lyssavirus (a rabies like virus), a disease potentially fatal to humans. To reduce the risk of infection, only experienced and vaccinated personnel be authorised to handle microbats;
- microbats will be captured by hand using protective gloves;
- as soon as possible, captured microbats will be placed into a cloth bag hung vertically in a quiet, cool, dark place until released;
- all captured microbats will be relocated into adjacent suitable habitat; and
- in the event that a juvenile microbat is displaced and cannot be re-united with its parent, orphaned microbats will be managed in accordance with the recommendations of the project ecologist or fauna handler. As required the juvenile will be taken to a vet or wildlife carer.

# 6 Euthanasia

## 6.1 When to euthanise

In some cases, rehabilitation and/or relocation of fauna will not be possible. In keeping with the NSW *Code of Practice for Injured, Sick and Orphaned Protected Fauna* (Office of Environment and Heritage, 2011), fauna must be euthanised without exception when:

- death is imminent or highly likely regardless of the treatment provided;
- the animal is suffering from chronic, un-relievable pain or distress;
- the animal is carrying (or suspected to be carrying) an incurable disease that may pose a health risk to wild animals; or
- its ability to consume food unaided is permanently impaired due to a missing of injured jaw, teeth or beak.

Fauna must be euthanised when one or more of the following circumstances apply:

- there is no suitable release location;
- its ability to reproduce is lost due to an injury, disease or procedure;
- its ability to locomote normally (i.e. run, climb, crawl, hop, fly or swim) is permanently impaired due to a missing or injured limb, wing, foot, back bone or tail;
- its ability to sense its environment (i.e. see, hear, smell, taste or feel) is permanently impaired due to a missing or injured organ (e.g. eye, ear or nose);
- its ability to catch or handle food is permanently impaired due to a missing or injured digits (e.g. missing rear toe in raptors);
- its advanced age renders it unable to survive in its natural habitat; and/or
- it is an amphibian (due to the risk of spreading chytrid fungus).

## 6.2 How to euthanise

A method appropriate for the species and circumstances should be utilised to ensure minimal pain and suffering. These methods could include:

- stunning followed by decapitation and/or destruction of the brain for reptiles and amphibians;
- stunning followed by cervical dislocation for small birds and mammals (less than 0.5 kg).

Any euthanasia methods utilised will be in accordance with those identified in the NSW *Code of Practice for Injured, Sick and Orphaned Protected Fauna* (Office of Environment and Heritage, 2011).

Fauna that requires euthanasia should not be exposed to additional stressors such as large numbers of onlookers, people touching it, loud noises or extreme temperatures.

Death must be confirmed prior to disposal of the carcass. The absence of a heart beat and the loss of corneal reflexes indicate death has occurred.

The decision to euthanise an animal can only be made by the project ecologist and/or fauna handler.

# 7 Contact details

The contact details for available vets and WIRES are provided within Table 7.1.

**Table 7.1 - Contact details**

| Role | Organisation | Location | State | Contact details |
|---|---|---|---|---|
| Project Ecologist | NGH and SMEC | Wagga Wagga (NGH)<br>North Sydney (SMEC) | NSW | The contact details for the Project Ecologist will be retained by the project staff and available to personnel upon request. |
| Wildlife Carers | WIRES | National service utilising local volunteers | NSW | 1300 094 734 |
| Veterinary Clinic | Riverbend Veterinary Service | 148 Sturt Highway, Buronga | NSW | (03) 5022 0399 |
| Veterinary Clinic | Mildura Veterinary Hospital | 370 Deakin Ave, Mildura | VIC | (03) 5023 3838 |
| Veterinary Clinic | Finley Veterinary Clinic | 21 Pintuck Street, Finley NSW 2713 | NSW | (03) 5890 8444 |
| Veterinary Clinic | Hay Veterinary Clinic | 379 Murray St, Hay 2711 | NSW | (02) 6993 1861 |
| Veterinary Clinic | Leeton Veterinary Clinic | 41 Yantuck Avenue, Leeton NSW 2705 | NSW | (03) 5890 8444 |
| Veterinary Clinic | Wagga Wagga Veterinary Clinic | 132 Urana St, Turvey Park NSW | NSW | (02) 6926 0900 |

# Appendix D – Biosecurity Management Plan

**PUBLIC**

# Biosecurity Management Plan
# EnergyConnect (NSW - Eastern Section)

45860-HSE-PL-D-0127

| REV | DATE | GENERAL DESCRIPTION | PREPARED | REVIEWED | VERIFIED | APPROVED |
|---|---|---|---|---|---|---|
| 0 | 20/10/2022 | Issued for ER endorsement | K.Baxter | A.Kriegel | A.Boyd | S.Basanta |
| 1 | 10/2/2023 | Address revision numbering | R. Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| 2 | 20/05/2025 | Revised to Elecnor template | N.Dwyer | R. Walker-Edwards | G.Crighton | F.Delgado |

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| Revision History | |
|---|---|
| **Rev.** | **Detailed Description** |
| A | Issued for internal review |
| B | Issued for Transgrid review |
| C | Issued for agency consultation |
| 0 | Issued for ER endorsement |
| 1 | Addressing revision numbering |
| 2 | Revised to Elecnor template |
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## Abbreviations

| Acronym | Definition |
|---|---|
| Amendment Report | *Amendment Report EnergyConnect (NSW – Eastern Section)* |
| BC Act | *Biodiversity Conservation Act 2016* |
| Biosecurity duty | Biosecurity duty is defined in Part 4, Division 3, Section 30 of the *Biosecurity Act 2015* (NSW) as:<br>(1) A person who becomes aware of, or suspects, that a prohibited matter event has occurred, is occurring or is about to occur has a biosecurity duty to immediately notify the prohibited matter event in accordance with the requirements specified in the regulations.<br>(2) A biosecurity duty arises under this Division only if the person–<br>(a) is the owner, occupier or person in charge of, or has the care, custody or control of, premises, a carrier or other thing in relation to which the prohibited matter is present or suspected of being present, or<br>(b) becomes aware of, or suspects, the occurrence of the prohibited matter event as a result of any consultation or other work carried out in relation to premises, a carrier or other thing in the person's professional capacity, or<br>(c) is a person of a class prescribed by the regulations. |
| Biosecurity matter | Biosecurity matter is defined in Section 10 of the *Biosecurity Act 2015* (NSW) as:<br>a) any living thing, other than human, or<br>b) any part of an animal, plant or living thing, other than a human, or<br>c) a product of a living thing, other than a human, or<br>d) a disease, or<br>e) a prion, or<br>f) a contaminant, or<br>g) a disease agent that can cause disease in a living thing (other than a human) or that can cause disease in a human via transmission from a non-human host to a human, or<br>h) anything declared by the regulations to be biosecurity matter. |
| CEMP | Construction Environmental Management Plan |
| DECCW | Department of Environment, Climate Change and Water (now Department of Environment, Energy and Science) |
| DPE | Department of Planning and Environment, now known as NSW Department of Planning, Housing and Infrastructure |
| DPHI or Department | NSW Department of Planning, Housing and Infrastructure |
| DPIE | Department of Planning, Industry and Environment, now known as Department of Planning, Housing and Infrastructure |
| DPI | Department of Primary Industries |
| EIS | *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* |
| Final BDAR | *Revised Biodiversity Development Assessment Report* (August 2022) |
| IMS | Integrated Management System |
| KTP | Key Threatening Process |
| LGA | Local Government Area |
| LLS | Local Land Services |
| NSW | New South Wales |
| OEH | Office of Environment and Heritage (now Department of Environment, Energy and Science) |

| Acronym | Definition |
|---|---|
| OJD | Ovine Johne's Disease |
| Prohibited Matter Event | As per Section 31 of the *Biosecurity Act 2015 (NSW):*<br>A prohibited matter event means -<br>(a) the presence of biosecurity matter in a part of the State in which it is prohibited matter, or<br>(b) the introduction of biosecurity matter into a part of the State in which it is prohibited matter. |
| project, the | EnergyConnect (NSW – Eastern Section) |
| RMM | Revised mitigation measure |
| Submissions Report | *Submissions Report EnergyConnect (NSW – Eastern Section)* |
| WMS | Work Method Statement |
| WoNS | Weeds of National Significance |

# 1 Introduction

## 1.1 Context

This Biosecurity Management Plan (or plan) is an Appendix to the Biodiversity Management Plan which forms part of the Construction Environmental Management Plan (CEMP) for EnergyConnect (NSW - Eastern Section).

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect* (NSW – Eastern Section) (EIS), the *Submissions Report EnergyConnect* (NSW – Eastern Section) (Submissions Report) and the *Amendment Report EnergyConnect* (NSW – Eastern Section) (Amendment Report).

## 1.2 Purpose and objective

The key objective of the Biosecurity Management Plan (this plan) is to describe the management measures that will be implemented to ensure that biosecurity impacts are minimised and in accordance with the requirements of:

- the *Biosecurity Act 2015* (NSW); and
- the Infrastructure Approval, EIS, Amendment Report and *Revised Biodiversity Development Assessment Report* (August 2022) (Final BDAR).

To achieve this the plan describes:

- the existing and potential weeds, pest animals and animal diseases identified within the study area during the preparation of the Final BDAR;
- the implementation of appropriate processes to manage the spread of weeds, pests and diseases; and
- how the implementation of practical measures will be undertaken during construction to avoid the introduction of new weeds and to minimise the spread of existing weeds.

# 2 Environmental requirements

## 2.1 Conditions of Approval

The conditions of the Infrastructure Approval relevant to biosecurity management are detailed in Table 2.1 in bold, italicised text.

**Table 2.1 - Conditions relevant to biosecurity management**

| Condition | Requirement | Where addressed |
|---|---|---|
| C26 | The Biodiversity EMP Sub-Plan required under condition B2 must be prepared in accordance with the *Revised Biodiversity Development Assessment Report* (dated 19 August 2022) and include:<br>a) a description of the measures that would be implemented for:<br>(i) meeting the biodiversity mitigation requirements in condition C23;<br>(ii) minimising the amount of native vegetation clearing within the development area;<br>(iii) minimising the loss of key fauna habitat, including tree hollows;<br>(iv) minimising the impacts on fauna on site, including undertaking pre-clearance surveys;<br>(v) minimising the potential indirect impacts on threatened flora and fauna species, migratory species and 'at risk' species;<br>(vi) rehabilitating and restoring disturbance areas to its pre-existing condition;<br>(vii) avoiding and minimising impacts on Serious and Irreversible Impact (SAII);<br>(viii) construction clearing and operation vegetation management protocols;<br>(ix) monitoring of the areas of partial clearance within three months of the commencement of construction and provision of a verification report to confirm if any changes are required to the construction vegetation clearing protocols;<br>(x) protecting native vegetation and key fauna habitat outside the approved disturbance area;<br>(xi) maximising the salvage of resources within the approved disturbance area – including vegetative and soil resources – for beneficial reuse (such as fauna habitat enhancement) during the rehabilitation and restoration of the site;<br>(xii) a Connectivity Strategy and a Supplementary Hollow and Nest Strategy;<br>(xiii) ***controlling weeds;***<br>(xiv) controlling erosion; and<br>(xv) bushfire management;<br>b) a detailed program to monitor and report on the effectiveness of these measures. | This plan |

## 2.2 Revised mitigation measures

The revised mitigation measures (RMMs) are defined in Appendix C of the Amendment Report. The RMMs relevant to biosecurity for the project are presented in Table 2.2 and are emphasised in bold, italicised text where relevant. The management measures that will be implemented for the project are provided in Section 4 and Section 5 of this plan.

**Table 2.2 - Revised mitigation measures relevant to biosecurity management**

| Reference | Revised mitigation measures | Where addressed |
|---|---|---|
| LP2 | Transmission line towers (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:<br>• cropping and irrigated horticultural land<br>• areas used for set up and pack up of agricultural equipment, entry points and turning areas<br>• drainage catchments for farm dams<br>• locations of high biosecurity risk. | Section 5<br>Table 5.1 |
| 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 be limited to):<br>• inspections and cleaning of vehicles, machinery, and personal equipment prior to movement on and off the construction work areas or between properties<br>• minimising movements across adjoining farmland including trip numbers and locations<br>• additional measures where localised areas of high biosecurity risks have been identified.<br>The specific controls applicable to a property will be identified in consultation with the affected landholder. The effectiveness of these controls will be monitored in a manner and time interval consistent with the level of risk on each property. | Section 5<br>Table 5.1 |
| LP8 | Where present in locations that would be accessed for construction activities, weeds will be managed in consultation with the relevant landholder. Consultation would also occur with the relevant authority (Local Land Services, the relevant local council, or NSW DPI) in relation to notifiable weeds. | Section 5<br>Table 5.1 |
| LP9 | In the event of new infestations of notifiable weeds as a result of construction activities, the relevant control authority will be notified as per *Biosecurity Act 2015* and *Biosecurity Regulation 2017*. | Section 5.5<br>Table 5.1 |

## 2.3 Guidelines

The guidelines within Table 2.3 were considered in the development and implementation of this plan.

**Table 2.3 - Relevant guidelines**

| Guideline / Strategy | Application |
|---|---|
| National Weeds Strategy 2017-2027 | The Strategy identifies introduced plants as Weeds of National Significance (WoNS). These weeds are regarded as a current priority and future weed threat to Australia because of their invasiveness, potential for spread, and economic and environmental impacts. Three WoNS were identified in the project area.<br>Three priority weeds and weeds of national significance are likely to be located within the vicinity of the project study area. |
| NSW Invasive Species Plan 2018-2021 (DPI, 2018a). | The plan adopts four goals for managing invasive species (including weeds):<br>1. Exclude – prevent the establishment of new invasive species.<br>2. Eradicate or contain – eliminate or prevent the spread of new invasive species.<br>3. Effectively manage – reduce the impacts of widespread invasive species.<br>4. Capacity building – ensure NSW has the ability and commitment to manage invasive species.<br>This plan will aim to align with the relevant first three main goals of preventing the establishment of new invasive species and containing invasive species in areas directly impacted by construction as outlined in Sections 4 and 5 of this plan. |

| Guideline / Strategy | Application |
|---|---|
| Western Local Land Services Region Priority Weed Identification Guide (May 2020) | The guide has been developed as an easy to use resource to assist land managers and members of the general community to identify high priority weeds.<br>It is not intended to provide detailed information on each species and their control.<br>Notification details are also provided within the guide for the identified priority weeds. |

# 3 Existing environment

The following section summarises existing known weed, pest animal and pathogen species within and adjacent to the project based on the information contained in Technical Paper 4 (Agricultural land impact assessment) of the EIS, and the Revised BDAR.

## 3.1 Weeds

The project has the potential to effectively manage biosecurity risks due to its separation from major populations and intensive agricultural industries, and as its semi-arid climate, which is challenging for exotic animals and plants to survive. The EIS found that the project area has relatively few examples of widespread introduced species of weeds in the areas surveyed for the biodiversity assessment.

Three exotic flora species recorded within the project study area are listed under the *NSW Biosecurity Act 2015* (BA Act) as priority weeds for the Western region and/or Riverina region (Department of Primary Industries, 2021). These three species are also listed as Weeds of National Significance (WONS) (Australian Weeds Committee, 2021).

There are several species of weeds identified in the Revised BDAR that are likely to be located in the vicinity of the project study area including:

- two priority weeds and weeds of national significance recorded within the Western Local Land services region (*Lycium ferocissimum (*African boxthorn), *Opuntia* species including *Opuntia elata* and *Opuntia robusta* (Wheel Cactus));
- one priority weed and weed of national significance recorded within the Riverina Local Land services region (*Lycium ferocissimum* (African boxthorn)); and
- 18 high threat weeds recorded within the project study area during field surveys.

### 3.1.1 Weeds under the *Biosecurity Act 2015*

The EIS Technical Paper 4 (Agricultural land impact assessment) reported weeds recorded by authorised officers during property inspections under the *Biosecurity Act 2015* (DPI, 2020b). These weeds as well as where they were recorded are outlined below. Images of these recorded weeds are provided in Appendix B of this plan.

**Table 3.1 - Weeds under the *Biosecurity Act 2015***

| Species | |
|---|---|
| **Between Buronga and Balranald** | |
| Horehound | *Marrubium vulgare* |
| Burr ragweed | *Ambrosia confertiflora* |
| Prickly pears | *Opuntia and Cylindropuntia species* |
| Prairie ground cherry | *Physalis hederifolia* |
| Khaki weed | *Alternanthera pungens* |
| Blue heliotrope | *Heliotropium amplexicaule* |
| Noogoora burr | *Xanthium occidentale* |
| Arundinaria (reed) species | - |
| Cabomba | *Cabomba caroliniana* |
| Silverleaf nightshade | *Solanum elaeagnifolium* |
| Coolatai grass | *Hyparrhenia hirta* |

| Species | |
|---|---|
| **Between Buronga and Balranald** | |
| Horehound | *Marrubium vulgare* |
| Burr ragweed | *Ambrosia confertiflora* |
| Prickly pears | *Opuntia and Cylindropuntia species* |
| Prairie ground cherry | *Physalis hederifolia* |
| Khaki weed | *Alternanthera pungens* |
| Blue heliotrope | *Heliotropium amplexicaule* |
| Paterson's curse | *Echium plantagineum* |
| Star thistle | *Centaurea calcitrapa* |
| Blackberry | *Rubus fruticosus* |
| Giant Parramatta grass | *Sporobolus fertilis* |
| African boxthorn | *Lycium ferocissimum* |
| **Between Balranald and Urana** | |
| Horehound | *Marrubium vulgare* |
| Paterson's curse | *Echium plantagineum* |
| Spiny Burrgrass | *Cenchrus spinifex and Cenchrus longispinus* |
| Galvanised burr | *Sclerolaena birchii* |
| Bathurst burr | *Xanthium spinosum* |
| St. John's wort | *Hypericum perforatum* |
| Asparagus fern | *Asparagus virgatus* |
| Mesquite | *Prosopis species* |
| Willows | *Salix species* |
| Sagittaria | *Sagittaria platyphylla* |
| African boxthorn | *Lycium ferocissimum* |
| Silverleaf nightshade | *Solanum elaeagnifolium* |
| Khaki weed | *Alternanthera pungens* |
| **Between Urana and Wagga Wagga** | |
| Horehound | *Marrubium vulgare* |
| Blackberry | *Rubus fruticosus* |
| Prickly pears | *Opuntia and Cylindropuntia species* |
| Silverleaf nightshade | *Solanum elaeagnifolium* |
| Coolatai grass | *Hyparrhenia hirta* |
| African boxthorn | *Lycium ferocissimum* |
| Bathurst burr | *Xanthium spinosum* |
| St. John's wort | *Hypericum perforatum* |
| Willows | *Salix species* |
| Lippia | *Phyla canescens* |
| Privet | *Ligustrum lucidum* |
| Asparagus weeds | *Asparagus species* |

| Species | |
|---|---|
| **Between Buronga and Balranald** | |
| Horehound | *Marrubium vulgare* |
| Burr ragweed | *Ambrosia confertiflora* |
| Prickly pears | *Opuntia and Cylindropuntia species* |
| Prairie ground cherry | *Physalis hederifolia* |
| Khaki weed | *Alternanthera pungens* |
| Blue heliotrope | *Heliotropium amplexicaule* |
| Athel pine | *Tamarix aphylla* |
| Cape broom | *Genista monspessulana* |
| Sweet briar | *Rosa rubiginosa* |
| St. Barnaby's thistle | *Centaurea solstitialis* |
| Wild radish | *Raphanus raphanistrum* |
| Tree-of heaven | *Ailanthus altissima* |
| Green cestrum | *Cestrum parqui* |
| African olive | *Olea europaea subspecies cuspidate* |
| Black locust | *Robinia pseudoacacia* |

### 3.1.2 Regional priority weeds

The respective regional strategic weed management plans (Murray LLS 2017, Riverina LLS 2017 and Western LLS 2017) identifies regional priority weeds, some of which are, or may be, present in the vicinity of the agricultural study area (DPI 2021a, DPI 2021b), as follows:

- African boxthorn (*Lycium ferocissimum*);
- Boxing glove/coral cactus (*Cylindropuntia fulgida*);
- Bridal creeper (*Asparagus asparagoides*);
- Burr ragweed (*Ambrosia confertiflora*);
- Cabomba (*Cabomba caroliniana*);
- Cane needlegrass (*Nassella hyaline*);
- Cape broom (*Genista monspessulana*);
- Clockweed (*Oenothera curtiflora*);
- Coolatai grass (*Hyparrhenia hirta*);
- Fireweed (*Senecio madagascariensis*);
- Giant reed (*Arundo donax*);
- Gorse (*Ulex europaeus*);
- Green cestrum (*estrum parqui*);
- Hardhead thistle (*Rhaponticum repens*);
- Honey locust (*Gleditsia triacanthos*);
- Mesquite (*Prosopis* species);
- Mother of millions (*Bryophyllum spp.*);
- Perennial ground cherry (*Physalis longifolia*);
- Prairie ground cherry (*Physalis hederifolia*);
- Prickly pears (*Opuntia* and *Cylindropuntia* species);
- Rope pear (*Cylindropuntia imbricata*);
- Sagittaria (*Sagittaria platyphylla*);
- Scotch broom (*Cytisus scoparius*);
- Silverleaf nightshade (*Solanum elaeagnifolium*);
- Spiny burr grass (*Cenchrus spp.*);
- Water hyacinth (*Eichhornia crassipes*); and
- Willow rhus (*Searsia lancea*).

### 3.1.3 State priority weeds

As outlined in EIS Technical Paper 4 (Agricultural land impact assessment), the only State priority weed which may be present in the part of the agricultural study area which is in the Western LLS is Bitou bush (*Chrysanthemoides monilifera* ssp. *rotundata*). However, state priority weeds which may occur in the Riverina or Murray LLS regions include:

- Boneseed (*Chrysanthemoides monilifera ssp. monilifera*);
- Tropical soda apple (*Solanum viarum*);
- Water hyacinth (*Eichhornia crassipes*);
- African boxthorn (*Lycium ferocissimum*);
- Asparagus weeds (*Asparagus* species);
- Athel pine (*Tamarix aphylla*);
- Blackberry (*Rubus fruticosus*);
- Cabomba (*Cabomba caroliniana*);
- Hymenachne (*Hymenachne amplexicaulus*);
- Lantana (*Lantana camara*);
- Prickly pears (*Opuntia* and *Cylindropuntia* species);
- Cane cactus (*Austrocylindropuntia cylindrica*);
- Silverleaf nightshade (*Solanum elaeagnifolium*); and
- Willows (*Salix* species).

### 3.1.4 Other weeds identified in the EIS

Other important weeds in the Western, Murray and Riverina LLS regions are listed in the respective regional strategic weed management plans. The description of these weeds vary between LLS but they are described in Murray LLS (2017) as species that are widespread in parts of the region and are of high community concern or priority to manage because of their extent and impact. These weeds are a direct threat to agricultural production and the environment and control should be undertaken to contain locally.

In addition to priority weeds and Weeds of National Significance, the following environmental weeds were also recorded:

- *Asphodelus fistulosus* (Onion weed);
- *Carthamus lanatus* (Saffron thistle);
- *Centaurea solstitialis* (St. Barnaby's thistle);
- *Cirsium vulgare* (Spear thistle);
- *Echium plantagineum* (Paterson's curse);
- *Eragrostis curvula* (African lovegrass);
- *Heliotropium amplexicaule* (Blue heliotrope);
- *Hypericum perforatum* (St. John's wort);
- *Marrubium vulgare* (Horehound);
- *Onopordum acaulon* (Stemless Thistle);
- *Xanthium occidentale* (Noogoora Burr); and
- *Xanthium spinosum* (Bathurst Burr).

Other regional weeds are listed in Appendix A.

Other weeds in the vicinity of the agricultural study area include khaki weed (*Alternanthera pungens*), Noogoora burr (*Xanthium occidentale*) and Bathurst burr (*Xanthium* spp.). Khaki weed

(*Alternanthera pungens*) is often found in irrigation and high traffic areas such as roadways. The burrs can also be a significant problem in irrigation fields and are an important wool contaminant.

Khaki weed (*Alternanthera pungens*), devil's claw (*Ibicella lutea*), spiny burr grass (*Cenchrus* spp.), African boxthorn (*Lycium ferocissimum*), galvanised burr (*Sclerolaena birchii*), Paterson's curse (*Echium plantagineum*), green cestrum (*Cestrum parqui*), St John's wort (*Hypericum perforatum*), caltrops (*Tribulus terrestris*), herbicide resistant ryegrass (*Lolium rigidum*), needle grasses and horehound (*Marrubium vulgare*) were mentioned by landowners and/or weeds officers during consultation as problematic weeds present in the district with the potential to become more widespread.

## 3.2 Pest animal species

The EIS Technical Paper 4 notes that foxes, feral pigs, wild rabbits and kangaroos are the most important vertebrate pests to agriculture across the Western, Murray and Riverina LLS regions. Unmanaged rangeland goats are relatively important in the Western LLS region, but less common and important elsewhere.

The EIS also notes that other vertebrate pests such as wild dogs and deer are present, but generally not in sufficient numbers to cause significant damage. Several other pest animals (feral camels, feral donkeys and wild horses) are considered to be emerging issues in agriculture, but none are presently found in close proximity to the agricultural study area (Murray LLS 2018, Riverina LLS 2018 and Western LLS 2018).

Finally, the EIS notes that plague locusts and mice can also cause problems in favourable seasons. Some species (such as goats and pigs) pose significant biosecurity, economic and social threats to the Western region as they can harbour and transmit both endemic and exotic diseases.

## 3.3 Potential animal diseases

The occurrence of sheep footrot in the vicinity of the agricultural study area has been low in recent years. According to EIS Technical Paper 4, the total number of flocks across the Murray and Riverina LLS regions was 4,831. Therefore, the infection rate was around 0.3 per cent.

Footrot is a contagious bacterial disease of sheep and goats, caused by the organism *Dichelobacter nodosus (D. nodosus)* in association with several other bacteria. The bacterium *D. nodosus* may persist for many years in the feet of infected sheep and may pass from infected sheep into the soil. Footrot is introduced into a clean flock by the inclusion of infected sheep in the flock, or by exposure to contaminated land under favourable conditions.

Little recent data is available on the prevalence of Ovine Johne's Disease (OJD) in NSW - an incurable infectious disease caused by the bacterium *Mycobacterium paratuberculosis*. However, the western part of the agricultural study area was in a 'low prevalence area' in 2011 with an estimated infected flock proportion of less than 0.8 per cent (DPI 2011). The agricultural study area from the Urana area to the Wagga Wagga substation was in a high prevalence area with more than 12.5 per cent of flocks estimated to be infected. The EIS notes that no known OJD infections were reported during landowner consultations.

The landowners consulted confirmed that OJD has not been a significant problem as it has been well managed in the past. There have been problems with footrot in recent years, but these cases are relatively rare. Although the prevalence of the major livestock diseases has been low in the past, stock movements associated with the recent drought and subsequent restocking may increase their incidence.

## 3.4 Biosecurity zones

The part of the agricultural study area from Buronga to approximately 40 kilometres east of Euston is adjacent to the Greater Sunraysia Pest Free Area. This is aimed at preventing the entry of the Queensland fruit fly by banning certain fruit and vegetables from entering the area.

Additionally, of relevance to the proposal, the following biosecurity zones have been established under the *Biosecurity Regulation 2017*:

- all of the agricultural study area is within the Grapevine Phylloxera Exclusion Zone - bans taking grapevines, cuttings or budwood into this zone;
- the Rice Biosecurity Zone also covers the agricultural study area from approximately Euston to near Lake Cullivel (comprising the Balranald, Edward River, Federation Hay, Murray River and Murrumbidgee LGAs), a distance of around 375 kilometres of the project alignment – prohibits the importation of rice plants, products and certain machinery/coverings or goods; and,
- the entire state of NSW is a Potato Biosecurity Zone – bans the movement of plants belonging to the *Solanaceae* family and associated matter into this zone.

# 4 Biosecurity risks and impacts

There are risks that animal diseases, plant diseases, feral pests and (especially) weeds could be introduced or spread during the construction of the proposal through vegetation clearing, ground disturbance and vehicle, machinery or construction personnel movements. Soil borne biosecurity hazards could also be spread by soil erosion and water runoff associated with construction works.

These risks are identified within the Environmental Aspect and Impact Register within Appendix A3 of the CEMP.

## 4.1 Risk of weed spread

The risk of weed spread is generally highest during the earthworks phase of construction, due to the high frequency of vehicle movements and disturbance of ground cover and soil, which could lead to weed growth. Some species of weeds are readily spread by vehicles, machinery and human activity, including spiny burrgrass, khaki weed, Noogoora burr and Bathurst burr.

Biosecurity incidents (as defined in Section 5) have the potential to impact surrounding agricultural enterprises due to the costs of monitoring pests, weeds or diseases and implementing control measures as well as the reduced income caused by loss of livestock, crop or pasture production and lower produce quality.

To minimise the risk of biosecurity incidents occurring due to construction, mitigation measures would be implemented to avoid the spread of weeds. In addition, the study area lies within the biosecurity zones for bitou bush and water hyacinth (as per the *Biosecurity Regulation 2017*), which means that the local control authority would need to be notified of a new infestation of the weeds as well as action undertaken by the contractor to destroy or suppress the weeds.

## 4.2 Risk of livestock disease / pathogens

There is the potential for livestock diseases to be spread during construction of the proposal including:

- ovine footrot, which is an important risk despite its low current prevalence due to the relative ease of its spread and economic consequences due to impacts to stock health, productivity and value, as well as disease control costs;
- Ovine Johne's Disease (OJD), which can result in significant economic losses due to sheep deaths, lost meat production, fewer lambs and less wool; and
- sheep lice, which can cause significant losses in sheep enterprises due to treatment costs, reduced wool growth and lower meat production.

Under the *Biosecurity Act 2015* Schedule 1, ovine footrot and OJD are notifiable diseases.

However, considering the low density livestock and low prevalence of disease in the area, the overall risk of spreading these livestock diseases during construction is low.

## 4.3 Risk of other pests

The most significant pest animals in the vicinity of the proposal study area are pigs, foxes and rabbits, which may result in economic impacts on livestock and crop enterprises due to lamb predation, fence damage or consumption of pasture and crops. However, construction activities are unlikely to significantly change the number or movement patterns of these pests.

# 5 Weed pest and pathogen management

The management of weeds is based on managing the risk of introducing new weeds to any project work areas during the construction phase due to project activities.

Safeguards and management measures will be implemented to avoid, minimise or manage impacts from the introduction and spread of weeds. These are summarised in Table 5.1.

## 5.1 Training and awareness

Construction personnel and subcontractors will be inducted in the importance of preventing weeds from entering the project and the measures which must be taken for vehicles, machinery and plant used on the project.

## 5.2 Management of weeds, pests and or pathogens

Washdown bays will be established at designated points along the project and at compounds. Washdown bays will contain apparatus to clean vehicles, plant, equipment and footwear. The location of washdown bays will be dependent on the biosecurity risks identified in that location and confirmed with the affected landholder in the Property Management Plans referred to in Section 5.3 below. Water from washdown bays will drain to a contained sump/low point and materials (sediments) from washdown bays will be contained and disposed of in accordance with the *Waste Management Plan* (45860-HSE-PL-D-0121).

## 5.3 Property Management Plans

All properties affected by the project area will have a Property Management Plan and where relevant will contain specific 'on-farm' biosecurity requirements.

Appropriate demarcation or signage (similar to below) will be installed in areas identified as having biosecurity risks or requirements as outlined in the in the Property Management plans. Figure 5.1 shows a sample Farm Biosecurity signage that is installed by property owners to indicate that a property has biosecurity requirements and/or an existing Biosecurity Management Plan. Please note that not all property owners may have this sign installed.




**Figure 5.1 - Example signage advising that farm biosecurity measures exist**

## 5.4 Incident notification

A biosecurity incident on the project means the detection of a terrestrial contaminant or terrestrial species on freight, people, plant, or equipment on the project which was not previously identified in the EIS. This would include a situation where there are weed species which were not previously identified in the EIS and are suspected to be spread to new locations as a result of project activities. This would exclude weeds which might be detected on properties or previously known locations (adjacent to or in the study area), that are distant from project activities. In the event of a biosecurity incident which has occurred as a result of construction activities, the process outlined in Section 8.2 of the CEMP will be implemented. Incident management and response will be undertaken in accordance with the incident reporting procedures detailed within the Construction Environmental Management Plan.

There are several instances that require notification in accordance with the *Biosecurity Act 2015* and *Biosecurity Regulation 2017*. These include the requirement to notify a biosecurity event and the requirement to notify a certain pest or disease.

Notification requirements with respect to biosecurity matters are detailed below.

### 5.4.1 Notifiable biosecurity events and prohibited matter events

In accordance with Section 39 of the *Biosecurity Act 2015* (Act), a biosecurity event is something that has, is having, or could have, a significant biosecurity impact.

In terms of the Act, a biosecurity event does not involve prohibited matter. For example, a biosecurity event could be the sudden death of a flock of birds or a herd of cattle.

Prohibited matter is defined as any species listed in Schedule 2 of the *Biosecurity Act 2015*. Schedule 2 includes pests and diseases of plants and animals, diseases of aquatic animals, pest terrestrial invertebrates, terrestrial and freshwater weeds, and aquatic pests. Examples include the diseases African swine fever, foot and mouth disease, Hendra virus and the pest species Siam weed and rubber vine. If any of these are identified on the project site by project ecologists or informed by Property Owners, during construction delivery of the project, the Elecnor Environmental Manager (or delegate) would notify Transgrid and Department of Primary Industries. A person is required to immediately notify of a biosecurity event or prohibited matter event. The Elecnor Environmental Manager (or delegate) would notify Transgrid and the Department of Primary Industries (if Elecnor is the occupier of the project site at the time).

### 5.4.2 Notifiable pests or diseases

The *Biosecurity Regulation 2017* (Regulation) includes requirements for the notification of certain pests and diseases that are found in NSW and could have a severe effect on the economy, environment or community if not managed appropriately.

Pests and diseases that require notification are listed in:

- Schedule 2 of the Act; and
- Schedule 1 of the Regulation.

In terms of diseases identified as animal diseases of concern (under the *Biosecurity Act 2015* and Regulation), sheep footrot and OJD are notifiable diseases.

The list of notifiable pests and diseases in the *Biosecurity Act 2015* and Regulation is large and they typically require specialist knowledge to identify. The list is not, therefore, repeated within this plan. No notifiable pests or diseases were identified as occurring or likely to be occur in the project area. Presence of notifiable pests or diseases on the project would be identified in the Property Management Plans in consultation with landholders/property owners or as advised by the Department of Primary Industries.

### 5.4.3 Notifiable weeds

Biosecurity zones cover most of NSW, including the project area and require landowners and occupiers to notify the local control authority in accordance with section 30 and section 38 of the *Biosecurity Act 2015* of a new infestation of the weeds, and destroy or suppress the weeds. The local control authorities for this project are:

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

The EIS Technical Paper 4 (Agricultural land impact assessment) advises that the project area lies within the biosecurity zones for bitou bush and water hyacinth (listed under Part 5 of the *Biosecurity Regulation 2017*). If these weeds are encountered during construction, the owner or occupier of the project site must:

(a) if the weed is part of a new infestation of the weed on the land, notify the local control authority for the land as soon as practicable in accordance with Part 6 of the *Biosecurity Regulation 2017*; and

(b) eradicate the weed or, if that is not practicable, destroy as much of the weed as is practicable and suppress the spread of any remaining weed.

### 5.4.4 Who is required to notify?

In the case of a pest or disease that is listed as prohibited matter in Schedule 2 of the *Biosecurity Act 2015* or a biosecurity event, the duty to notify applies only if the person has anything to do with the premise in which the pest and disease is identified or suspected. This could include the owner (Transgrid) or occupier of the premise (Elecnor).

Appendix B summarises the weeds identified during the EIS and provides the actions required under the *Biosecurity Act 2015*.

In the case of a pest or disease that is listed as notifiable in Schedule 1 of the Regulation, the duty to notify applies to any person who is aware of the presence or suspected presence of the pest or disease.

Elecnor will notify Transgrid and the NSW Department of Primary Industries (DPI). DPI indicates that there are several contact points based on what the issue is. As a first point of call it is recommended to contact DPI Biosecurity on 1800 680 244.

Where it is an animal pest, Elecnor will advise the relevant property owner (should the property owner wish to be informed).

## 5.5 Management measures

The management measures outlined in Table 5.1 will be implemented to minimise biosecurity impacts.

### Table 5.1 - Biosecurity management measures

| ID | Measurement/Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| BS1 | All construction personnel and subcontractors will attend the project induction which will include awareness of priority weeds, content regarding the importance of preventing weeds from entering the project site and the measures which must be taken for vehicles, machinery and plant used on the project. | Pre-construction<br>Construction | HSSE Manager | Good practice |
| BS2 | Prior to arriving on the project site, the supplier/owner of plant and equipment shall complete a Hygiene Inspection Form. If a Hygiene Inspection Form is not present or completed prior to arrival, one will be completed by the deliverer prior to inspection.<br>All vehicles and mobile plant will be inspected on arrival at the construction compounds. A Hygiene Inspection Form with an assigned inspection number will be issued for vehicle / plant assets inspected as required. If plant or equipment arrives on the project site unclean it will either be washed down at the site compound or be removed from the project site by the supplier/owner and cleaned an appropriate facility. | Pre-construction<br>Construction | Subcontractor/owner/suppliers<br>Plant Department or delegate | Good practice |
| BS3 | The specific controls applicable to a property will be identified in consultation with the affected landholder, documented in a Property Management Plan as appropriate and implemented during all relevant site activities. The effectiveness of these controls will be monitored at a time interval consistent with the level of risk. | Pre-construction<br>Construction | Engagement Team<br>Environmental Manager | RMM LP7 |
| BS4 | Where any of the weeds listed in the Biosecurity Plan are identified during construction, consultation (where relevant or required) will occur with landholders.<br>Consultation will also occur with the relevant authority (Local Land Services (LLS), the relevant local council, and/or NSW Department of Primary Industries) in relation to notifiable weeds. | Construction | Environmental Manager | RMM LP8 |
| BS5 | Cleaning of vehicles and machinery will occur at designated washdown bays prior to movement onto the construction work areas or between properties (as required by the Property Management Plans). | Construction | All personnel | RMM LP7 |
| BS6 | Water from washdown bays will drain to a contained sump/low point and materials (sediments) from washdown bays will be contained and disposed of in accordance with the *Waste Management Plan*. | Construction | Supervisor<br>Environmental Manager<br>Environmental Advisor | Good practice |
| BS7 | As required, site demarcation or signage will be installed in areas of significant biosecurity risk where access is required. | Construction | Environmental Manager<br>Environmental Advisor | Good practice |
| BS8 | The locations of permanent structures (and the extents of associated construction areas or compounds) will be located where possible to avoid or minimise impacts, or as agreed with the affected landholder, on locations of high biosecurity risk. | Construction | Engagement Manager, Environmental Advisor | RMM LP2 |

| ID | Measurement/Requirement | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| BS9 | Vehicle and equipment movements across adjoining farmland, including trip numbers and locations, will be minimised where possible where localised areas of high biosecurity risks have been identified. | Construction | Supervisor<br>Environmental Manager<br>Environmental Advisor | RMM LP7 |
| BS10 | If during construction, new infestations of notifiable weeds, pests or diseases are identified in project areas that are owned by Transgrid and/or occupied by Elecnor, the Environment Manager will notify Transgrid and will report the infestation to the relevant local control authority. | If required during construction only | Environmental Manager | Biosecurity Act 2015<br>Biosecurity Regulation 2017<br>RMM LP9 |
| BS11 | Weeds are to be identified as part of pre-clearing inspections by project ecologists. | Pre-Construction | Ecologist | Good practice |
| BS12 | Weeds are to be managed appropriately in accordance with legislative (or local control authority) requirements and may use a range of options in proximity to the accommodation camps and construction compounds, including but not limited to:<br>• slashing (timing/species dependent);<br>• onsite burning;<br>• onsite deep burial; or<br>• stockpile spraying. | Construction | Supervisor<br>Environmental Manager<br>Environmental Advisor | Legislation |

# Annexure A - Other regional weeds

| Common name | Scientific name | LLS | | |
|---|---|---|---|---|
| | | Western | Murray | Riverina |
| Box elder | *Acer negundo* | | X | |
| Tree of heaven | *Ailanthus altissima* | | X | X |
| Camel thorn | *Alhagi pseudalhagi* | | X | |
| Khaki weed | *Alternanthera pungens* | X | X | X |
| Bridal creeper | *Asparagus asparagoides* | | X | X |
| Onion weed | *Asphodelus fistulosus* | X | | |
| Wild oat | *Avena spp.* | X | | |
| Wild turnip | *Brassica tournefortii* | X | | |
| Brome grass | *Bromus spp.* | X | | |
| Ward's weed | *Carrichtera annua* | X | | |
| Spiny burr grass | *Cenchrus incertus and C. longispinus* | | X | X |
| Star thistle | *Centaurea calcitrapa* | | X | X |
| St Barnaby's thistle | *Centaurea solstitialis* | | X | |
| Green cestrum | *Cestrum parqui* | | | X |
| Windmill grass | *Chloris truncata* | X | | |
| Flax-leaf fleabane | *Conyza bonariensis* | X | | |
| Pampas grass | *Cortaderia spp.* | | X | X |
| Golden dodder | *Cuscuta campestris* | | X | X |
| Prickly pear | *Cylindropuntia spp.* | | X | X |
| Lincoln weed | *Diplotaxis tenuifolia* | X | | |
| Spiny emex | *Emex australis Steinh* | | X | X |
| African lovegrass | *Eragrostis curvula complex* | | | X |
| Spanish heath | *Erica lusitanica* | | X | X |
| Bear-skin fescue | *Festuca gautieri* | | X | X |
| Galenia | *Galenia pubescens* | | X | |
| Honey locust | *Gleditsia triacanthos* | | X | X |
| Reed sweet-grass | *Glyceria maxima* | | X | X |
| Harrisia cactus | *Harrisia martinii and H. tortuosa* | | X | X |
| Blue heliotrope | *Heliotropium amplexicaule* | | X | X |
| Common heliotrope | *Heliotropium europaem* | X | | |
| Barley grass | *Hordeum spp* | X | | |
| St John's wort | *Hypericum perforatum* | | X | X |
| Tangled hypericum | *Hypericum triquetrifolium* | | X | X |
| Devil's claw | *Ibicella lutea or Proboscidea louisianica* | | | X |
| Himalaya honeysuckle | *Leycesteria formosa* | | X | X |
| Privet (broad-leaf) | *Ligustrum lucidum* | | | X |
| Privet (narrow-leaf) | *Ligustrum sinense* | | | X |
| Winged sea lavender | *Limonium lobatum* | X | | |

| Common name | Scientific name | LLS | | |
|---|---|---|---|---|
| | | Western | Murray | Riverina |
| Statice | *Limonium sinuatum* | X | | |
| Annual ryegrass | *Lolium rigidum* | X | | |
| Indian fig | *Opuntia ficus-indica* | X | | |
| Long leaf willow primrose | *Ludwigia longifolia* | | X | X |
| African boxthorn | *Lycium ferocissimum* | | X | X |
| Horehound | *Marrubium vulgare* | | X | X |
| Cape tulips | *Moraea flaccida and M. miniata* | | X | X |
| Scotch - Illyrian thistles | *Onopordum spp.* | | X | X |
| Indian fig | *Opuntia ficus-indica* | | | X |
| Prickly pears | *Opuntia spp.* | | X | X |
| Red rice | *Oryza rufipogon* | | X | |
| Reed canary grass | *Phalaris arundinacea* | | X | X |
| Lippia | *Phyla canescens* | | | X |
| Wild radish | *Raphanus raphanistrum* | X | | |
| Castor oil plant | *Ricinus communis* | X | | |
| Sweet briar | *Rosa rubiginosa* | | X | X |
| Blackberry | *Rubus fruticosus (agg.)* | | X | X |
| Galvanised burr | *Sclerolaena birchii* | | X | X |
| Bitter stonecrop | *Sedum acre* | | X | X |
| Pepper tree | *Schinus molle* | X | | |
| Indian hedge mustard | *Sisymbrium oriental* | X | | |
| Silverleaf nightshade | *Solanum elaeagnifolium* | | X | X |
| Blackberry nightshade | *Solanum nigrum* | X | | |
| Buffalo burr | *Solanum rostratum* | | X | X |
| Common wow thistle | *Sonchus oleraceus* | X | | |
| Johnson grass | *Sorghum halepense* | | X | X |
| Silk forage sorghum | *Sorghum spp. hybrid cv. 'silk'* | | X | X |
| Columbus grass | *Sorghum x almum* | | X | X |
| Athel pine | *Tamarix aphylla* | | X | X |
| Tamarix | *Tamarix ramosissima* | | X | |
| Poison ivy | *Toxicodendron radicans* | X | | |
| Rhus tree | *Toxicodendron succedaneum* | X | X | X |
| Cat-head | *Tribulus terrestris* | X | | X |
| Silver grass | *Vulpia bromoides* | X | | |
| Bathurst burr | *Xanthium spp.* | | X | X |

# Annexure B - Weed identification guide

| No. | Common name | Species name | Images |
|---|---|---|---|
| 001 | **African boxthorn** | *Lycium ferocissimum* |   |
| 002 | **African lovegrass** | *Eragrostis curvula complex* |  |
| 003 | **African olive** | *Olea europaea subspecies cuspidata* |  |
| 004 | **Annual ryegrass** | *Lolium rigidum* |   |
| 005 | **Athel pine** | *Tamarix spp.* |   |
| 006 | **Arundinaria (reed) species** | - |  |
| 007 | **Asparagus fern** | *Asparagus virgatus* |  |
| 008 | **Barley grass** | *Hordeum spp* |  |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 009 | **Bathurst burr** | *Xanthium spinosa* |   |
| 010 | **Bear-skin fescue** | *Festuca gautieri* |  |
| 011 | **Bitter stonecrop** | *Sedum acre* |  |
| 012 | **Bitou bush** | *Chrysanthemoides monilifera*<br>**State priority* |    |
| 013 | **Blackberry** | *Rubus fruticosus* |   |
| 014 | **Blackberry nightshade** | *Solanum nigrum* |   |
| 015 | **Black locust** | *Robinia pseudoacacia* |   |
| 016 | **Boneseed** | *Chrysanthemoides monilifera ssp. monilifera* |   |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 017 | **Box elder** | *Acer negundo* |   |
| 018 | **Boxing glove / coral cactus** | *Cylindropuntia fulgida* |   |
| 019 | **Bridal creeper** | *Asparagus asparagoides* |   |
| 020 | **Brome grass** | *Bromus spp.* |  |
| 021 | **Buffalo burr** | *Solanum rostratum* |  |
| 022 | **Burr ragweed** | *Ambrosia confertiflora* |  |
| 023 | **Blue heliotrope** | *Heliotropium amplexicaule* |   |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 024 | **Camel thorn** | *Alhagi maurorum* |   |
| 025 | **Cane cactus** | *Austrocylindropuntia cylindrica* |   |
| 026 | **Cane needlegrass** | *Nassella hyalina* |   |
| 027 | **Cape broom** | *Genista monspessulana* |   |
| 028 | **Cape tulips** | *Moraea flaccida and M. miniata* |  |
| 029 | **Castor oil plant** | *Ricinus communis* |  |
| 030 | **Caltrops or Cat-head** | *Tribulus terrestris* |    |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 031 | **Cabomba** | *Cabomba caroliniana* |    |
| 032 | **Common heliotrope** | *Heliotropium europaeum* |  |
| 033 | **Common wow thistle** | *Sonchus oleraceus* |  |
| 034 | **Columbus grass** | *Sorghum x almum* |  |
| 035 | **Cooltai grass** | *Hyparrhenia hirta* |   |
| 036 | **Clockweed** | *Oenothera curtiflora* |   |
| 037 | **Devil's claw** | *Ibicella lutea or Proboscidea louisianica* |  |

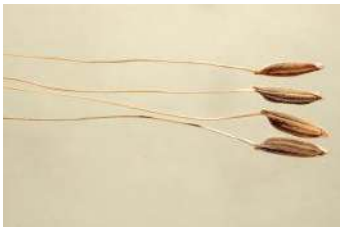
| No. | Common name | Species name | Images |
|---|---|---|---|
| 038 | **Fireweed** | *Senecio madagascariensis* |   |
| 039 | **Flax-leaf fleabane** | *Conyza bonariensis* |  |
| 040 | **Galenia** | *Galenia pubescens* |  |
| 041 | **Galvanised burr** | *Sclerolaena birchii* |   |
| 042 | **Giant reed** | *Arundo donax* |  |
| 043 | **Giant Parramatta grass** | *Sporobolus fertilis* |   |
| 044 | **Golden dodder** | *Cuscuta campestris* |  |

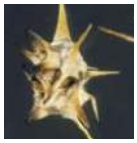
| No. | Common name | Species name | Images |
|---|---|---|---|
| 045 | **Gorse** | *Ulex europaeus* |   |
| 046 | **Green cestrum** | *Cestrum parqui* |   |
| 047 | **Hardhead thistle / Creeping knapweed** | *Rhaponticum repens* |  |
| 048 | **Harrisia cactus** | *Harrisia martinii and H. tortuosa* |  |
| 049 | **Himalaya honeysuckle** | *Leycesteria formosa* |  |
| 050 | **Honey locust** | *Gleditsia triacanthos* |   |
| 051 | **Horehound** | *Marrubium vulgare* |   |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 052 | **Hymenachne** | *Hymenachne amplexicaulis* |  |
| 053 | **Indian fig** | *Opuntia ficus-indica* |   |
| 054 | **Indian hedge mustard** | *Sisymbrium oriental* |  |
| 055 | **Johnson grass** | *Sorghum halepense* |  |
| 056 | **Khaki weed** | *Alternathera pungens* |  |
| 057 | **Lantana** | *Lantana camara* |   |
| 058 | **Lincoln weed** | *Diplotaxis tenuifolia* |  |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 059 | **Lippia** | *Phyla canescens* |   |
| 060 | **Long leaf willow primrose** | *Ludwigia longifolia* |   |
| 061 | **Mesquite** | *Prosopis spp.* |   |
| 062 | **Mother of millions** | *Bryophyllum spp.* |   |
| 063 | **Noogoora burr** | *Xanthium occidentalis* |   |
| 064 | **Onion weed** | *Asphodelus fistulosus* |   |
| 065 | **Paterson's curse** | *Echium plantagineum* |  |
| 066 | **Pampas grass** | *Cortaderia spp.* |  |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 067 | **Perennial ground cherry** | *Physalis longifolia* |  |
| 068 | **Pepper tree** | *Schinus molle* |  |
| 069 | **Poison ivy** | *Toxicodendron radicans* |  |
| 070 | **Prairie ground cherry** | *Physalis hederifolia* |   |
| 071 | **Prickly pear** | *Opuntia spp.* |   |
| 072 | **Privet (broad-leaf)** | *Ligustrum lucidum* |   |
| 073 | **Privet (narrow-leaf)** | *Ligustrum sinense* |   |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 074 | **Reed canary grass** | *Phalaris arundinacea* |  |
| 075 | **Reed sweet-grass** | *Glyceria maxima* |  |
| 076 | **Red rice** | *Oryza rufipogon* |   |
| 077 | **Rope pear** | *Cylindropuntia imbricata* |    |
| 078 | **Sagittaria** | *Sagittaria platyphylla* |   |
| 079 | **Scotch broom** | *Cytisus scoparius* |   |
| 080 | **Scotch - Illyrian thistles** | *Onopordum spp.* |    |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 081 | **Silk forage sorghum** | *Sorghum spp. hybrid cv. 'silk'* |  |
| 082 | **Silver grass** | *Vulpia bromoides* |  |
| 083 | **Silverleaf nightshade** | *Solanum elaeagnifolium* |   |
| 084 | **Spanish heath** | *Erica lusitanica* |  |
| 085 | **Spiny burrgrass** | *Cenchrus spp.* |    |
| 086 | **Spiny emex** | *Rumex hypogaeus* |  |
| 087 | **Statice** | *Limonium sinuatum* |  |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 088 | **Star thistle** | *Centaurea calcitrapa* |   |
| 089 | **St. Barnaby's thistle** | *Centaurea solstitialis* |   |
| 090 | **St. John's wort** | *Hypericum perforatum* |   |
| 091 | **Sweet briar** | *Rosa rubiginosa* |   |
| 092 | **Tamarix** | *Tamarix ramosissima* |  |
| 093 | **Tangled hypericum** | *Hypericum triquetrifolium* |   |
| 094 | **Tree-of-heaven** | *Ailanthus altissima* |   |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 095 | **Tropical soda apple** | *Solanum viarum* |   |
| 096 | **Ward's weed** | *Carrichtera annua* |  |
| 097 | **Water hyacinth** | *Eichhornia crassipes* |  |
| 098 | **Windmill grass** | *Chloris truncata* |  |
| 099 | **Winged sea lavender** | *Limonium lobatum* |   |
| 100 | **Wild oat** | *Avena spp.* |  |
| 101 | **Wild radish** | *Raphanus raphanistrum* |   |

| No. | Common name | Species name | Images |
|---|---|---|---|
| 102 | **Wild turnip** | *Brassica tournefortii* |  |
| 103 | **Willow rhus** | *Searsia lancea* |  |
| 104 | **Willows** | *Salix spp.* |   |

# Annexure C - Biosecurity recommendations

## Biosecurity recommendations for managing identified weeds in the project area

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | African boxthorn | *Lycium ferocissimum* | Y | Y | | Y | Y | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale | Western LLS<br>**Regional recommended measure*** (for Regional Priority - Asset Protection)<br>Land managers mitigate the risk of the plant spreading from their land. Land managers reduce impact of plant on priority assets (riparian areas and floodplains). |
| 002 | African lovegrass | *Eragrostis curvula complex* | | | Y | | | | Y | | |
| 003 | African olive | *Olea europaea subspecies cuspidata* | | | | | | Y | Y | | |
| 004 | Annual ryegrass | *Lolium rigidum* | | | | Y | | | | | |
| 005 | Athel pine | *Tamarix spp.* | Y | | | | | | | Must not be imported into the state, sold, bartered, exchanged or offered for sale | |
| 006 | Arundinaria (reed) species | - | | | | | | Y | Y | | |
| 007 | Asparagus fern | *Asparagus virgatus* | Y | | | | | | Y | | |
| 008 | Barley grass | *Hordeum spp* | | | | | | Y | | | |
| 009 | Bathurst burr | *Xanthium spinosa* | | | Y | Y | | | Y | | |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 010 | Bear-skin fescue | *Festuca gautieri* | | | | | | Y | Y | | |
| 011 | Bitter stonecrop | *Sedum acre* | | | | | | Y | | | |
| 012 | Bitou bush | *Chrysanthemoides monilifera spp.rotunda* | Y | | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale. | **All of NSW**<br>The Bitou Bush Biosecurity Zone is established for all land within the State except land within 10 kilometres of the mean high water mark of the Pacific Ocean between Cape Byron in the north and Point Perpendicular in the south.<br>Murray and Riverina LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. |
| 013 | Blackberry | *Rubus fruticosus* | Y | | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale.<br>All species in the *Rubus fruiticosus* species aggregate have this requirement, except for the varietals Black Satin, Chehalem, Chester Thornless, Dirksen Thornless, Loch Ness, Murrindindi, Silvan, | |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | Smooth Stem, and Thornfree | |
| 014 | Blackberry nightshade | *Solanum nigrum* | | | | | | Y | | | |
| 015 | Black locust | *Robinia pseudoacacia* | | | | | | Y | Y | | |
| 016 | Boneseed | *Chrysanthemoides monilifera ssp. monilifera* | | | | | Y | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale | **Control Order whole of NSW**<br>Boneseed Control Zone (Whole of NSW): Owners and occupiers of land on which there is boneseed must notify the local control authority of new infestations. A person who deals with a carrier of boneseed must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant. |
| 017 | Box elder | *Acer negundo* | | | | | | Y | | | |
| 018 | Boxing glove / coral cactus | *Cylindropuntia fulgida* | | Y | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale | Western LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. |
| 019 | Bridal creeper | *Asparagus asparagoides* | | Y | | | | | Y | Prohibition on certain dealings<br>Must not be imported into the state, sold, bartered, exchanged or offered for sale. | Western LLS<br>**Regional recommended measure*** (for Regional Priority - Asset Protection)<br>Land managers mitigate the risk of the plant spreading from their land. Land managers reduce |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | *this requirement also applies to the Western Cape form of bridal creeper | impact of plant on priority assets (riparian areas and commercial horticultural areas). |
| 020 | Brome grass | *Bromus spp.* | | | | | | Y | | | |
| 021 | Buffalo burr | *Solanum rostratum* | | | | | | Y | Y | | |
| 022 | Burr ragweed | *Ambrosia confertiflora* | | Y | | | | | y | | Western LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found |
| 023 | Blue heliotrope | *Heliotropium amplexicaule* | | | Y | | | | Y | | |
| 024 | Camel thorn | *Alhagi maurorum* | | | | | | Y | Y | | |
| 025 | Cane cactus | *Austrocylindropuntia cylindrica* | Y | | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale.<br>All species in the Austrocylindropuntia genus have this requirement | |
| 026 | Cane needlegrass | *Nassella hyalina* | | Y | | Y | | | Y | | Riverina **Eradication zone:** whole region except for the containment zone of Wagga Wagga City Council |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Riverina LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Containment zone: Land managers should prevent spread from their land. Whole region: managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. |
| 027 | Cape broom | *Genista monspessulana* | | Y | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale. | Riverina LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. |
| 028 | Cape tulips | *Moraea flaccida and M. miniata* | | | | | | Y | | | |
| 029 | Castor oil plant | *Ricinus communis* | | | | | | Y | Y | | |
| 030 | Caltrops or Cat-head | *Tribulus terrestris* | | | | Y | | | | | |
| 031 | Cabomba | *Cabomba caroliniana* | Y | Y | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale. | |
| 032 | Common heliotrope | *Heliotropium europaeum* | | | | | | Y | | | |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 033 | Common wow thistle | *Sonchus oleraceus* | | | | | | Y | | | |
| 034 | Columbus grass | *Sorghum x almum* | | | | | | Y | Y | | |
| 035 | Cooltai grass | *Hyparrhenia hirta* | | Y | | | | | Y | | Western, Riverina and Murray LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found |
| 036 | Clockweed | *Oenothera curtiflora* | | Y | | | | | Y | | Western LLS<br>**Regional Recommended Measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found |
| 037 | Devil's claw | *Ibicella lutea or Proboscidea louisianica* | | | | Y | | | Y | | |
| 038 | Fireweed | *Senecio madagascariensis* | | Y | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale | Murray LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | released into the environment. Notify local control authority if found<br>Riverina LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of the plant being introduced to their land. |
| 039 | Flax-leaf fleabane | *Conyza bonariensis* | | | | | | Y | | | |
| 040 | Galenia | *Galenia pubescens* | | | | | | Y | Y | | |
| 041 | Galvanised burr | *Sclerolaena birchii* | | | | Y | | | Y | | |
| 042 | Giant reed | *Arundo donax* | | Y | | | | | Y | | Western **LLS**<br>Exclusion zone: whole region except for the core infestation area of Wentworth Shire Council<br>**Regional recommended measure*** (for Regional Priority - Containment)<br>Whole region: Land managers should mitigate the risk of the plant being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Core infestation area: Land managers should mitigate spread from their land. Land managers reduce the impact of the plant on priority assets (rivers and natural watercourses). |
| 043 | Giant Parramatta grass | *Sporobolus fertilis* | | | | | | Y | Y | | |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 044 | Golden dodder | *Cuscuta campestris* | | | | | | Y | Y | | |
| 045 | Gorse | *Ulex europaeus* | | Y | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale | Murray LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.<br>Riverina LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of the plant being introduced to their land. |
| 046 | Green cestrum | *Cestrum parqui* | | Y | | Y | | | Y | | Murray LLS<br>**Regional recommended measure*** (for Regional Priority - Containment)<br>Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found |
| 047 | Hardhead thistle / Creeping knapweed | *Rhaponticum repens* | | Y | | | | | Y | | Murray LLS<br>**Regional recommended measure*** (for Regional Priority - Containment)<br>Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 048 | Harrisia cactus | *Harrisia martinii and H. tortuosa* | | | | | | Y | Y | | Western LLS<br>**Regional recommended measure*** (for Regional Priority - Asset Protection)<br>Land managers should mitigate spread from their land. The plant should not be bought, sold, grown, carried or released into the environment.<br>This Regional Recommended Measure applies to *Harrisia martinii*. |
| 049 | Himalaya honeysuckle | *Leycesteria formosa* | | | | | | Y | | | |
| 050 | Honey locust | *Gleditsia triacanthos* | | Y | | | | | Y | | |
| 051 | Horehound | *Marrubium vulgare* | | | Y | Y | | | Y | | |
| 052 | Hymenachne | *Hymenachne amplexicaulis* | Y | | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale | |
| 053 | Indian fig | *Opuntia ficus-indica* | | | | | | Y | Y | | |
| 054 | Indian hedge mustard | *Sisymbrium oriental* | | | | | | Y | | | |
| 055 | Johnson grass | *Sorghum halepense* | | | | | | Y | Y | | |
| 056 | Khaki weed | *Alternathera pungens* | | | | Y | | | | | |
| 057 | Lantana | *Lantana camara* | Y | | | | | | Y | Must not be imported into the state, sold, | |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | bartered, exchanged or offered for sale | |
| 058 | Lincoln weed | *Diplotaxis tenuifolia* | | | | | | Y | | | |
| 059 | Lippia | *Phyla canescens* | | | | | | Y | Y | | |
| 060 | Long leaf willow primrose | *Ludwigia longifolia* | | | | | | Y | Y | | |
| 061 | Mesquite | *Prosopis spp.* | | Y | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale<br><br>All species in the genus Prosopis have this requirement | Murray LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.<br>Riverina LLS<br>**Regional recommended measure** * (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of the plant being introduced to their land.<br>Western LLS<br>Exclusion zone: whole region except for the core infestation area of Evelyn, Yantara, Mootwingee, Yancowinna, Menindee, Tandora, Livingstone and Windeyer counties.<br>**Regional recommended measure*** (for Regional Priority - Containment)<br>Whole region: Land managers should mitigate the |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | risk of the plant being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Core infestation area: Land managers should mitigate spread from their land. |
| 062 | Mother of millions | *Bryophyllum spp.* | | Y | | | | | Y | | Riverina LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.<br>Western LLS<br>Exclusion zone: whole region except core infestation area of maintained gardens<br>**Regional recommended measure*** (for Regional Priority - Containment)<br>Whole region: Plant should not be bought, sold, grown, carried or released into the environment (except in maintained gardens). Exclusion Zone: Land managers should mitigate the risk of the plant being introduced to their land. Core infestation: Land managers should mitigate spread from their land.<br>This regional recommended measure also applies to *Bryophyllum* hybrids. |
| 063 | Noogoora burr | *Xanthium occidentalis* | | | Y | | | | | | |
| 064 | Onion weed | *Asphodelus fistulosus* | | | Y | | | | Y | | |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 065 | Paterson's curse | *Echium plantagineum* | | | | Y | | | Y | | |
| 066 | Pampas grass | *Cortaderia spp.* | | | | | | Y | Y | | |
| 067 | Perennial ground cherry | *Physalis longifolia* | | Y | | | | | Y | | Murray LLS<br>**Regional recommended measure*** (for Regional Priority - Containment)<br>Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.<br>Riverina LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. |
| 068 | Pepper tree | *Schinus molle* | | | | | | Y | | | |
| 069 | Poison ivy | *Toxicodendron radicans* | | | | | | Y | | | |
| 070 | Prairie ground cherry | *Physalis hederifolia* | | Y | | | | Y | Y | | Murray LLS<br>**Regional recommended measure*** (for Regional Priority - Containment)<br>Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Riverina LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. |
| 071 | Prickly pears | *Opuntia spp.* | Y | Y | | | Y | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale. | Western LLs<br>**Regional recommended measure*** (for Regional Priority - Asset Protection)<br>Land managers mitigate the risk of the plant spreading from their land. Land managers mitigate the risk of the plant being introduced to their land. |
| 072 | Privet (broad-leaf) | *Ligustrum lucidum* | | | Y | | | Y | Y | | |
| 073 | Privet (narrow-leaf) | *Ligustrum sinense* | | | Y | | | Y | Y | | |
| 074 | Reed canary grass | *Phalaris arundinacea* | | | | | | Y | | | |
| 075 | Reed sweet-grass | *Glyceria maxima* | | | | | | Y | | | |
| 076 | Red rice | *Oryza rufipogon* | | | | | | Y | | | |
| 077 | Rope pear | *Cylindropuntia imbricata* | | Y | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale. **All species in the** | Western LLS<br>**Regional recommended measure*** (for Regional Priority - Asset Protection)<br>Land managers should mitigate spread from their |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | **Cylindropuntia genus have this requirement** | land. The plant should not be bought, sold, grown, carried or released into the environment. |
| 078 | Sagittaria | *Sagittaria platyphylla* | | Y | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale | Murray LLS<br>**Regional recommended measure*** (for Regional Priority - Containment)<br>Land managers should mitigate the risk of new weeds being introduced to their land. Plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.<br>Riverina LLS<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of the plant being introduced to their land.<br>Western LLS<br>**Regional recommended measure*** (for Regional Priority - Prevention)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. |
| 079 | Scotch broom | *Cytisus scoparius* | | Y | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale | Murray **LLS**<br>Whole region excluding Snowy Valleys Council.<br>**Regional recommended measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | released into the environment. Notify local control authority if found.<br>Riverina LLS<br>Whole region excluding Snowy Valleys Council<br>**Regional Recommended Measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. |
| 080 | Scotch - Illyrian thistles | *Onopordum spp.* | | | | | | Y | Y | | |
| 081 | Silk forage sorghum | *Sorghum spp. hybrid cv. 'silk'* | | | | | | Y | Y | | |
| 082 | Silver grass | *Vulpia bromoides* | | | | | | Y | | | |
| 083 | Silverleaf nightshade | *Solanum elaeagnifolium* | Y | Y | | | | | Y | Must not be imported into the state, sold, bartered, exchanged or offered for sale | Western LLS<br>**Regional Recommended Measure*** (for Regional Priority - Asset Protection)<br>Land managers mitigate the risk of the plant spreading from their land. |
| 084 | Spanish heath | *Erica lusitanica* | | | | | | Y | Y | | |
| 085 | Spiny burrgrass | *Cenchrus spp.* | | Y | | Y | | | Y | | Western LLS<br>**Regional Recommended Measure*** (for Regional Priority - Asset Protection)<br>Land managers mitigate the risk of the plant spreading from their land. The plant or parts of the plant are not traded, carried, grown or released into the environment. |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 086 | Spiny emex | *Rumex hypogaeus* | | | | | | Y | Y | | |
| 087 | Statice | *Limonium sinuatum* | | | | | | Y | | | |
| 088 | Star thistle | *Centaurea calcitrapa* | | | | | | Y | Y | | |
| 089 | St. Barnaby's thistle | *Centaurea solstitialis* | | | Y | | | | Y | | |
| 090 | St. John's wort | *Hypericum perforatum* | | | | Y | | | Y | | |
| 091 | Sweet briar | *Rosa rubiginosa* | | | | | | Y | Y | | |
| 092 | Tamarix | *Tamarix ramosissima* | | | | | | Y | | | |
| 093 | Tangled hypericum | *Hypericum triquetrifolium* | | | | | | Y | | | |
| 094 | Tree-of heaven | *Ailanthus altissima* | | | | | | Y | Y | | |
| 095 | Tropical soda apple | *Solanum viarum* | Y | | | | | | Y | **All of NSW**<br>Tropical Soda Apple Control Zone: Whole of NSW<br>**Control Order**<br>Tropical Soda Apple Control Zone (Whole of NSW): Owners and occupiers of land on which there is tropical | If you see this plant call your local council weeds officer or the NSW DPI Biosecurity Helpline 1800 680 244 |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | soda apple must notify the local control authority of new infestations; destroy the plants including the fruit; ensure subsequent generations are destroyed; and ensure the land is kept free of the plant. A person who deals with a carrier of tropical soda apple must ensure the plant (and any seed and propagules) is not moved from the land; and immediately notify the local control authority of the presence of the plant on the land, or on or in a carrier | |
| 096 | Ward's weed | *Carrichtera annua* | | | | | | | | | |
| 097 | Water hyacinth | *Eichhornia crassipes* | Y | Y | | | | Y | | Must not be imported into the state, sold, bartered, exchanged or offered for sale | **Biosecurity Zone – All of NSW**<br>The local control authority must be notified of any new infestations of this weed within the Biosecurity Zone<br>Murray LLS<br>**Regional Recommended Measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found.<br>Riverina LLS<br>**Regional Recommended Measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment.<br>Western LLS<br>**Regional Recommended Measure*** (for Regional Priority - Prevention)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found |
| 098 | Windmill grass | *Chloris truncata* | | | | | | Y | | | |
| 099 | Winged sea lavender | *Limonium lobatum* | | | | | | Y | | | |
| 100 | Wild oat | *Avena spp.* | | | | | | Y | | | |
| 101 | Wild radish | *Raphanus raphanistrum* | | | | | | Y | Y | | |
| 102 | Wild turnip | *Brassica tournefortii* | | | | | | Y | | | |
| 103 | Willow rhus | *Searsia lancea* | | Y | | | | | | | |

| No. | Common name | Species name | State Priority Weed | Reg. Priority Weed | Environmental Weeds | Agricultural | WONS | Other Regional Weeds | [1]General Biosecurity Duty | Biosecurity Duty Prohibition on Certain Dealings | Biosecurity Duty LLS Region |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 104 | Willows | *Salix spp.* | Y | | | | | | Y | | Western LLS<br>**Regional Recommended Measure*** (for Regional Priority - Eradication)<br>Land managers should mitigate the risk of new weeds being introduced to their land. The plant should not be bought, sold, grown, carried or released into the environment. Notify local control authority if found. |

[1] All plants are regulated with a **general biosecurity duty** to prevent minimise any biosecurity risk they may pose. Any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented or minimised, so far as is reasonably practicable.

* Refer to the recommended measures in the Regional Strategic Weeds Management Plans which contain demonstrated outcomes that fulfil the general biosecurity duty for this weed.

# Appendix E – Biodiversity mapping

FOR INFORMATION ONLY

BRG-CF
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secureenergy
CLOUGH ELECNOR JOINT VENTURE

N

0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L1
- L2
- L4

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT172 Deep sand mallee of irregular dunefields of the semi-arid (warm) zone
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT143 Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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World Imagery: Earthstar Geographics
World Imagery: Maxar

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| DRAWN: | FA |
| REVIEWED: | ND |
| VERIFIED: | |
| APPROVED: | |
| REV: | A |
| DATE: | 5/22/2025 |
| DESCRIPTION: | Issued for Information |
| DRAWING NO: | |

**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 1 OF 74**

FOR INFORMATION ONLY

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

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0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2
- L4

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT172 Deep sand mallee of irregular dunefields of the semi-arid (warm) zone
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT143 Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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World Imagery: Earthstar Geographics
World Imagery: Maxar

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| DRAWN: | FA |
| REVIEWED: | ND |
| VERIFIED: | |
| APPROVED: | |
| REV: | A |
| DATE: | 5/22/2025 |
| DESCRIPTION: | Issued for Information |
| DRAWING NO: | |

**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 2 OF 74**

FOR INFORMATION ONLY

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

N

0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT172 Deep sand mallee of irregular dunefields of the semi-arid (warm) zone
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 3 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT172 Deep sand mallee of irregular dunefields of the semi-arid (warm) zone
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT143 Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 4 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT172 Deep sand mallee of irregular dunefields of the semi-arid (warm) zone
- PCT0
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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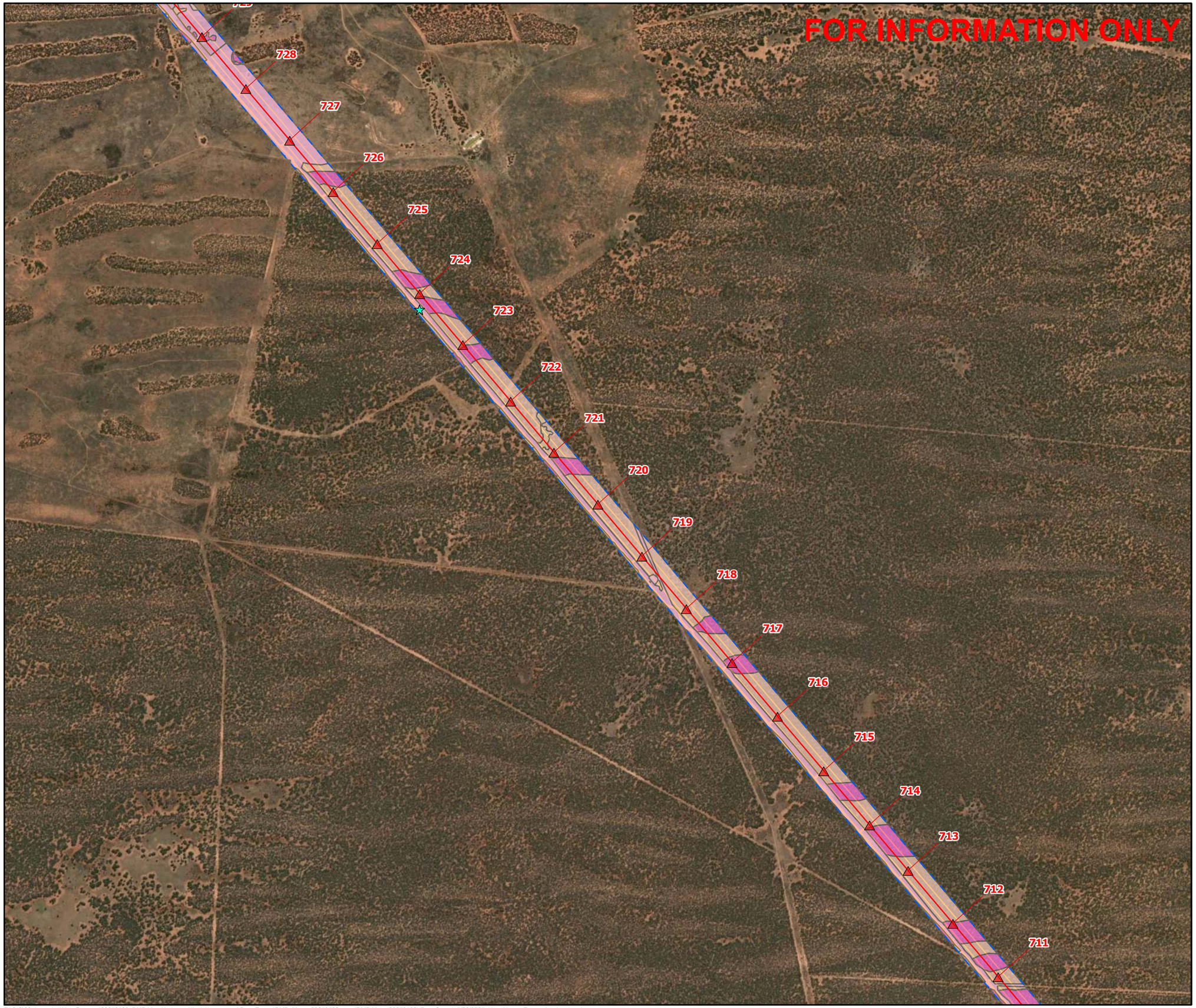
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 5 OF 74**




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CLOUGH ELECNOR JOINT VENTURE

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Datum: GDA2020 Projection: New South Wales Lambert
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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT0
- PCT143 Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Chestnut Quail-thrush
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 6 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Santalum murrayanum

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Brown Treecreeper
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 7 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT172 Deep sand mallee of irregular dunefields of the semi-arid (warm) zone
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Hooded Robin (south-eastern form)
- Regent Parrot
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 8 OF 74**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT172 Deep sand mallee of irregular dunefields of the semi-arid (warm) zone
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT143 Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Hooded Robin (south-eastern form)
- Mallee Worm-lizard
- Regent Parrot
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 9 OF 74**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Pimelea serpyllifolia subsp. serpyllifolia

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Pimelea serpyllifolia subsp. serpyllifolia

**Biodiversity Special Flora Protection Zone L2 L5**

- Biodiversity Special Flora Protection Zone L2 L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT172 Deep sand mallee of irregular dunefields of the semi-arid (warm) zone
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT143 Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.
- PCT199 Hooked Needlewood - Needlewood - Mulga - Turpentine Bush open shrubland of the semi-arid and arid plains

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Bolam's Mouse
- Hooded Robin (south-eastern form)
- Regent Parrot
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 10 OF 74**

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**LEGEND**

Tower Structures Centres

L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Santalum murrayanum

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones

PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion

PCT172 Deep sand mallee of irregular dunefields of the semi-arid (warm) zone

PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion

PCT0

PCT199 Hooked Needlewood - Needlewood - Mulga - Turpentine Bush open shrubland of the semi-arid and arid plains

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

Bolam's Mouse

Regent Parrot

South-east Long-eared Bat

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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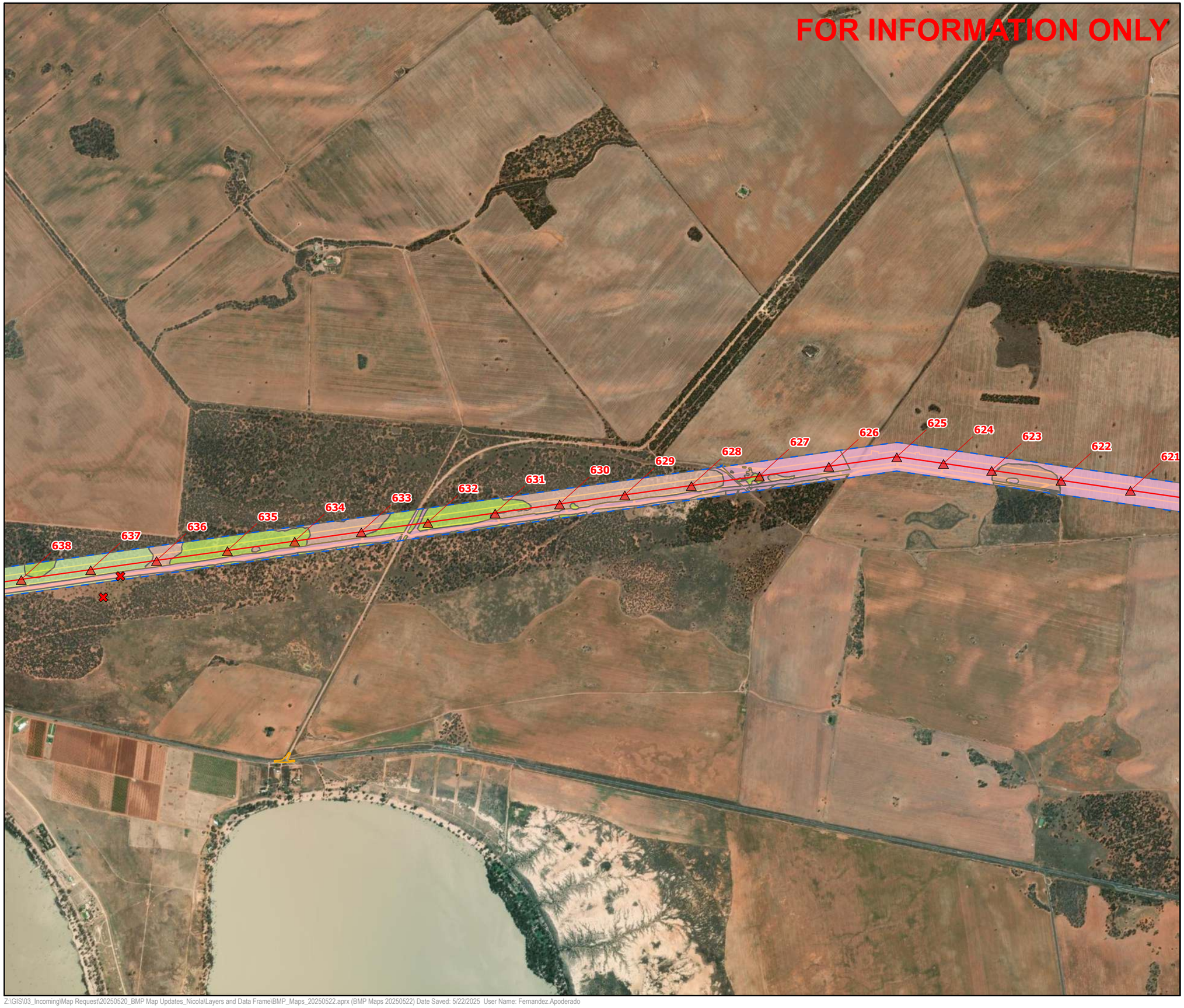
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 11 OF 74**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Santalum murrayanum

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT172 Deep sand mallee of irregular dunefields of the semi-arid (warm) zone
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 12 OF 74**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT143 Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered
- PCT271 Spotted Fuchsia shrubland wetland in drainage depressions on inland plains
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 13 OF 74**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT0
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Regent Parrot
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 14 OF 74**

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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT0
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Chestnut Quail-thrush
- Gilbert's Whistler
- Purple-crowned Lorikeet
- Regent Parrot
- Brown Treecreeper
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 15 OF 74**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT143 Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Chestnut Quail-thrush
- Gilbert's Whistler
- Major Mitchell's Cockatoo
- South-east Long-eared Bat
- Brown Treecreeper
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 16 OF 74**

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

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0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT24 Canegrass swamp tall grassland wetland of drainage depressions: lakes and pans of the inland plains
- PCT0
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Assumed Regent Parrot Breeding Habitat
- Pink Cockatoo Breeding Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 17 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT24 Canegrass swamp tall grassland wetland of drainage depressions: lakes and pans of the inland plains
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Regent Parrot
- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Assumed Regent Parrot Breeding Habitat
- Pink Cockatoo Breeding Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 18 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT11 River Red Gum - Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT8 River Red Gum - Warrego Grass - Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT0
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Rainbow Bee-eater
- Regent Parrot
- Southern Bell Frog
- Southern Myotis
- Brown Treecreeper

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Regent Parrot Breeding Habitat
- Pink Cockatoo Breeding Habitat
- Southern Myotis Habitat
- Southern Bell Frog Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 19 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

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Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT11 River Red Gum - Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT171 Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Regent Parrot
- Southern Bell Frog

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Regent Parrot Breeding Habitat
- Pink Cockatoo Breeding Habitat
- Southern Myotis Habitat
- Southern Bell Frog Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 20 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT170 Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT22 Buloke Woodlands of the Riverina and Murray Darling Depression bioregions - Endangered
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Major Mitchell's Cockatoo

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Assumed Regent Parrot Breeding Habitat
- Pink Cockatoo Breeding Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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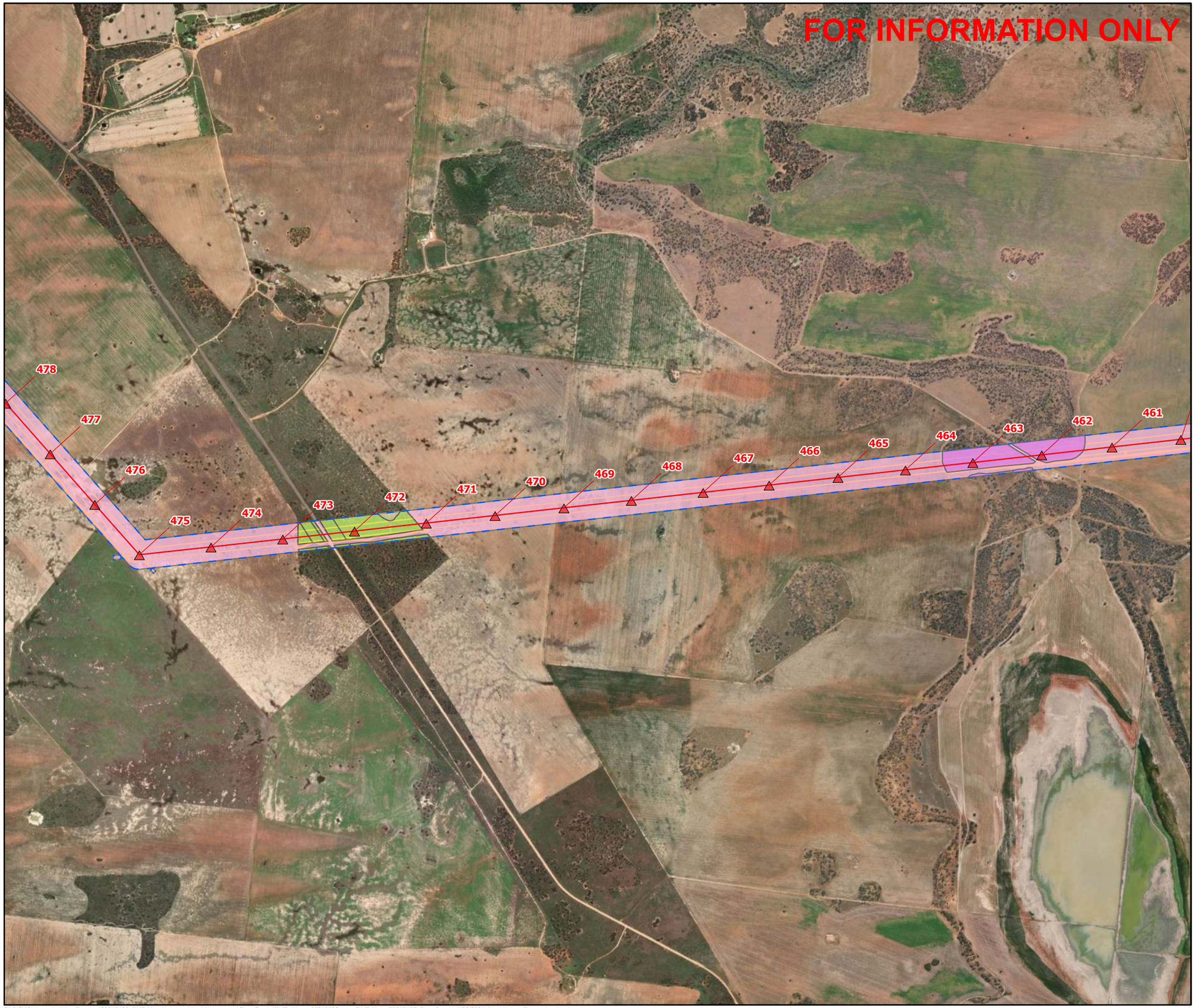
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 21 OF 74**




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Meters

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Assumed Regent Parrot Breeding Habitat
- Pink Cockatoo Breeding Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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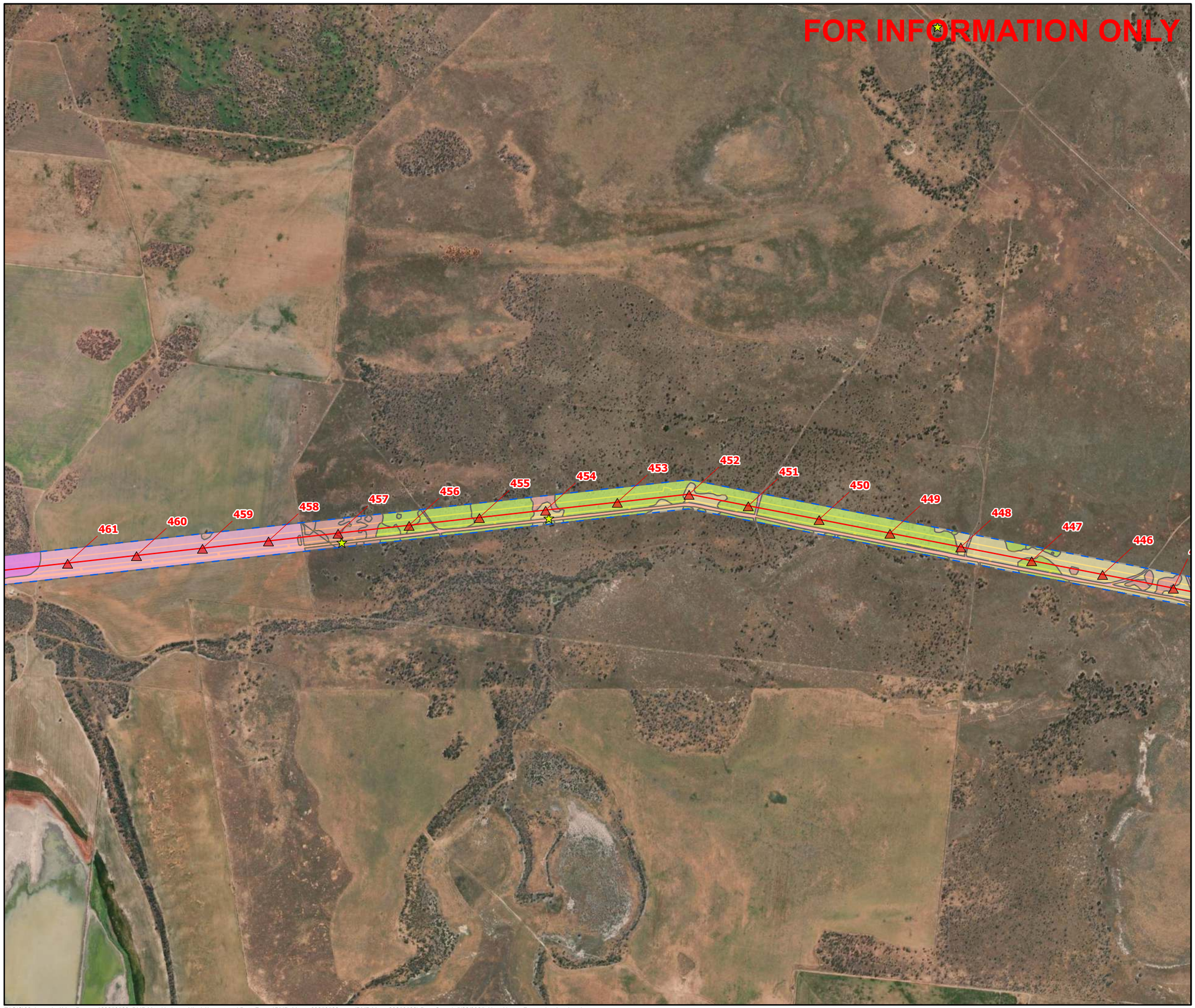
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 22 OF 74**

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Meters

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**LEGEND**

Tower Structures Centres

L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)

PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones

PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion

PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion

PCT0

PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

Major Mitchell's Cockatoo

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

Assumed Regent Parrot Breeding Habitat

Pink Cockatoo Breeding Habitat

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 23 OF 74**

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**LEGEND**

Tower Structures Centres

L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT13 Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)

PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)

PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones

PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)

PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion

PCT0

PCT143 Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.

PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

Black Falcon

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 24 OF 74**




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CLOUGH ELECNOR JOINT VENTURE

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Meters

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0
- PCT143 Narrow-leaved Hopbush - Scrub Turpentine - Senna shrubland on semi-arid and arid sandplains and dunes.
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 25 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Maeriana cheelii

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT0
- PCT23 Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions – Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 26 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Pilularia novae-hollandiae
- Eleocharis obicus
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Eleocharis obicis and associated habitat
- Maeriana cheellii
- Pilularia novae-hollandiae and associated habitat

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 27 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Pilularia novae-hollandiae
- Eleocharis obicus
- Gilgai
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Eleocharis obicis and associated habitat
- Maeriana cheelii
- Pilularia novae-hollandiae and associated habitat

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT0
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 28 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Pilularia novae-hollandiae
- Gilgai
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Maeriana cheelii
- Pilularia novae-hollandiae and associated habitat

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT0
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 29 OF 74**

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**LEGEND**

Tower Structures Centres

L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Maeriana cheellii

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion

PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones

PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone

PCT24 Canegrass swamp tall grassland wetland of drainage depressions: lakes and pans of the inland plains

PCT0

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 30 OF 74**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Maeriana cheellii

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT0
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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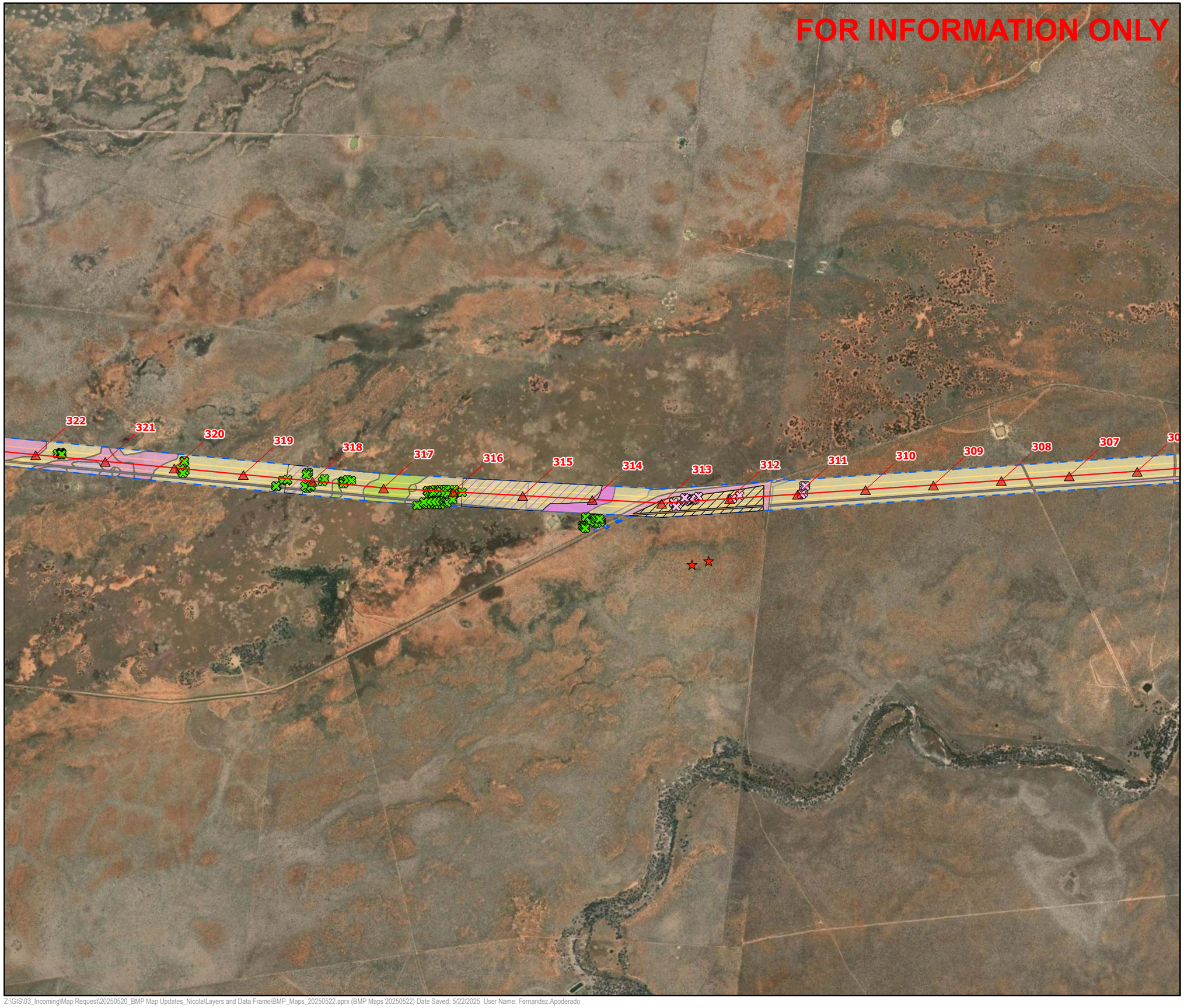
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 31 OF 74**

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Meters

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Maeriana cheellii
- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT58 Black Oak - Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Assumed Regent Parrot Breeding Habitat
- Pink Cockatoo Breeding Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 32 OF 74**

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**LEGEND**

Tower Structures Centres

L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Assumed species presence polygon - Swainsona murrayana

Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion

PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones

PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone

PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)

PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

White-fronted Chat

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 33 OF 74**

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**LEGEND**

Tower Structures Centres

L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Maeriana cheellii

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion

PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains

PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones

PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone

PCT24 Canegrass swamp tall grassland wetland of drainage depressions: lakes and pans of the inland plains

PCT0

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana
- Lepidium monoplocodies
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Lepidium monoplocoides
- Maeriana cheelii
- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT24 Canegrass swamp tall grassland wetland of drainage depressions: lakes and pans of the inland plains
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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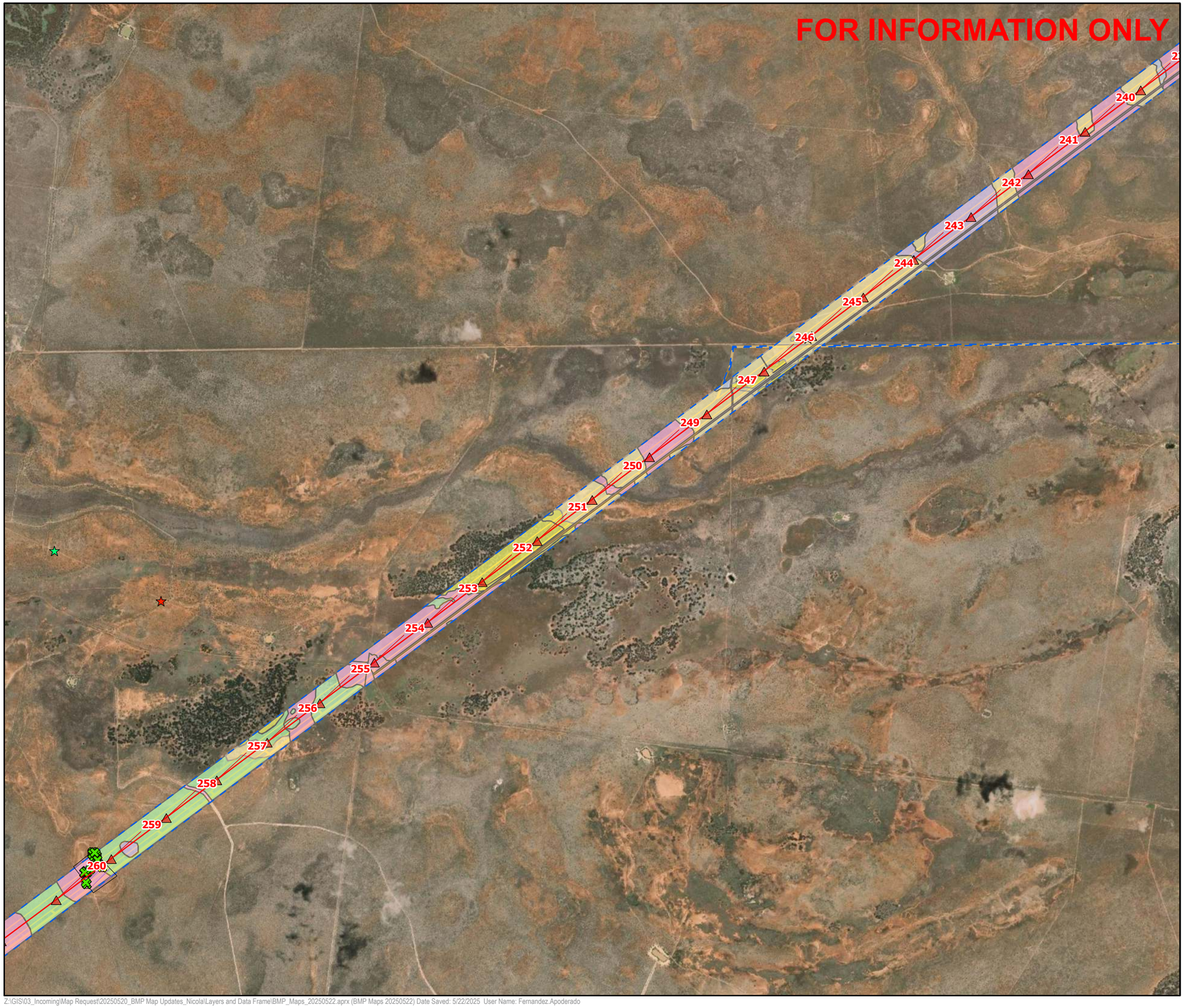
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 35 OF 74**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Lepidium monoplocodies
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Lepidium monoplocoides
- Maeriana cheellii

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT24 Canegrass swamp tall grassland wetland of drainage depressions: lakes and pans of the inland plains
- PCT28 White Cypress Pine open woodland of sand plains: prior streams and dunes mainly of the semi-arid (warm) climate zone
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Dusky Woodswallow
- White-fronted Chat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 36 OF 74**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Swainsona murrayana
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Assumed species presence polygon - Swainsona murrayana
- Brachyscome papillosa
- Maeriana cheelii
- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT157 Bladder Saltbush shrubland on alluvial plains in the semi-arid (warm) zone including Riverina Bioregion
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT24 Canegrass swamp tall grassland wetland of drainage depressions: lakes and pans of the inland plains
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Swainsona murrayana
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Assumed species presence polygon - Swainsona murrayana
- Brachyscome papillosa
- Maeriana cheelii
- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT24 Canegrass swamp tall grassland wetland of drainage depressions: lakes and pans of the inland plains
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Little Eagle
- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Plains Wanderer Important Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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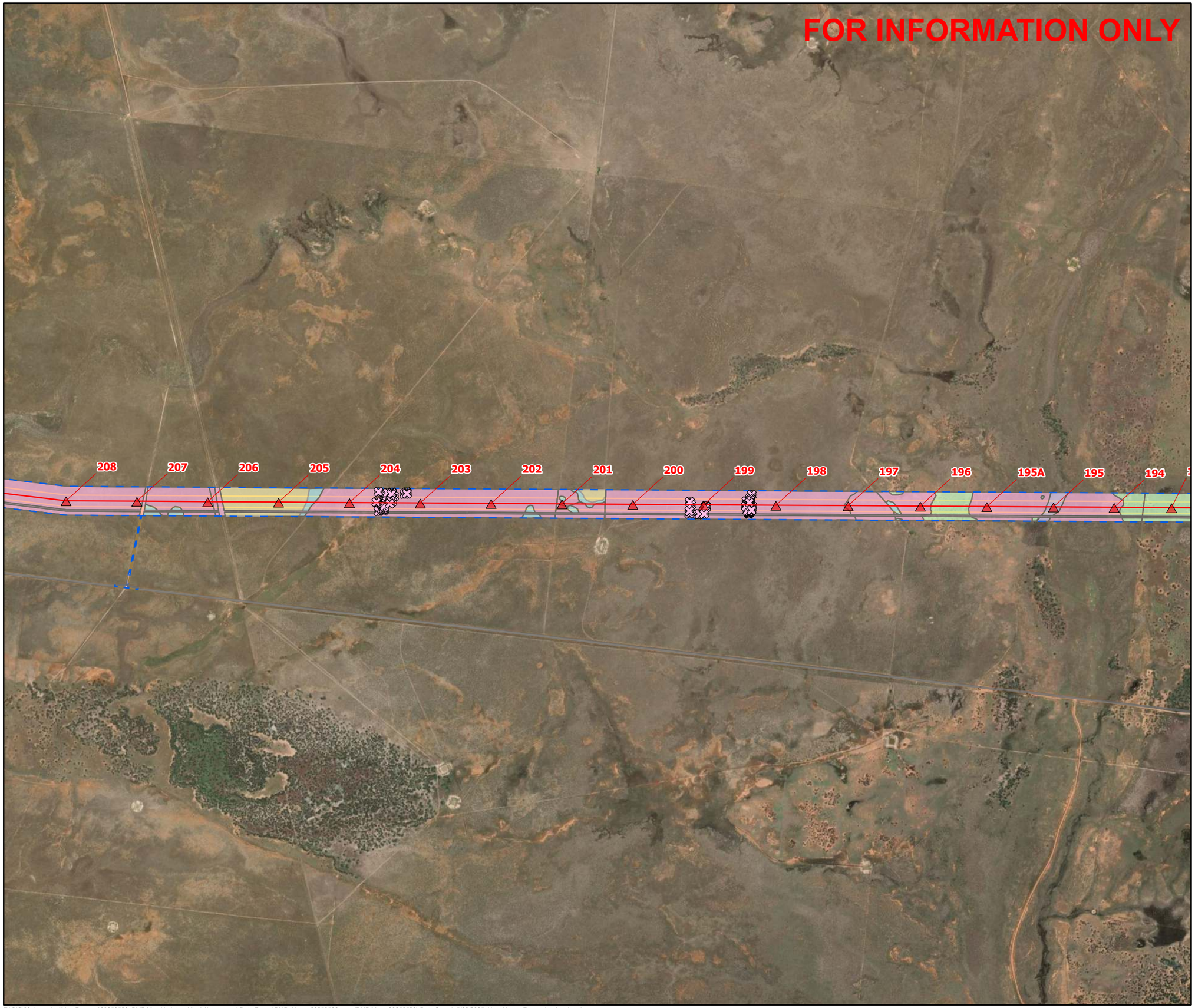
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 38 OF 74**

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Meters

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Assumed species presence polygon - Swainsona murrayana
- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT28 White Cypress Pine open woodland of sand plains: prior streams and dunes mainly of the semi-arid (warm) climate zone
- PCT0
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 39 OF 74**

FOR INFORMATION ONLY

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CLOUGH ELECNOR JOINT VENTURE

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0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT28 White Cypress Pine open woodland of sand plains: prior streams and dunes mainly of the semi-arid (warm) climate zone
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT0
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 40 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Pilularia novae-hollandiae
- Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Pilularia novae-hollandiae and associated habitat
- Swainsona murrayana

**Biodiversity Special Flora Protection Zone L2 L5**

- Biodiversity Special Flora Protection Zone L2 L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT28 White Cypress Pine open woodland of sand plains: prior streams and dunes mainly of the semi-arid (warm) climate zone
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 41 OF 74**

FOR INFORMATION ONLY

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Pilularia novae-hollandiae
- Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Pilularia novae-hollandiae and associated habitat
- Swainsona murrayana

**Biodiversity Special Flora Protection Zone L2 L5**

- Biodiversity Special Flora Protection Zone L2 L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT163 Dillon Bush (Nitre Bush) shrubland of the semi-arid and arid zones
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Plains Wanderer Important Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 42 OF 74**

FOR INFORMATION ONLY

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Assumed species presence polygon - Swainsona murrayana
- Maeriana cheellii
- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT11 River Red Gum - Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT24 Canegrass swamp tall grassland wetland of drainage depressions: lakes and pans of the inland plains
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Assumed Regent Parrot Breeding Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 43 OF 74**

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Meters

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Swainsona murrayana
- Maeriana cheellii

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Assumed species presence polygon - Swainsona murrayana
- Brachyscome papillosa
- Maeriana cheelii
- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT24 Canegrass swamp tall grassland wetland of drainage depressions: lakes and pans of the inland plains
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Assumed Regent Parrot Breeding Habitat
- Plains Wanderer Important Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 44 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Assumed species presence polygon - Swainsona murrayana
- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Plains Wanderer Important Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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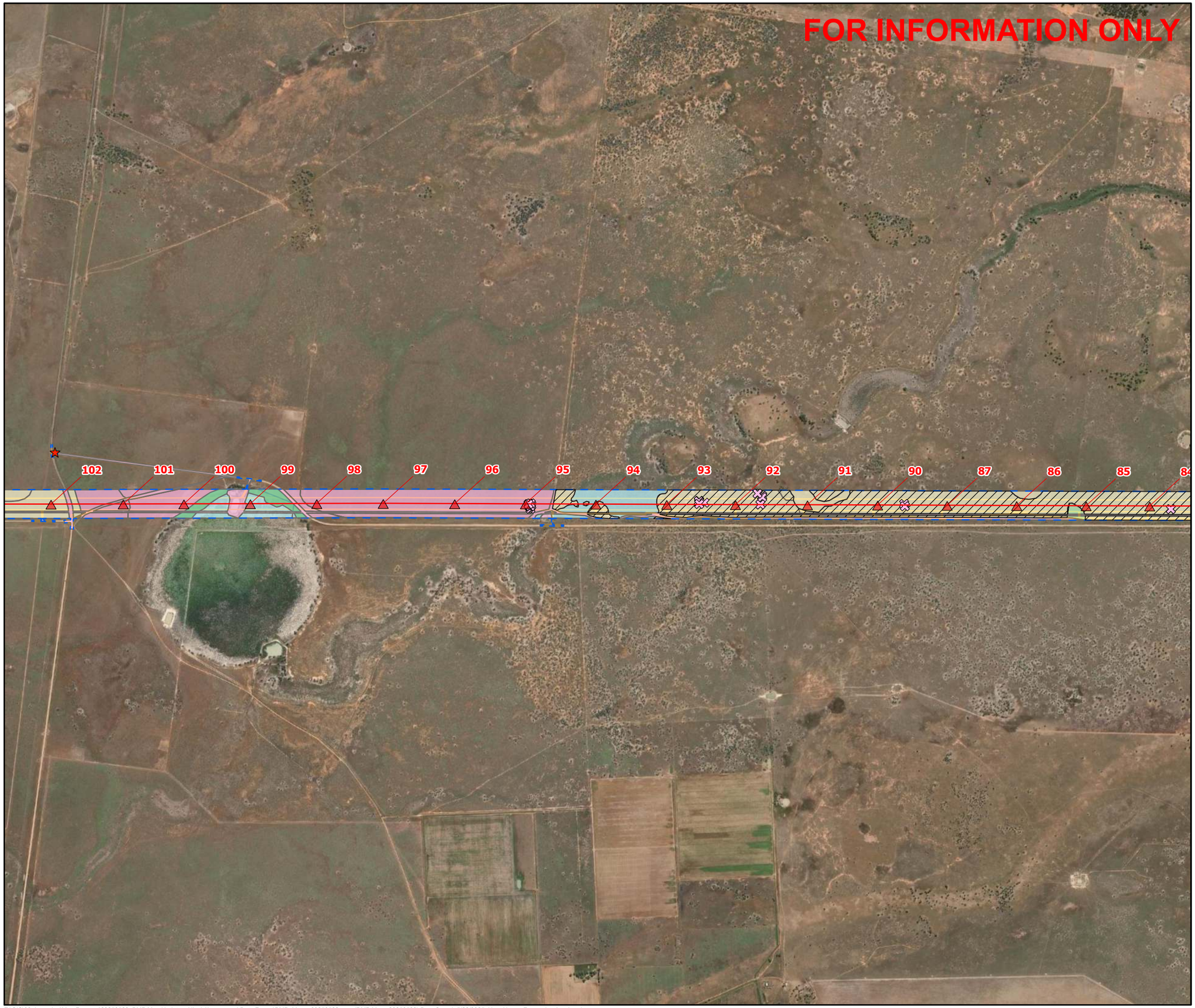
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 45 OF 74**

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Meters

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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Assumed species presence polygon - Swainsona murrayana
- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Assumed Regent Parrot Breeding Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 46 OF 74**

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Datum: GDA2020 Projection: New South Wales Lambert
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**LEGEND**

Tower Structures Centres

L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Assumed species presence polygon - Swainsona murrayana

Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)

PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion

PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion

PCT28 White Cypress Pine open woodland of sand plains: prior streams and dunes mainly of the semi-arid (warm) climate zone

PCT0

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 47 OF 74**

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Assumed species presence polygon - Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT13 Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT28 White Cypress Pine open woodland of sand plains: prior streams and dunes mainly of the semi-arid (warm) climate zone
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Superb Parrot
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 48 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT13 Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT28 White Cypress Pine open woodland of sand plains: prior streams and dunes mainly of the semi-arid (warm) climate zone
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Superb Parrot
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 49 OF 74**

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

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Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Leptorhynchos orientalis

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Assumed species presence polygon - Swainsona murrayana
- Leptorhynchos orientalis

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT13 Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT28 White Cypress Pine open woodland of sand plains: prior streams and dunes mainly of the semi-arid (warm) climate zone
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Superb Parrot

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Assumed Regent Parrot Breeding Habitat
- Plains Wanderer Important Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 50 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Datum: GDA2020 Projection: New South Wales Lambert
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**LEGEND**

- Tower Structures Centres
- L2

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Leptorhynchos orientalis

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Leptorhynchos orientalis

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT13 Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT45 Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT47 Swamp grassland wetland of the Riverine Plain
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Superb Parrot
- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Assumed Regent Parrot Breeding Habitat
- Plains Wanderer Important Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 51 OF 74**

FOR INFORMATION ONLY

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**LEGEND**

- Tower Structures Centres
- L2
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT13 Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT17 Lignum shrubland wetland of the semi-arid (warm) plains (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT45 Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT47 Swamp grassland wetland of the Riverine Plain
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Superb Parrot
- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Assumed Regent Parrot Breeding Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L2**

**MAP 52 OF 74**

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**LEGEND**

- Tower Structures Centres
- L2
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT13 Black Box - Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Superb Parrot
- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Assumed Regent Parrot Breeding Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 53 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT15 Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Black Falcon
- Little Eagle
- Spotted Harrier
- White-fronted Chat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 54 OF 74**

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**LEGEND**

Tower Structures Centres

L5

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Lepidium monoplocodies

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

Lepidium monoplocoides

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT11 River Red Gum - Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)

PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains

PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion

PCT7 River Red Gum - Warrego Grass - herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion

PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

Brown Treecreeper

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

Southern Myotis Habitat

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 55 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT45 Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT47 Swamp grassland wetland of the Riverine Plain
- PCT7 River Red Gum - Warrego Grass - herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Plains-wanderer

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Plains Wanderer Important Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 56 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT164 Cotton Bush open shrubland of the semi-arid (warm) zone
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT47 Swamp grassland wetland of the Riverine Plain
- PCT0

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Plains Wanderer Important Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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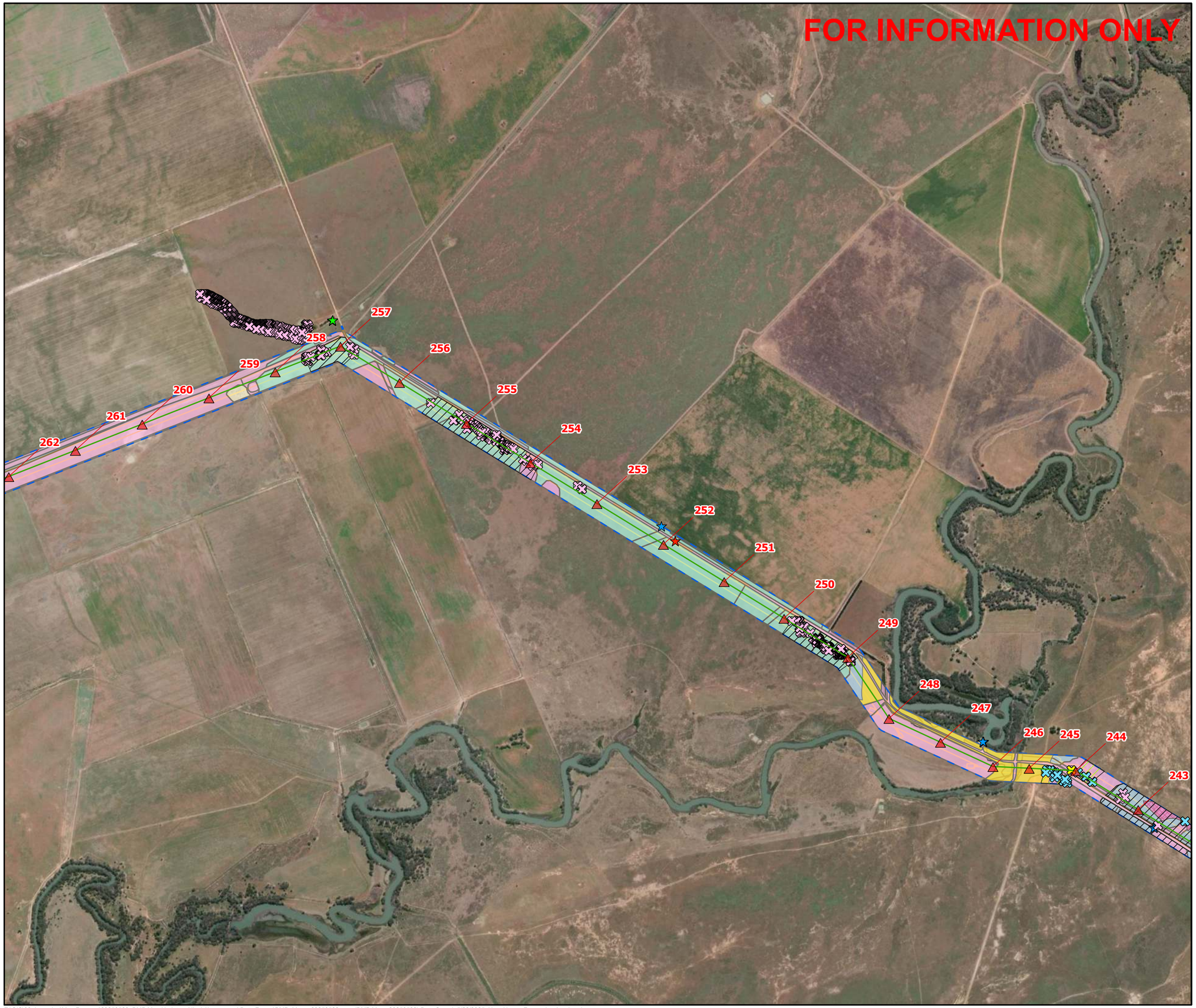
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Lepidium monoplocoides
- Swainsona murrayana
- Lepidium monoplocodies

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Lepidium monoplocoides
- Swainsona murrayana

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT182 Cumbungi rushland wetland of shallow semi-permanent water bodies and inland watercourses
- PCT216 Black Roly Poly low open shrubland of the Riverina Bioregion and Murray Darling Depression Bioregion
- PCT26 Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT45 Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT47 Swamp grassland wetland of the Riverine Plain
- PCT7 River Red Gum - Warrego Grass - herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Black Falcon
- Grey-crowned Babbler
- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Plains Wanderer Important Habitat
- Southern Myotis Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 58 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Lepidium monoplocoides
- Swainsona murrayana
- Lepidium monoplocodies

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Lepidium monoplocoides
- Swainsona murrayana

**Biodiversity Special Flora Protection Zone L2 L5**

- Biodiversity Special Flora Protection Zone L2 L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT182 Cumbungi rushland wetland of shallow semi-permanent water bodies and inland watercourses
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT45 Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT53 Shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains
- PCT7 River Red Gum - Warrego Grass - herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Black Falcon
- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Plains Wanderer Important Habitat
- Southern Myotis Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 59 OF 74**

FOR INFORMATION ONLY

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secureenergy
CLOUGH ELECNOR JOINT VENTURE

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0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Flora Threatened Species Point WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Leptorhynchos orientalis
- Swainsona murrayana

**Biodiversity Flora Threatened Species Polygons WSP L2 L5 (ECO WSP PEC Post Approval 241015)**

- Brachyscome papillosa
- Leptorhynchos orientalis
- Swainsona murrayana

**Biodiversity Special Flora Protection Zone L2 L5**

- Biodiversity Special Flora Protection Zone L2 L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT11 River Red Gum - Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion)
- PCT160 Nitre Goosefoot shrubland wetland on clays of the inland floodplains
- PCT44 Forb-rich Speargrass - Windmill Grass - White Top grassland of the Riverina Bioregion
- PCT45 Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT46 Curly Windmill Grass - speargrass - wallaby grass grassland on alluvial clay and loam on the Hay Plain: Riverina Bioregion
- PCT75 Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Spotted Harrier
- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Assumed Regent Parrot Breeding Habitat
- Pink Cockatoo Breeding Habitat
- Plains Wanderer Important Habitat
- Squirrel Glider Habitat

**Biodiversity Eastern Plains Wanderer L2 L5 (Subset of Biodiversity Enviro Constraints and Plains Wanderer L2 L5)**

- Plains Wanderer Important Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 60 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT75 Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion
- PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Squirrel Glider Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 61 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT75 Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion
- PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Varied Sittella
- White-fronted Chat

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Squirrel Glider Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 62 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT249 River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW
- PCT45 Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion
- PCT75 Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 63 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT75 Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion
- PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Superb Parrot
- Varied Sittella
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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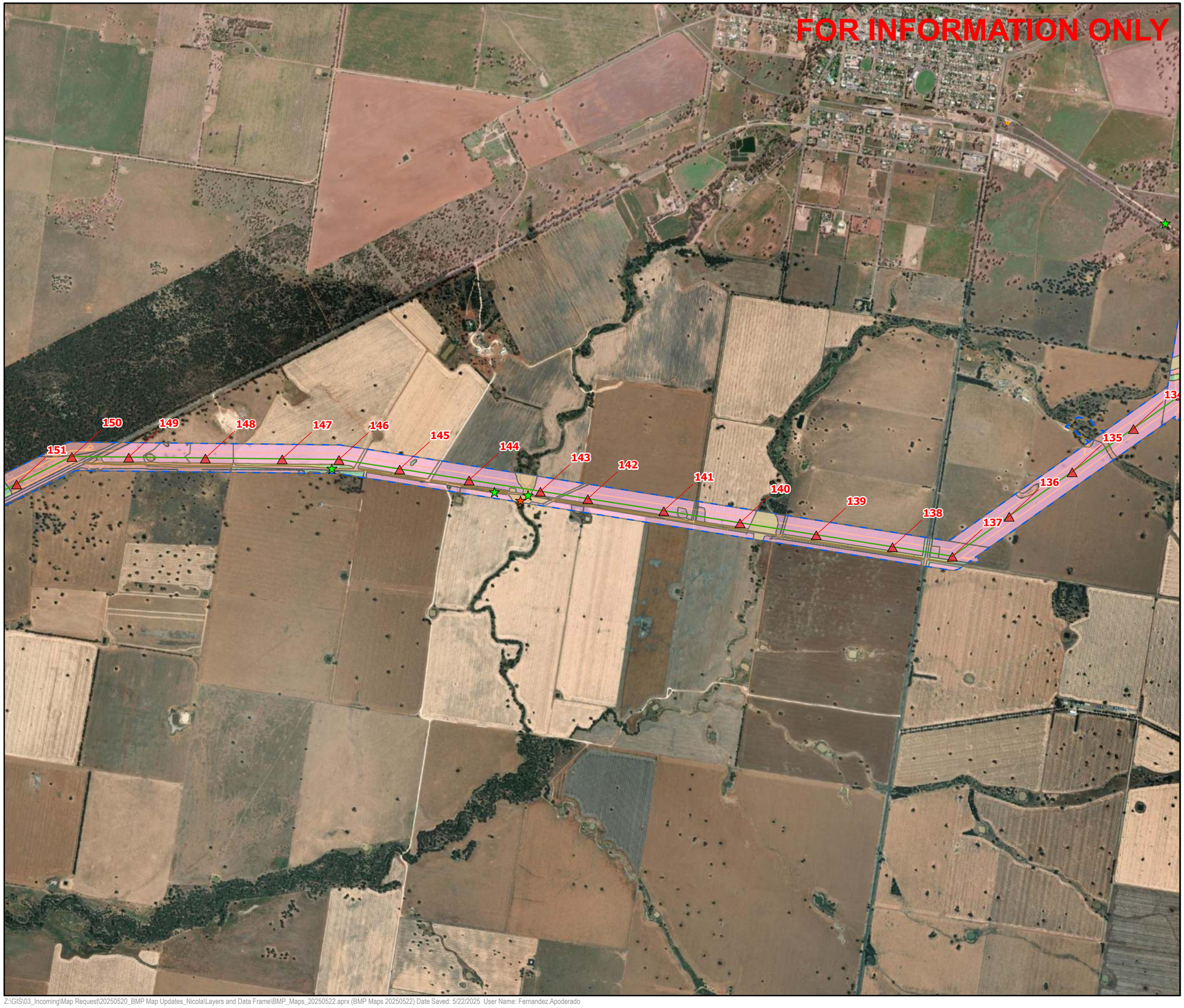
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 64 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT74 Yellow Box - River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT75 Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion
- PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Superb Parrot

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Habitat
- Squirrel Glider Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 65 OF 74**

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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

Tower Structures Centres

L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT75 Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion

PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion

PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

Grey-crowned Babbler

Superb Parrot

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

Squirrel Glider Habitat

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 66 OF 74**

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Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT277 Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
- PCT75 Yellow Box - White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion
- PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Squirrel Glider
- Superb Parrot

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Squirrel Glider Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 67 OF 74**

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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT5 River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion.
- PCT76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
- PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Squirrel Glider
- Brown Treecreeper

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Squirrel Glider Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 68 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT5 River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion.
- PCT76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
- PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Squirrel Glider

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Squirrel Glider Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 69 OF 74**

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT5 River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion.
- PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

- Grey-crowned Babbler
- Squirrel Glider
- Superb Parrot

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Squirrel Glider Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 70 OF 74**

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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT277 Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
- PCT319 Tumbledown Red Gum - White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion
- PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT0
- PCT267 White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Barking Owl Habitat
- Squirrel Glider Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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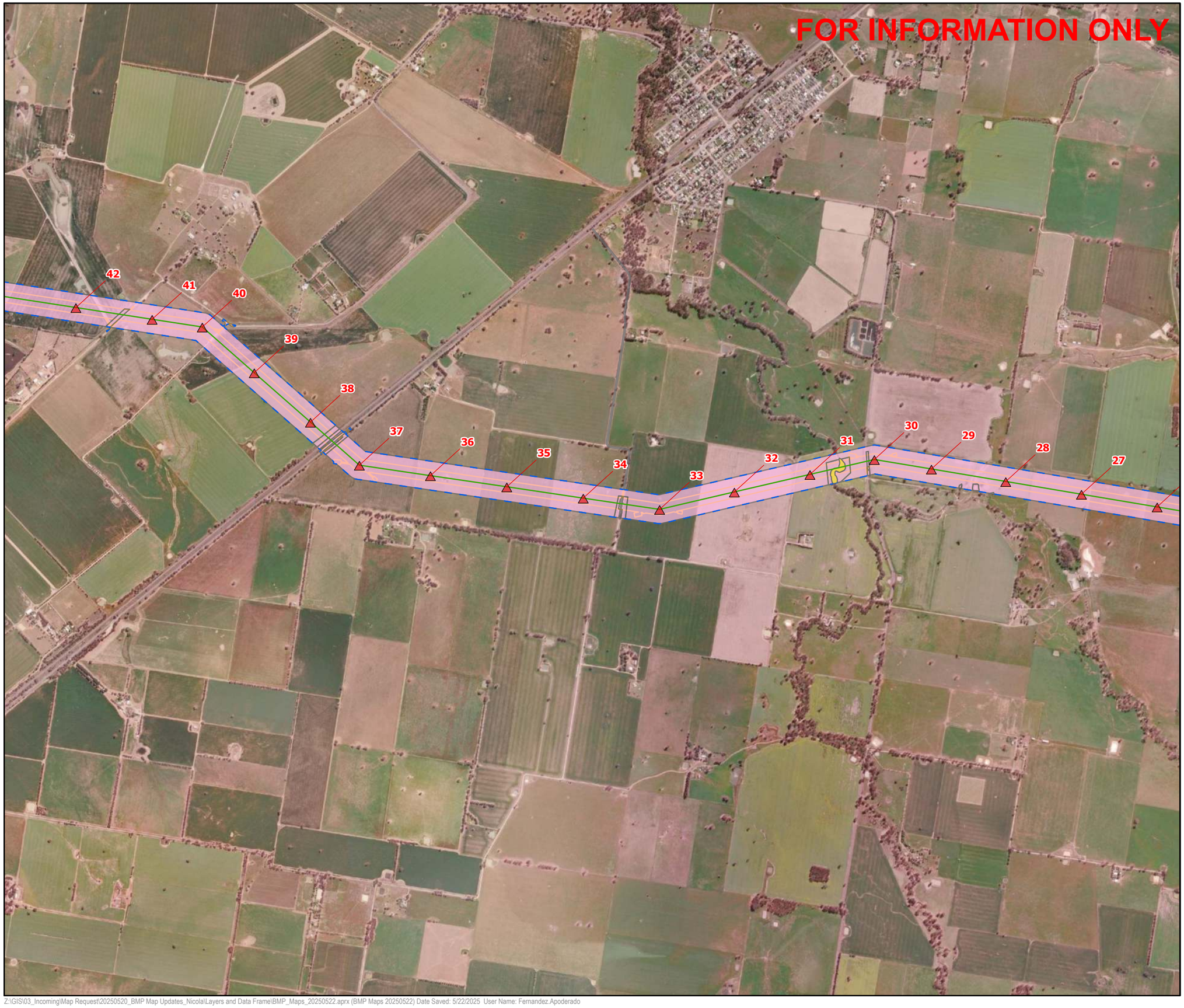
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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 71 OF 74**




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CLOUGH ELECNOR JOINT VENTURE

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**LEGEND**

- Tower Structures Centres
- L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

- PCT277 Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion
- PCT5 River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion.
- PCT74 Yellow Box - River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion
- PCT76 Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions
- PCT0

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

- Superb Parrot Breeding Habitat
- Southern Myotis Habitat
- Squirrel Glider Habitat
- Biodiversity Study Area L2 L5
- Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 72 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

N

0 250 500 1,000
Meters

Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

Tower Structures Centres

L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT277 Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

PCT319 Tumbledown Red Gum - White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion

PCT80 Western Grey Box - White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion

PCT0

PCT110 Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions – Endangered

PCT267 White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland – Critically Endangered

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

Dusky Woodswallow

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

Superb Parrot Breeding Habitat

Squirrel Glider Habitat

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

**MAP 73 OF 74**

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CLOUGH ELECNOR JOINT VENTURE

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Datum: GDA2020 Projection: New South Wales Lambert
Scale: 1:25,000 (when printed at A3)

**LEGEND**

Tower Structures Centres

L5

**Biodiversity Vegetation L2 L5 With Camp 4 (20250304)**

PCT277 Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion

PCT5 River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion.

PCT74 Yellow Box - River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion

PCT0

**Biodiversity Fauna Threatened Species Point WSP L2 L5 (ECO WSP 221121)**

Dusky Woodswallow

Superb Parrot

**Biodiversity Fauna Threatened Species Polygons WSP L2 L5 (ECO WSP 240501)**

Southern Myotis Habitat

Squirrel Glider Habitat

Biodiversity Study Area L2 L5

Project Site Boundary - Eastern Section L2 L5




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**BIODIVERSITY MAPPING EASTERN ALIGNMENT L5**

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# Appendix F – Plains-wanderer Protocol

PUBLIC

# Plains-wanderer Protocol
# EnergyConnect (NSW – Eastern Section)

45860-HSE-PL-D-0135

| REV | DATE | GENERAL DESCRIPTION | PREPARED | REVIEWED | VERIFIED | APPROVED |
|---|---|---|---|---|---|---|
| A | 07/10/2022 | Issued for internal review | K.Baxter | A.Kriegel | A.Boyd | S.Basanta |
| B | 28/10/2022 | Issued for Transgrid review | K.Baxter | R.Walker-Edwards | A.Boyd | S.Basanta |
| C | 17/11/2022 | Issued for agency review | K.Baxter | R.Walker-Edwards | G.Crighton | S.Basanta |
| D | 3/02/2023 | Issued for agency review | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| E | 14/03/2023 | Issued for DPE review | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| F | 20/05/2025 | Revised to Elecnor template | N.Dwyer | R.Walker-Edwards | G.Crighton | F.Delgado |

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| Revision History | |
|---|---|
| **Rev.** | **Detailed Description** |
| A | Issued for internal review |
| B | Issued for Transgrid review |
| C | Issued for agency review |
| D | Revised to address agency comments |
| E | Issued for DPE review |
| F | Revised to Elecnor template |
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| Key Document Stakeholders |
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| **To be communicated with during reviews and revisions of this document** |
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# 1 Introduction

This Plains-wanderer Protocol (protocol) is an appendix to the *Biodiversity Management Plan* (45860-HSE-PL-D-0117) and forms part of the overall environmental management framework for the project.

## 1.1 Purpose

The purpose of this protocol is to describe how Elecnor proposes to ensure that all project staff are aware of the sensitivities around the critically endangered Plains-wanderer species and to ensure that all specific requirements in relation to protection, avoidance, management and observation of individual Plains-wanderers are considered.

This protocol will be implemented during all proposal activities in Plains-wanderer habitat (also known as Plains-wanderer important habitat) and is therefore only applicable to Stage 2 of the project.

## 1.2 Scope

This protocol is applicable for any activities conducted by site personnel (including sub-contractors) within Plains-wanderer habitat.

## 1.3 Preparation of this plan

This protocol has been prepared by a suitably qualified and experienced person. This protocol was prepared by:

- Rebecca Walker-Edwards; and
- Katie Baxter.

This protocol has been reviewed by a representative of the project's ecological team. Eamon O'Meara is an ecologist and a zoologist, with a focus on Plains-wanderer.

## 1.4 Consultation

In accordance with revised mitigation measure (RMM) B13, this protocol has been prepared in association with Biodiversity and Conservation Division (BCD).

This protocol was issued to BCD for review and comment. Comments from the consultation process have been incorporated into this protocol where appropriate.

# 2 Environmental requirements

## 2.1 Conditions of Approval

The conditions of the Infrastructure Approval relevant to managing impacts to Plains-wanderer are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this plan or other project management documents.

**Table 2.1 - Conditions of Approval relevant to the Plains-wanderer**

| Condition no. | Requirement | Where addressed | How addressed |
|---|---|---|---|
| C23 | Unless otherwise agreed with the Planning Secretary, the Proponent must: | - | - |
| | a) ensure that clearing does not exceed the limits identified in Appendix 2; and | Section 4.3.1<br>Table 4.2<br>Appendix A of the BMP - Pre-clearing and Clearing Procedure | Clearing will be managed in accordance with the *Pre-clearing and Clearing Procedure*.<br>Progressive monitoring of the clearing quantities will occur to ensure that impacts will not exceed the limits prescribed in condition C23 a). |
| | b) minimise:<br>(i) the impacts of the development on hollow-bearing trees;<br>(ii) the impacts of the development on threatened flora and fauna populations; and<br>(iii) the clearing of native vegetation and key habitat. | Section 4<br>Table 4.2<br>Section 5 | The mitigation measures identified within Section 4 will be implemented to ensure that clearing for the development minimises impacts to Plains-wanderer populations and key habitat. Impacts to hollow-bearing trees, threatened fauna (other than Plains-wanderer) populations, and the clearing of native vegetation and key habitat (other than Plains-wanderer) are addressed in the Biodiversity Management Plan.<br>Monitoring, inspections and auditing described in Section 5 of this protocol will check the implementation and effectiveness of the management measures identified in Section 4. |

## 2.2 Revised mitigation measures

Revised mitigation measures (RMMs) are defined in the Amendment Report. The RMMs relevant to biodiversity, and in particular Plains-wanderer management, are detailed in Table 2.2. A cross reference is also included to indicate where the measure is addressed within this Protocol or other project management documents. The management measures relevant to managing impacts to Plains-wanderer are provided in Section 4.4 of this Protocol.

**Table 2.2 - Revised mitigation measures relevant to biodiversity (Plains-wanderer)**

| Ref. | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| 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.<br>Micro-siting of the transmission line infrastructure and associated construction | All locations | Section 4.1<br>Table 4.2<br>Biodiversity Management Plan | During detailed design and review of temporary design, opportunities to site items in locations where impacts to matters of biodiversity |

| Ref. | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | working areas and other areas of disturbance would occur to avoid impacts wherever practicable.<br>Site features with the highest biodiversity conservation significance, in particular, threatened species recorded and their habitat would be given the highest priority.<br>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. | | | conservation significance are reduced, will occur. |
| B9 | Pre-clearing surveys will be completed prior to clearing at each location by a suitability qualified ecologist.<br>The proposed clearing extents will be marked out on site prior to the pre-clearing surveys. During the surveys, the ecologist will:<br>• survey the proposed clearing extent<br>• identify any fauna that will require relocation prior to clearing<br>• confirm the location and mark out the extents of any biodiversity exclusion zones<br>• confirm that hollow-bearing trees within and adjacent to the clearing extents are prominently marked/tagged<br>• 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; and<br>• survey and confirm the presence of raptor nests within and adjacent to the clearing extents. | All locations | Table 4.2<br>Appendix A of the BMP - Pre-clearing and Clearing Procedure | Pre-clearing surveys will be undertaken in accordance with the *Pre-clearing and Clearing Procedure*.<br>Pre-clearing surveys will be undertaken by the project ecologist in accordance with the requirement of RMM B9. |
| B10 | The results of the pre-clearing surveys would be used to update and confirm the accuracy of sensitive area maps. | All locations | Table 4.2<br>Appendix A of the BMP - Pre-clearing and Clearing Procedure | The *Pre-clearing and Clearing Procedure* includes the requirement to update the Geographical Information System (GIS) or sensitive area plans (SAPs) (as required, based on findings). |
| B11 | Biodiversity exclusion zones for retained vegetation, including identified threatened flora populations will be clearly identified by a suitably qualified ecologist prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone. Biodiversity exclusion zones will be physically marked | All locations | Table 4.2<br>Appendix A of the BMP - Pre-clearing and Clearing Procedure | The *Pre-clearing and Clearing Procedure* includes the requirement for the ecologist to identify biodiversity exclusion zones. This would also apply to Plains-wanderer habitat and is captured in Table 4.2. |

| Ref. | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | and demarcated, and included on sensitive area maps, prior to clearing.<br>'No disturbance zones' would consider:<br>• identified Plains-wanderer habitat<br>• identified threatened flora populations; and<br>• PCTs in disturbance area B that are not of a growth form height that would ever require management.<br>Biodiversity exclusion zones would be physically marked and demarcated, and included on sensitive area maps, prior to clearing. | | | |
| 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. | All areas of key Plains Wanderer primary habitat | Table 4.2<br>Section 4<br>Annexure A | The project has been designed to minimise impacts to Plains-wanderer habitat as much as feasible. Should a tree require removal that would exceed the clearing limits, the tree would be removed to ground level under the supervision of an ecologist, using methods that minimise impacts to key habitat. |
| B13 | 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. | All locations | This Protocol<br>Section 2<br>Section 5<br>Table 4.2<br>Annexure A | This Protocol details how project staff will be made aware of the Plains-wanderer, and how the project will protect, avoid, manage and observe the species. |
| B14 | All relevant project personnel, including relevant subcontractors 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. | All locations | Section 5.1<br>Section 4.5 of the CEMP<br>Appendix A of the BMP - Pre-clearing and Clearing Procedure | Training will be carried out by the site inductions, toolbox trainings and targeted training. Section 5.1 provides information in relation to the training and awareness that will be provided to all site personnel.<br>Sensitive areas for the relevant works locations will be covered in the training, with GIS or sensitive area plans provided to relevant personnel within the construction workforce. |
| B18 | A species unexpected finds protocol would be implemented if threatened ecological communities, flora and fauna species, not | All locations | Appendix B of the BMP – Unexpected Threatened | If a Plains-wanderer is identified during construction (other than for pre-clearing |

| Ref. | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | identified in the biodiversity assessment, are identified in the disturbance area. | | Species Find Procedure | inspections or clearing activities), the *Unexpected Threatened Species Finds Procedure* will be followed (Appendix B of the BMP). |
| 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 | Access/egress points to access tracks | Table 4.2 | Existing access tracks will be used where possible to avoid and minimise impacts to Plains-wanderer habitat. |

# 3 Plains-wanderer

## 3.1 Description and status

Found only in the semi-arid and arid grasslands of south-eastern Australia, there are estimated to be between 250 and 1,000 Plains-wanderer (*Pedionomus torquatus*) left in the wild.

The Plains-wanderer is a relatively small, quail-like grassland bird that averages 15-19cm in length on average when fully grown. Females tend to be more brightly coloured than the males, and tend to be more yellow on the bill, iris, legs and feet, especially during the breeding season when the bill and legs can become orange yellow (Marchant & Higgins, 1993). Juveniles resemble adult males, but they can be distinguished until 14 weeks of age by heavy dark-brown spotting on their lower breast and flanks (Crome and Rushton, 1975). Refer to Figure 3.1 and Figure 3.2 below.

While not entirely flightless, Plains-wanderer tend to fly low and rather poorly, and when disturbed their first instinct is to run. The largely sedentary species relies on camouflage to remain hidden from predators such as foxes. Although the Plains-wanderer is a diurnally (daytime) active species they are not easily observable during those times. Their strategy for survival in an open environment is reliant on their cryptic plumage, while remaining motionless, and they do not readily flush as other grassland birds do, unless an observer almost steps on them. Therefore, surveys are conducted during nocturnal hours when the birds are roosting and more easily observed. Traditionally, Plains-wanderers are detected at night with the use of a spotlight or thermal imaging scopes or cameras while moving through potential habitat.

The Plains-wanderer is listed as Endangered under the NSW *Biodiversity Conservation Act 2016* (BC Act) and listed as Critically Endangered under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).



**Figure 3.1 - Mature Plains-wanderer female (Source: WSP)**



**Figure 3.2 - Mature Plains-wanderer male (Source: WSP)**

## 3.2 Habitat

Although it is superficially similar in habitat choice to quail, the Plains-wanderer is unable to negotiate dense grassland types like quail do and it is far less likely to flush when approached.

Surveys also indicate that Plains-wanderers appear to avoid being in close proximity to living or dead trees, with no records of any birds within 300 m of trees of 10 m or greater in height across their strongholds in New South Wales and Victoria (Baker-Gabb, 2014). Plains-wanderer avoidance of trees and tall shrubs appears to be a defence strategy to limit the potential for attack by predatory birds that often perch in these trees. The distance plains-wanderers maintain from trees appears to depend on the height of the tree (Baker-Gabb, 2014).

Their difficulty in negotiating dense grassland types and preference for high grassland plant diversity has limited the availability of preferred habitat types due to widespread pasture improvement and grazing pressures throughout its natural range.

Their habitat preference is for substrates denuded of the "A" horizon where grasses can only grow sparsely, leaving soil substrates open and providing opportunities for short native herbs and tufted native grasses to offer forage and cover. Their highly specific requirements for habitat quality and structure is further dependant on land use and grazing regimes; sheep often being employed as a means of reducing grass densities during periods of strong growth returning preferred habitat areas to structural condition preferred by the bird (WSP, 2022).

The Plains-wanderer is diurnal in its habits, but almost impossible to see during daylight hours. All surveys conducted for the species are therefore undertaken at night. Currently, the species is experiencing a low population ebb because of a prevailing dry period extending back twenty years and this weather pattern has contributed to a population reduction from an estimated 3,000 individuals down to approximately 700 birds during that period (David Parker pers. comm.).

There is strong evidence that they move in response to changes in habitat quality, with birds present in locations when habitat is of high quality and absent when habitat quality wanes (David Parker pers. comm.). This tendency to move in response to habitat quality, which is widely recorded in many other bird species, has important implications for results returned from Plains-wanderer survey works.

## 3.3 Species status

Although the Plains-wanderer's range extends through northern Victoria, South Australia, the lower Northern Territory and through western NSW to south-western Queensland, their stronghold is in the NSW Riverina district and the northern Victoria grasslands. The proposal traverses the most important area for the species in NSW which roughly extends from Griffith in the north, to Deniliquin in the south, and from west of the Cobb Highway to the Urana area in the east.

From comparisons of genetic material, between the Victorian and NSW Riverina populations, there is evidence that the two areas share individuals, although movements haven't been confirmed through banding (David Parker pers. comm.). There is at least some hard evidence that Plains-wanderers move relatively large distances, with a bird being recorded over 140 km from a banding location with significant barriers (river and woodland) between the two locations (David Parker pers comm.).

## 3.4 Key habitat and distribution

During the development of the *Revised Biodiversity Development Assessment Report* (Final BDAR), three birds were recorded at Bundure Travelling Stock Route (TSR). It is noted that these birds were not identified within the proposed construction area.

Suitable habitat was identified within the project study area within Plant Community Types (PCTs) 44 and 46. Preferred habitat was also identified within the biodiversity study area.

Key habitat for the Plains-wanderer relevant to the project is identified in Annexure A (Threatened fauna mapping).

## 3.5 Threats

Known key threats to Plains-wanderer species include but are not limited to the following:

- historical loss of habitat from clearing and pasture improvement;
- prolonged drought or overgrazing resulting in loss of habitat due to the reduction of suitable ground cover;
- fox predation and developments that lead to elevated numbers of foxes;
- feral cat predation;
- destruction of suitable habitat due to high intensity fire;
- pesticides, including those used in locust control, such as fipronil and fenitrothion, which can impact on Plains-wanderers either directly or via their food supply;
- damage to Plains-wanderer habitat caused by rabbits; and
- boxthorn which can provide perches for raptors that may prey upon Plains-wanderers, as well as shelter for pest species such as foxes and rabbits.

# 4 Impacts, mitigation and management

## 4.1 Minimisation and avoidance of impacts

During the development of the project's design, design refinement occurred to avoid where possible direct impacts to mapped Plains-wanderer habitat. The design refinement involved realignment of the transmission line near Bundure Siding and re-routing of maintenance tracks.

## 4.2 Description of impacts

### Direct impacts

In line with the clearing extents stipulated in condition C23 of the Infrastructure Approval, the project will directly impact up to 0.37 hectares of Plains-wanderer habitat.

### Indirect impacts

Indirect impacts would potentially include:

- low risk of inadvertent impacts on adjacent habitat or vegetation (e.g. soil disturbance, erosion, sedimentation, enriched run-off and water quality);
- potential for machinery/equipment to result in the introduction of weeds which may impact vegetation structure;
- negligible risk of reduced viability of adjacent habitat due to noise, dust or light spill;
- negligible risk of increased risk of starvation, exposure and loss of shade or shelter; and
- low risk of increased risk of fire.

It not expected that the project would impact any adult Plains-wanderer individuals, due to the mitigation measures put in place to minimise impacts to important habitat areas.

## 4.3 Proposed management

### 4.3.1 Habitat clearing limits

All vegetation clearing will be undertaken in accordance with the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027).

Clearing limits for Plains-wanderer habitat, in accordance with Appendix 2 (Biodiversity) of the Infrastructure Approval are provided in Table 4.1. These clearing limits apply to the project as a whole (Stage 1 and Stage 2).

**Table 4.1 - Clearing limits for Plains-wanderer**

| Species | | Conservation significance | | Direct impact (ha) |
|---|---|---|---|---|
| | | BC Act | EPBC Act | |
| *Pedionomus torquatus* | Plains-wanderer | E | CE | 0.37 |

### 4.3.2 Pre-clearing Plains-wanderer habitat

All areas that need to be cleared will be subject to staged or non-staged clearing. Staged clearing occurs in locations where the ecologist identifies habitat and is typically referred to as 'two-stage clearing'.

Two-stage clearing will be required for any biodiversity conservation zones relating to the Plains-wanderer habitat areas where habitat vegetation is identified by the ecologist during the pre-

clearing inspection. In accordance with Section 5.2 of the *Pre-clearing and Clearing Procedure*, habitat vegetation will be identified with flagging and GPS coordinates will be obtained.

Plains-wanderer habitat vegetation will be identified with unique identifier numbers, and as Plains-wanderers avoid trees, star pickets or similar will be placed with high-visibility flagging attached.

For these locations, the clearing area will be surveyed by the project ecologist either the night before or pre-dawn on the day of clearing to:

- obtain updated information on Plains-wanderer habitat that is present, including:
  - inspection of identified habitat features for evidence of fauna habitation, including but not limited to Plains-wanderer species;
  - identify any Plains-wanderer that will require relocation prior to clearing;
  - demarcate any newly identified habitat;
  - capture and relocate any identified non-mobile fauna.

A suitable methodology to spot Plains-wanderers will be used, such as thermal imaging.

#### 4.3.2.1 Initial clearing

The ecologist will be present during all clearing in biodiversity conservation zones relating to the Plains-wanderer habitat areas.

Any non-habitat vegetation in proximity to Plains-wanderer habitat will be cleared first. Any trees that require removal will be subject to removal to ground level (i.e. tree height cut back but rootball to be retained).

There will be no clearing of Disturbance Area A – centreline other than for the removal of a tree that exceeds the vegetation clearance requirements. Likewise for all clearing in Plains-wanderer habitat, the tree would be subject to removal to ground level (i.e. tree height cut back but rootball to be retained in place).

All marked habitat features will be retained until the final stage of clearing. This allows respite between the initial disturbance and the final removal of habitat. The changed environment and the disturbance from clearing should encourage residing fauna to relocate voluntarily without human handling.

A respite period of approximately 24 hours after removal of non-habitat vegetation is intended to allow resident fauna the opportunity to vacate remaining habitat before final clearing commences.

#### 4.3.2.2 Final clearing

Final clearing involves clearing the habitat vegetation identified within the Plains-wanderer habitat areas. Again, during this stage there will be no clearing of Disturbance Area A – centreline other than for the removal of a tree that exceeds the vegetation clearing requirements (the rootball of this tree will remain).

A suitably qualified and experienced ecologist will be onsite to:

- thoroughly inspect Plains-wanderer habitat immediately prior to clearing;
- ensure detected Plains-wanderer are encouraged to self-relocate or will be captured and released in the identified release areas;
- to capture and relocate any encountered Plains-wanderer to pre-identified release sites;

- ensure that any injured Plains-wanderer is transported to veterinarian or wildlife carer. Contact should also be made with the conservation team at Taronga Western Plains Zoo (Dubbo) so that guidance of the management of the animal can be provided. Taronga Western Plains Zoo can be contacted on 02 6881 1400; and
- where breeding Plains-wanderer or dependent young are detected during the clearing works, do not disturb the species. Consult with BCD's Threatened Species Accountable Officer, David Parker on 0428 620 104 to determine whether the animal/s require ongoing care or can be safely relocated to adjacent habitat.

BCD's Threatened Species Accountable Officer, David Parker on 0428 620 104 would be contacted in the event that breeding Plains-wanderer or dependent young are detected during clearing works.

The location of Plains-wanderer release (including GPS coordinates) will be recorded in a post-clearing report.

Once all Plains-wanderer habitat inspection and any required fauna removal is complete, the remaining vegetation clearing can commence.

## 4.4 Management measures

Table 4.2 summarises the Plains-wanderer management measures required to manage impacts to the species as a result of construction of the project.

## Table 4.2 - Plains-wanderer management measures

| No. | Management measure | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| **General** | | | | |
| PW1 | Site inductions will contain relevant information on the Plains-wanderer, including but not limited to:<br>• why the Plains-wanderer are of importance;<br>• what the Plains-wanderer looks like and how it behaves;<br>• what to do in the instance of an unexpected find within the construction area;<br>• what methodology is to be used within Plains-wanderer habitat; and<br>• which areas are exclusion zones. | Pre-construction and construction | Environmental Advisor<br>Environmental Manager<br>Supervisor | RMM B13<br>RMM B14 |
| PW2 | Unless otherwise agreed with the Planning Secretary, clearing of Plains-wanderer habitat is not to exceed the limits identified in Section 4.3.1.<br>Spatial data and locations of Plains-wanderer will be provided to the detailed design team in detailed construction planning. | Pre-construction and construction | Design Manager<br>Construction Manager<br>Environmental Manager<br>Supervisor | Condition C23 |
| PW3 | Clearing of key habitat will be minimised or avoided where possible. This will include minimising impacts on the clearing of native vegetation and key habitat. Opportunities to minimise clearing will occur through review of temporary design and construction methodologies. | Pre-construction and construction | Environmental Manager<br>Supervisor<br>Engineer | Condition C23<br>RMM B13 |
| PW4 | The potential introduction of weeds to the Plains-wanderer habitat areas will be managed through the implementation of the *Biosecurity Management Plan* (Appendix D of the Biodiversity Management Plan). | Pre-construction and construction | Environmental Manager<br>Supervisor | Condition C26 |
| **Pre-clearing and clearing** | | | | |
| PW5 | An ecologist will be present onsite at any times when clearing is occurring in Plains-wanderer habitat. | Construction | Ecologist | Best practice |
| PW6 | Pre-clearing surveys will be completed prior to construction by a suitably qualified ecologist in accordance with the Pre-clearing and Clearing Procedure. | Pre-construction | Environmental Advisor<br>Environmental Manager<br>Ecologist | RMM B9 |
| PW7 | Biodiversity exclusion zones for retained vegetation would be confirmed by a suitably qualified ecologist prior to the commencement of clearing or any site activity that could damage the vegetation within the exclusion zone.<br>Biodiversity exclusion zones would consider identified Plains-wanderer habitat.<br>Biodiversity exclusion zones would be physically marked and demarcated, and included on sensitive area maps, prior to clearing. | Pre-construction | Environmental Advisor<br>Environmental Manager<br>Ecologist | RMM B11 |

| No. | Management measure | When to implement | Responsibility | Source document |
|---|---|---|---|---|
| PW8 | The centreline clearing (Disturbance Area A – centreline) will not be cleared in areas of key Plains-wanderer primary habitat. For Disturbance Area A – centreline and Disturbance Area B, 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.<br>This would occur under supervision of an ecologist. | Construction | Environmental Manager<br>Environmental Advisor<br>Ecologist | RMM B12 |
| **Management during other construction activities** | | | | |
| PW9 | The construction area will be visually inspected for presence of Plains-wanderer prior to commencing works for that particular shift, ideally the night before or pre-dawn. | Pre-construction and construction | Supervisor | Best practice<br>RMM B13 |
| PW10 | Existing access tracks will be used where possible to avoid and minimise impacts resulting from the establishment of new access tracks. | Pre-construction and construction | Environmental Manager | TA16 |
| PW11 | When stringing transmission lines within Plains-wanderer habitat, A-Frame Fence Hurdles will be utilised to minimise impacts to Plains-wanderer habitat in those locations and / or the transmission cable will be walked through on foot through Plains-wanderer habitat, with an ecologist walking ahead acting as a Plains-wanderer spotter. | Construction | Environmental Manager<br>Ecologist<br>Engineer<br>Supervisor | Best practice |
| **Threatened species management** | | | | |
| PW12 | Should a Plains-wanderer be observed during works (other than during the pre-clearing inspections and clearing works) within the construction area, the *Unexpected Threatened Species Find Procedure* (45860-HSE-PR-D-0012) will be followed. During pre-clearing inspections and clearing works, the steps within Section 4.3.2 of this Protocol will be followed. | Pre-construction and construction | All personnel | RMM B18 |
| PW13 | Plains-wanderer and their habitats will be identified through the GIS or sensitive area plans (SAPs), which would be updated/confirmed from the results of pre-clearing surveys. Mapping from SAPs would be provided to the construction workforce.<br>Impacts to Plains-wanderer will be avoided as far as practicable during detailed design and when determining construction methodologies. | Detailed design and construction | Design Manager<br>Environmental Advisor<br>Environmental Manager<br>Supervisors | RMM B1<br>RMM B10 |

# 5 Compliance management

## 5.1 Training and awareness

Personnel taking part in construction activities shall be informed of this Protocol through the site-specific induction, daily prestart briefings or targeted training as required. Personnel involved in any activities occurring in or within 100m of Plains-wanderer habitat will be subject to toolbox talks and daily prestart meetings which will discuss items such as:

- why the Plains-wanderer are of importance;
- what the Plains-wanderer looks like and how it behaves;
- what to do in the instance of an unexpected Plains-wanderer within the construction area; and
- which areas are exclusion zones.

## 5.2 Roles and responsibilities

Elecnor's organisational structure and overall roles and responsibilities are outlined in Section 4 of the CEMP. Specific responsibilities for the implementation of mitigation measures are detailed in Section 5 of this Protocol.

## 5.3 Monitoring and inspections

Clearing of Plains-wanderer habitat will be monitored against the limits stipulated in condition C23 of the Infrastructure Approval and recorded to inform any final biodiversity offset requirements within the biodiversity offset package. This information will be tracked in the *Clearing and Land Disturbance Register* (45860-HSE-REG-1008).

Weekly inspections of works occurring in Plains-wanderer habitat will be performed by an Environmental Advisor and documented in the Weekly Environmental Checklist. The inspections will check the implementation and effectiveness of the management measures identified in Section 5 and the environmental performance of the project relevant to the Plains-wanderer. Visual monitoring of delineated/fenced disturbance boundaries will be undertaken.

## 5.4 Reporting

### 5.4.1 Post-clearing reports

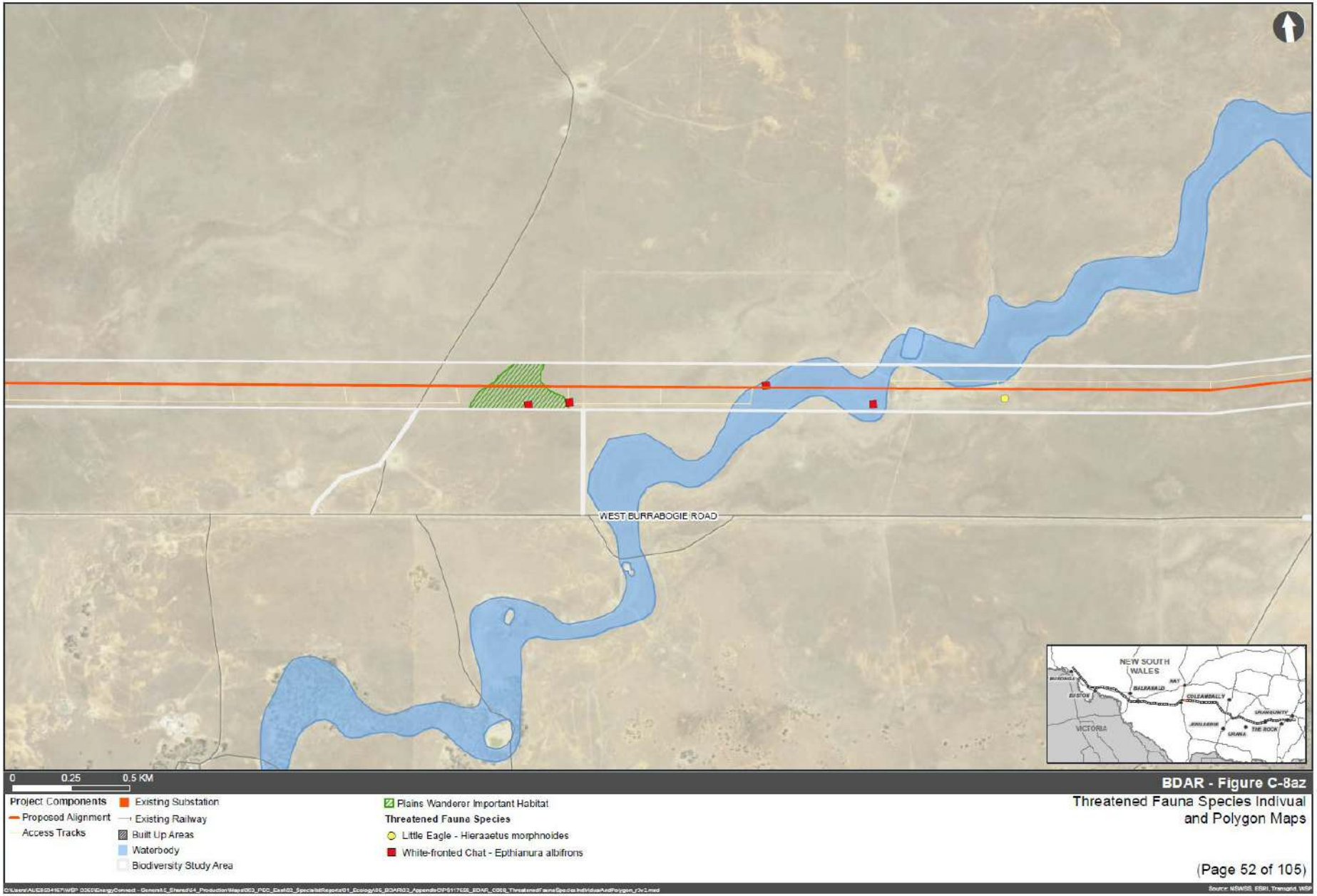
Post-clearing reports will be prepared by project ecologists and in addition to the requirements stipulated in the Pre-clearing and Clearing Procedure, they will include:

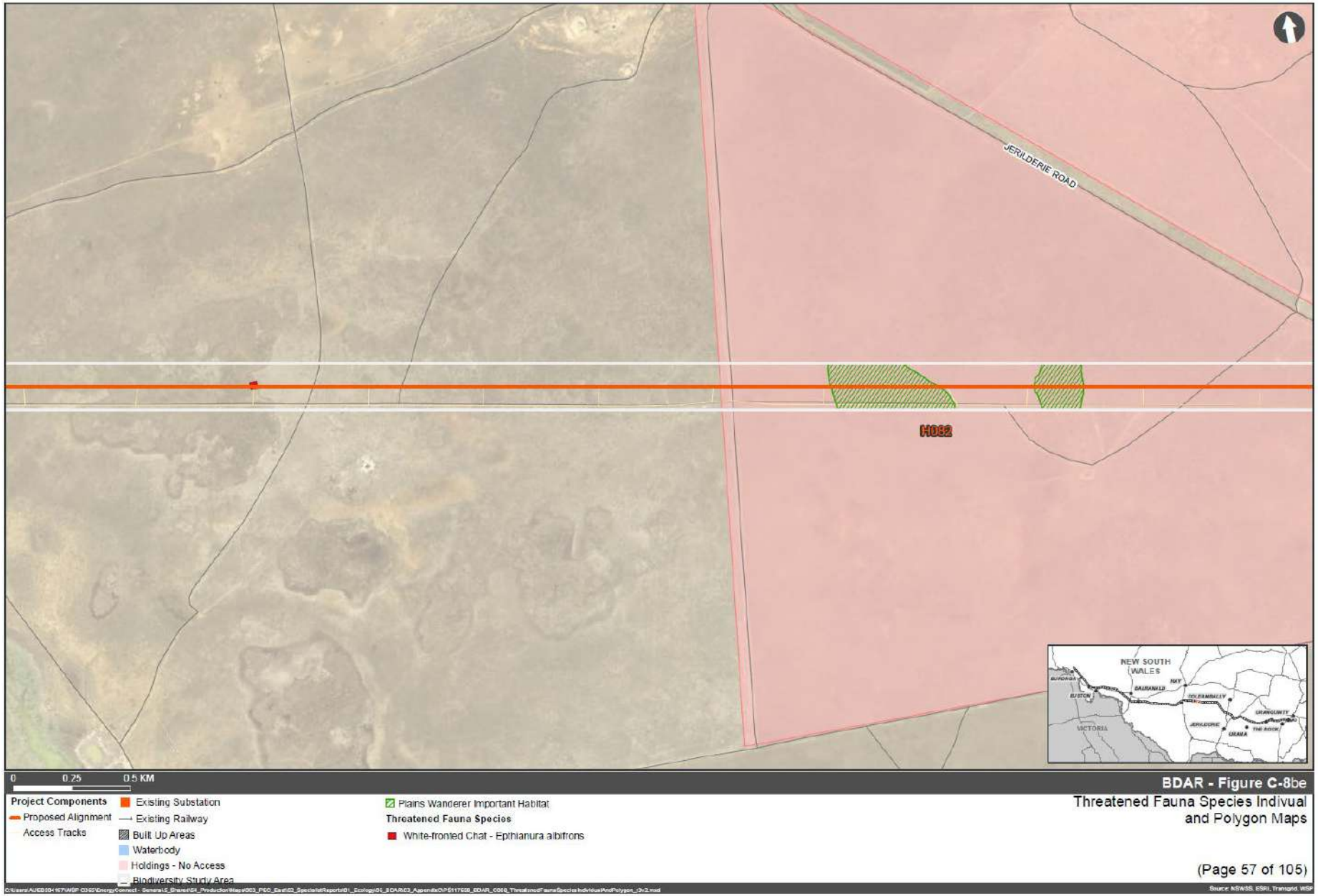
- information on clearing operations, dates, procedures and areas;
- live Plains-wanderer sightings, captures, any releases or injured/shocked/deceased species (including GPS coordinates); and
- photographs of any rescued Plains-wanderer.

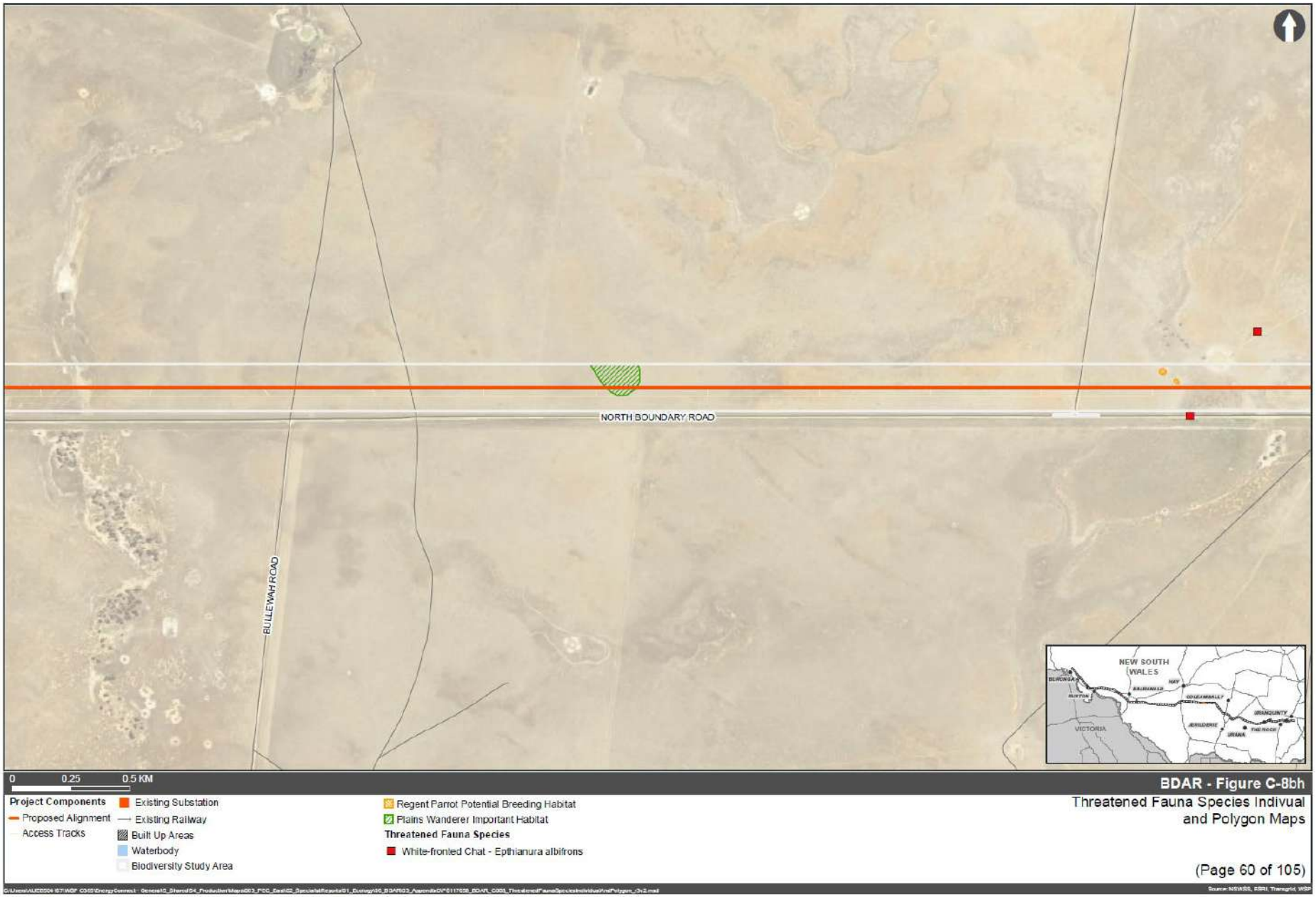
The spatial extent and type of clearing will be recorded in GIS file format and provided to TransGrid to allow the final offset requirements to be calculated based on the recorded clearing in accordance with RMM B15.

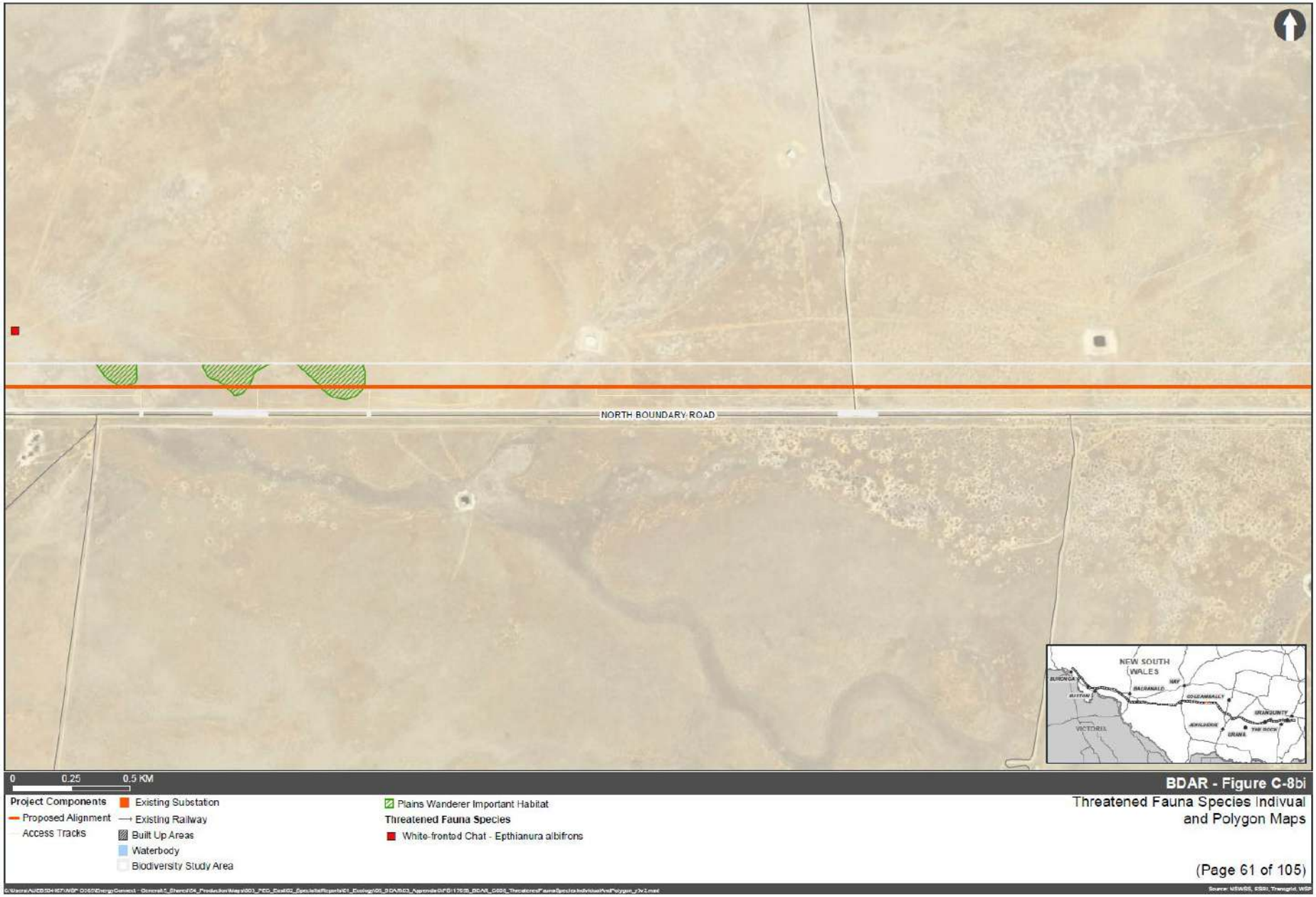
Clearing of Plains-wanderer habitat will be monitored and recorded to inform any final biodiversity offset requirements within the biodiversity offset package. This information will be tracked in the *Clearing and Land Disturbance Register* (45860-HSE-REG-1008).

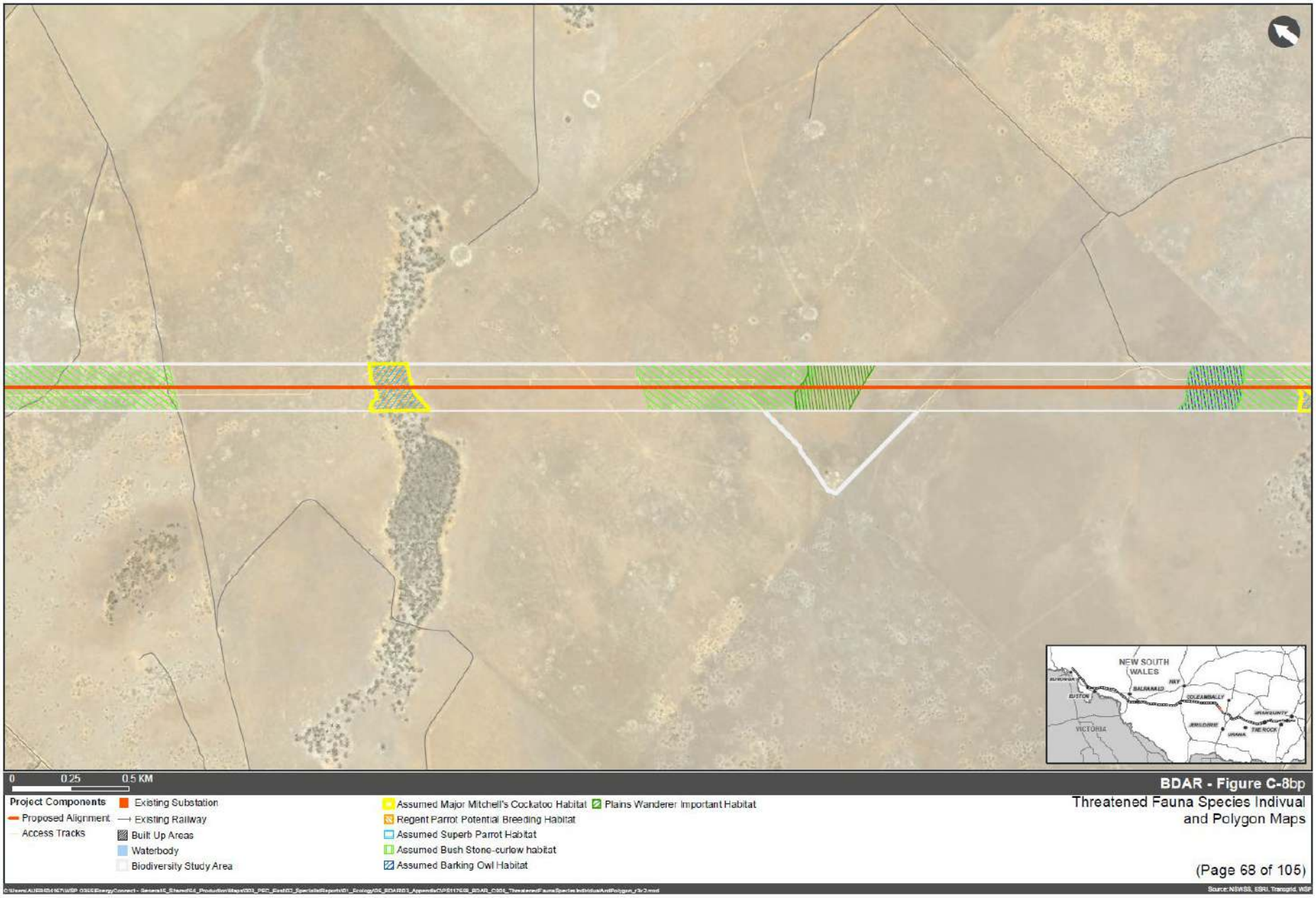
# Annexure A – Plains-wanderer important habitat mapping

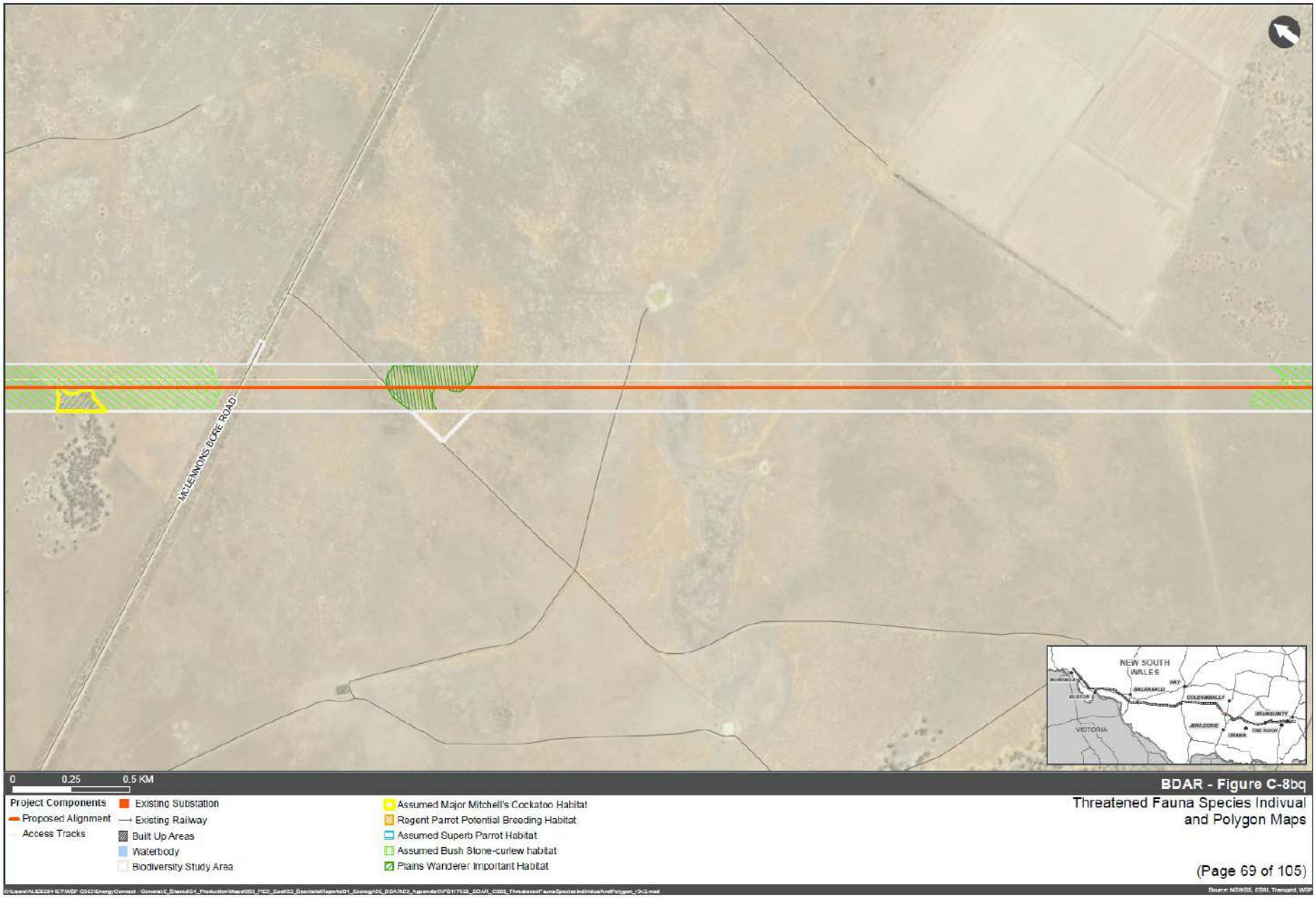

WEST BURRABOGIE ROAD
NEW SOUTH WALES
VICTORIA
0
0.25
0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Plains Wanderer Important Habitat
Threatened Fauna Species
Little Eagle - Hieraaetus morphnoides
White-fronted Chat - Epthianura albifrons
BDAR - Figure C-8az
Threatened Fauna Species Indivual and Polygon Maps
(Page 52 of 105)

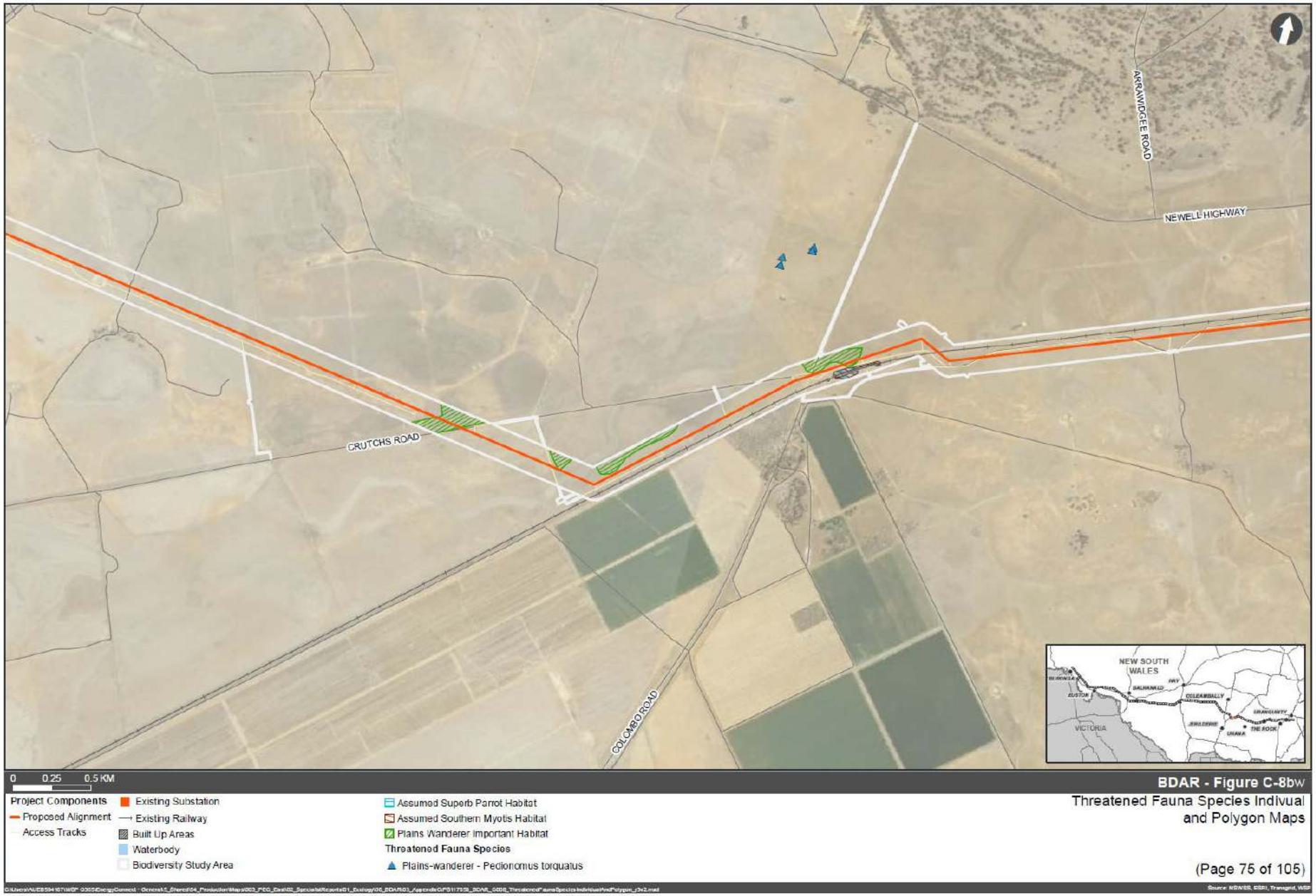

JERILDERIE ROAD
H082
NEW SOUTH WALES
VICTORIA
0
0.25
0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Holdings - No Access
Biodiversity Study Area
Plains Wanderer Important Habitat
Threatened Fauna Species
White-fronted Chat - Epthianura albifrons
BDAR - Figure C-8be
Threatened Fauna Species Indivual and Polygon Maps
(Page 57 of 105)

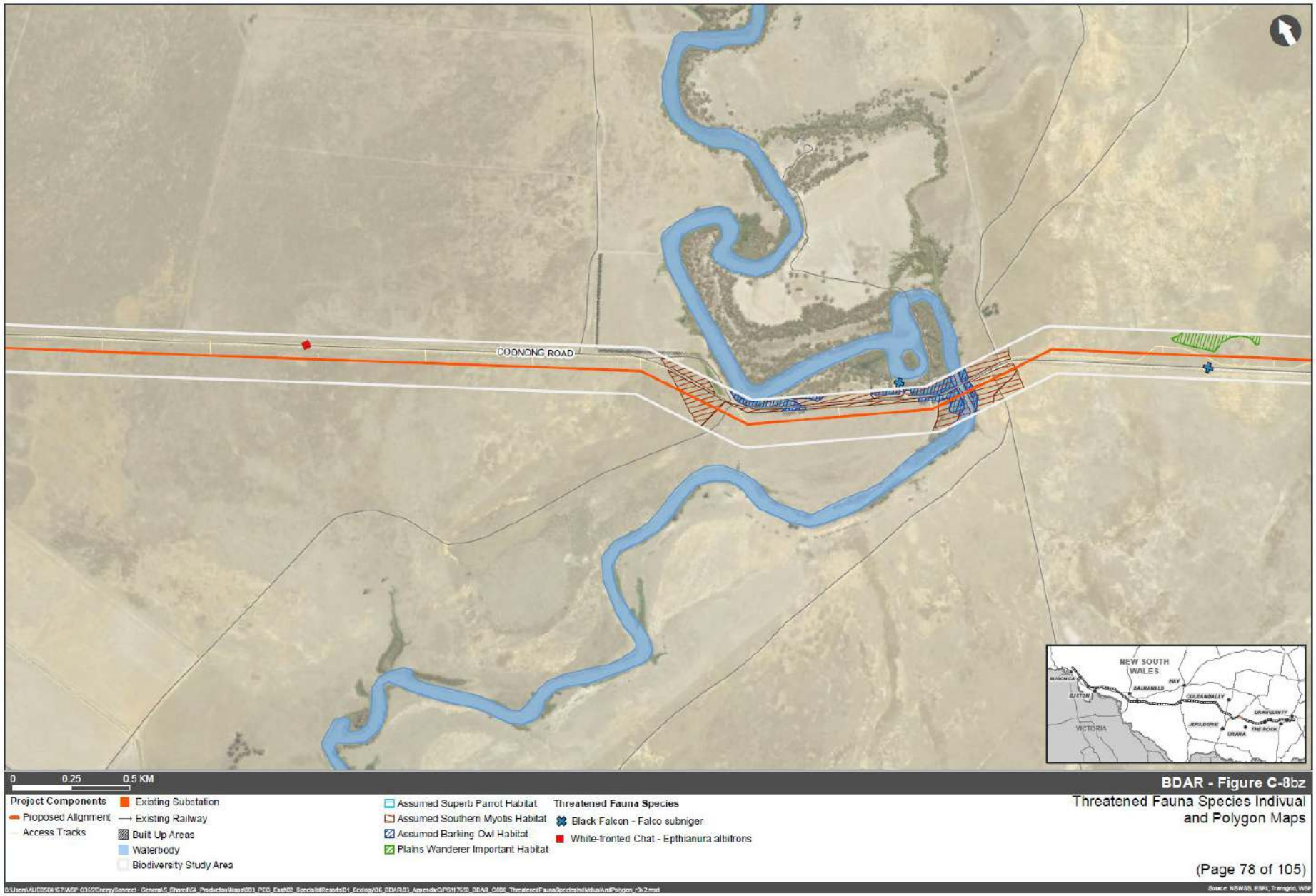

NORTH BOUNDARY ROAD
BULLEYWAH ROAD
NEW SOUTH WALES
VICTORIA
0
0.25
0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Regent Parrot Potential Breeding Habitat
Plains Wanderer Important Habitat
Threatened Fauna Species
White-fronted Chat - Epthianura albifrons
BDAR - Figure C-8bh
Threatened Fauna Species Indivual and Polygon Maps
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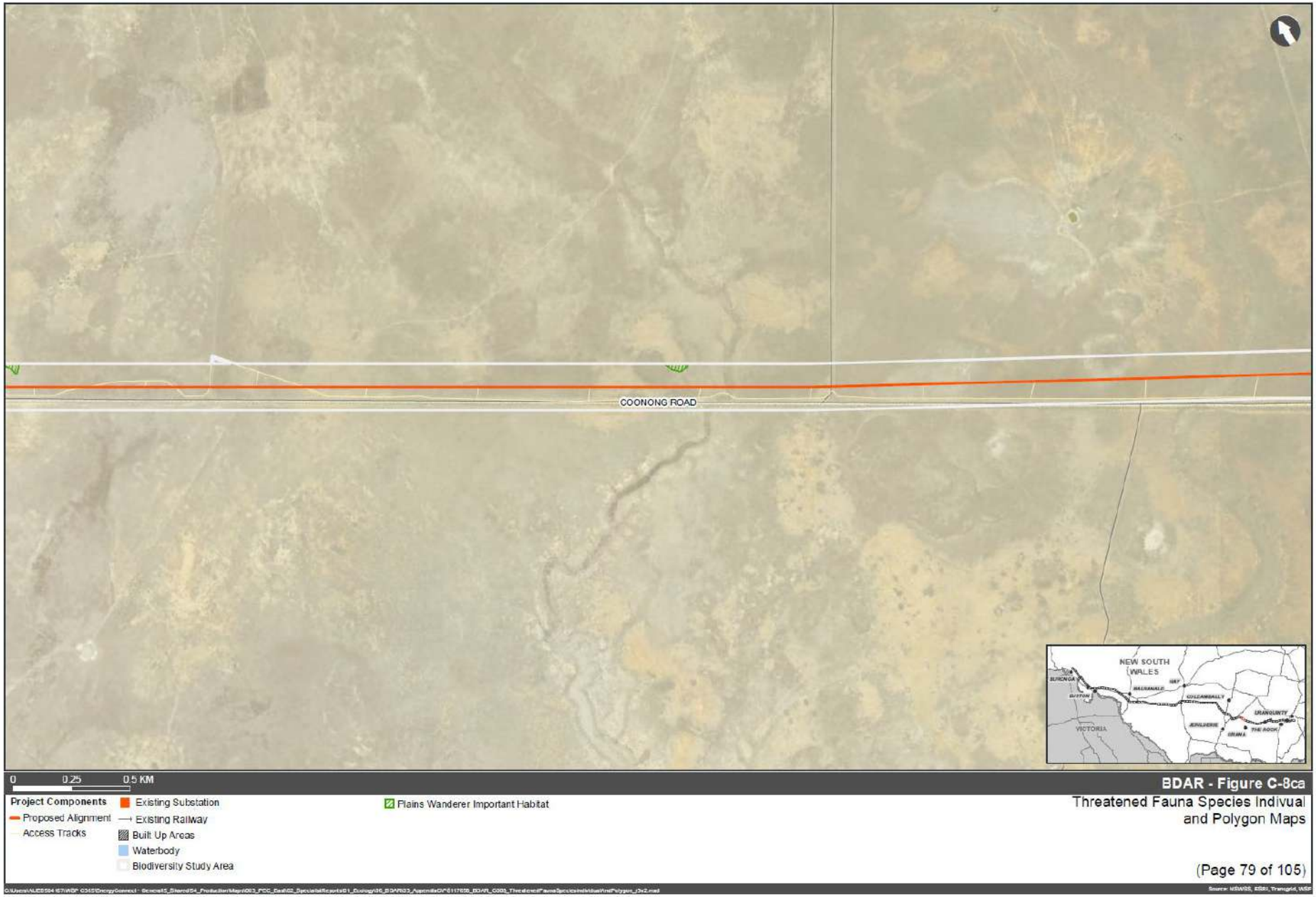

NORTH BOUNDARY ROAD
NEW SOUTH WALES
0
0.25
0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Plains Wanderer Important Habitat
Threatened Fauna Species
White-fronted Chat - Epthianura albifrons
BDAR - Figure C-8bi
Threatened Fauna Species Indivual and Polygon Maps
(Page 61 of 105)

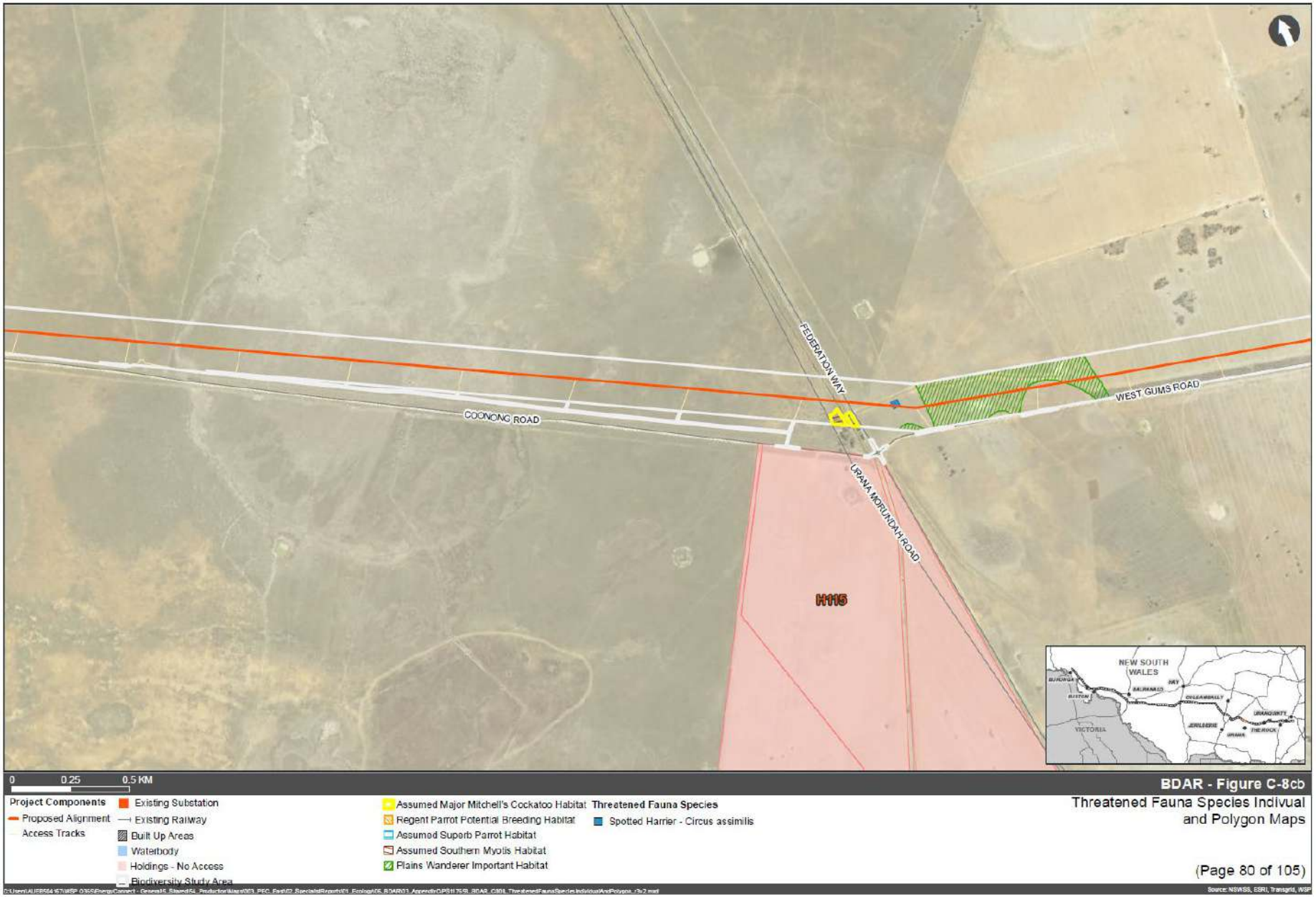

0 0.25 0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Assumed Major Mitchell's Cockatoo Habitat
Plains Wanderer Important Habitat
Regent Parrot Potential Breeding Habitat
Assumed Superb Parrot Habitat
Assumed Bush Stone-curlew habitat
Assumed Barking Owl Habitat
NEW SOUTH WALES
VICTORIA
BDAR - Figure C-8bp
Threatened Fauna Species Indivual and Polygon Maps
(Page 68 of 105)
Source: NSWSS, ESRI, Transgrid, WSP


McLENMONS BORE ROAD
NEW SOUTH WALES
VICTORIA
0
0.25
0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Assumed Major Mitchell's Cockatoo Habitat
Regent Parrot Potential Breeding Habitat
Assumed Superb Parrot Habitat
Assumed Bush Stone-curlew habitat
Plains Wanderer Important Habitat
BDAR - Figure C-8bq
Threatened Fauna Species Indivual and Polygon Maps
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ARRAWIDGEE ROAD
NEWELL HIGHWAY
CRUTCHS ROAD
COLOMBO ROAD
NEW SOUTH WALES
VICTORIA
0 0.25 0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Assumed Superb Parrot Habitat
Assumed Southern Myotis Habitat
Plains Wanderer Important Habitat
Threatened Fauna Species
Plains-wanderer - Pedionomus torquatus
BDAR - Figure C-8bw
Threatened Fauna Species Indivual and Polygon Maps
(Page 75 of 105)


COONONG ROAD
NEW SOUTH WALES
VICTORIA
0
0.25
0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Assumed Superb Parrot Habitat
Assumed Southern Myotis Habitat
Assumed Barking Owl Habitat
Plains Wanderer Important Habitat
Threatened Fauna Species
Black Falcon - Falco subniger
White-fronted Chat - Epthianura albifrons
BDAR - Figure C-8bz
Threatened Fauna Species Indivual and Polygon Maps
(Page 78 of 105)
Source: NSWSS, ESRI, Transgrid, WSP


COONONG ROAD
NEW SOUTH WALES
VICTORIA
0
0.25
0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Biodiversity Study Area
Plains Wanderer Important Habitat
BDAR - Figure C-8ca
Threatened Fauna Species Indivual and Polygon Maps
(Page 79 of 105)


COONONG ROAD
FEDERATION WAY
WEST GUMS ROAD
URANA MORUNDAH ROAD
H115
NEW SOUTH WALES
VICTORIA
0 0.25 0.5 KM
Project Components
Proposed Alignment
Access Tracks
Existing Substation
Existing Railway
Built Up Areas
Waterbody
Holdings - No Access
Biodiversity Study Area
Assumed Major Mitchell's Cockatoo Habitat
Regent Parrot Potential Breeding Habitat
Assumed Superb Parrot Habitat
Assumed Southern Myotis Habitat
Plains Wanderer Important Habitat
Threatened Fauna Species
Spotted Harrier - Circus assimilis
BDAR - Figure C-8cb
Threatened Fauna Species Indivual and Polygon Maps
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Source: NSWSS, ESRI, Transgrid, WSP

# Appendix G – Connectivity Strategy

PUBLIC

# Connectivity Strategy
# EnergyConnect (NSW – Eastern Section)

45860-HSE-DOC-D-0022

| REV | DATE | GENERAL DESCRIPTION | PREPARED | REVIEWED | VERIFIED | APPROVED |
|---|---|---|---|---|---|---|
| A | 4/11/2022 | Internal review | K.Baxter | R.Walker-Edwards | A.Boyd | S.Basanta |
| B | 9/11/2022 | Issued for Transgrid review | K.Baxter<br>L.Coetzee | R.Walker-Edwards | A.Boyd | S.Basanta |
| C | 16/11/2022 | Issued for agency review | L.Coetzee | R.Walker-Edwards | A.Boyd | S.Basanta |
| D | 9/02/2023 | Issued in response to agency comments | R.Walker-Edwards | C.Curlewis | A.Boyd | S.Basanta |
| E | 15/03/2023 | Issued in response to agency comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| F | 28/05/2025 | Revised to Elecnor template | N.Dwyer | R.Walker-Edwards | G.Crighton | F.Delgado |
| G | 10/07/2025 | Section 8 updated | K.Hartzer | R.Walker-Edwards | G.Crighton | F.Delgado |

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| Revision History | |
|---|---|
| **Rev.** | **Detailed Description** |
| A | Issued for internal review |
| B | Issued for Transgrid review |
| C | Issued for agency review |
| D | Issued in response to agency comments |
| E | Issued in response to agency comments |
| F | Revised to Elecnor template |
| G | Section 8 updated |
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| Key Document Stakeholders |
|---|
| **To be communicated with during reviews and revisions of this document** |
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## Abbreviations

| Acronym | Definition |
|---|---|
| ASL | Above sea level |
| BAM | Biodiversity Assessment Method |
| BC Act | *Biodiversity Conservation Act 2016* (NSW) |
| Biosecurity Act | *Biosecurity Act 2015* (NSW) |
| BMP | Biodiversity Management Plan |
| CEMP | Construction Environmental Management Plan |
| Cth | Commonwealth |
| DAWE | Department of Agriculture, Water, and the Environment, now known as Department of Climate Change, Energy, the Environment and Water |
| DCCEEW | Department of Climate Change, Energy, the Environment and Water (Commonwealth) |
| DPE | NSW Department of Planning and Environment, now known as NSW Department of Planning, Housing and Infrastructure |
| DPHI or Department | NSW Department of Planning, Housing and Infrastructure |
| EEC | Endangered ecological community – as defined under relevant law applying to the proposal |
| EIS | *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* (Cth) |
| EP&A Act | *Environmental Planning and Assessment Act 1979* (NSW) |
| ESD | Ecologically Sustainable Development |
| Final BDAR | *Revised Biodiversity Development Assessment Report* (August 2022) |
| FM Act | *Fisheries Management Act 1994* (NSW) |
| ha | hectares |
| km | kilometres |
| LALC | Local Aboriginal Land Council |
| LEP | Local Environment Plan |
| m | metres |
| NES | Matters of National Environmental Significance under the EPBC Act |
| NPW Act | *National Parks and Wildlife Act 1974* (NSW) |
| NPWS | National Parks and Wildlife Service |
| NSW | New South Wales |
| PCT | Plant community type |
| project, the | EnergyConnect (NSW – Eastern Section) |
| Response to DPE Request for Information | *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (30 August 2022) |
| RMMs | Revised mitigation measures |
| SA | South Australia |
| Submissions Report | *Submissions Report EnergyConnect (NSW – Eastern Section)* |
| SSI | State significant infrastructure |

| Acronym | Definition |
|---|---|
| TEC | Threatened ecological community |
| VCR | Vegetation clearance requirements |

# 1 Introduction

## 1.1 Context

This Connectivity Strategy (this strategy) forms part of the *Biodiversity Management Plan* (BMP) (45860-HSE-PL-D-0117) which is part of the *Construction Environment Management Plan* (CEMP) (45860-HSE-PL-D-0114) for Stage 2 of EnergyConnect (NSW – Eastern Section).

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS), the *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

## 1.2 Background

On 29 August 2019, the then New South Wales (NSW) Minister for Planning and Public Spaces declared the NSW component of EnergyConnect to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – South Australia (SA)/NSW border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with five from special interest groups, nine from local councils and 44 from the public. In addition, 17 government agencies also provided advice during this time.

The Submissions Report was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared a separate Amendment Report to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report describes the updated project for which approval has been sought and was also finalised in May 2022.

On 2 June 2022, the NSW Department of Planning and Environment, now known as NSW Department of Planning, Housing and Infrastructure (DPHI or Department) requested additional information (Project EnergyConnect (NSW - Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response TransGrid prepared and provided the *EnergyConnect (NSW – Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for Information) to address the various requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI-9172452). Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

Transgrid have engaged Elecnor Australia to design and construct their portion of the EnergyConnect project. An overview of the project is provided in Figure 1.1.

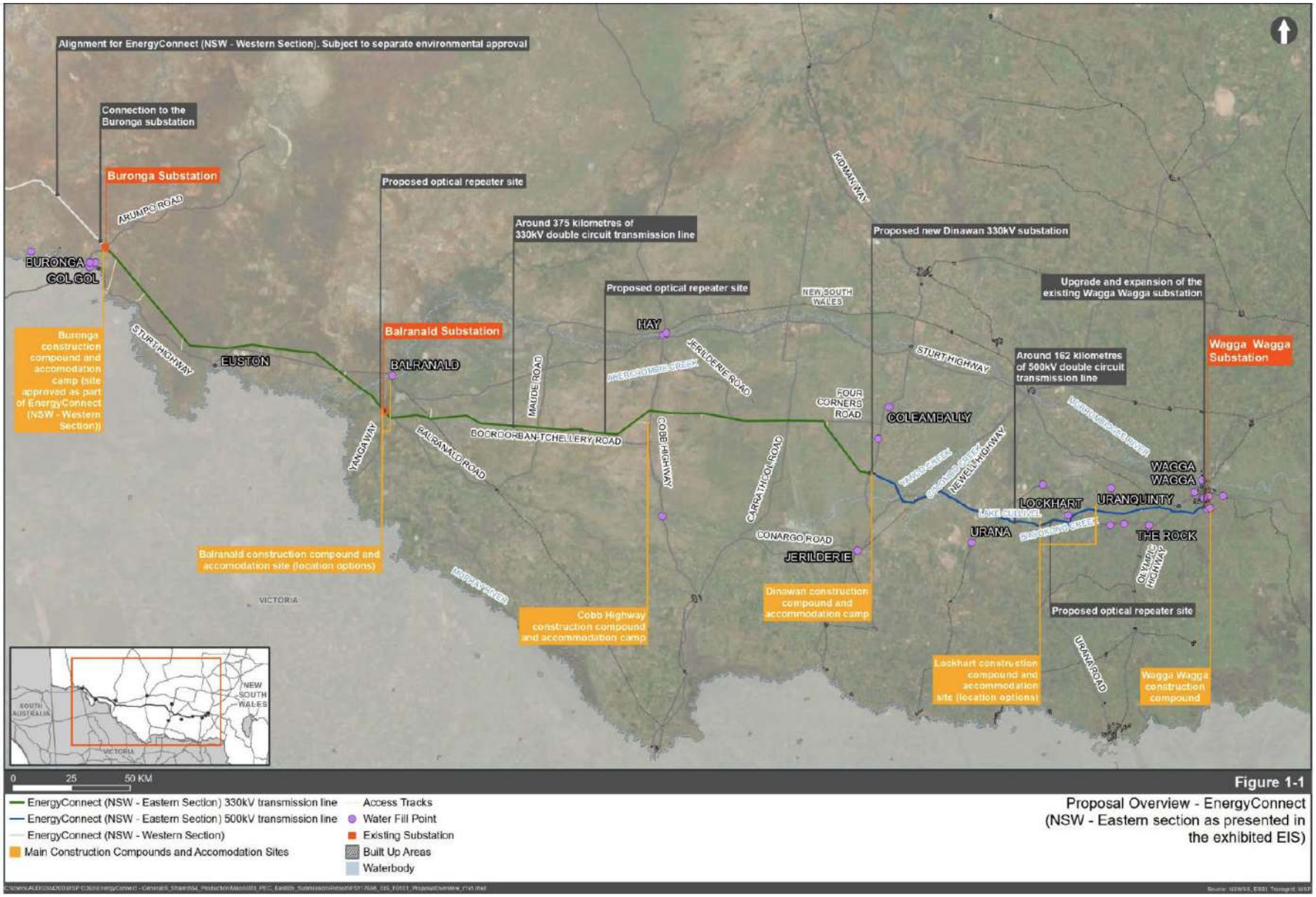



**Figure 1.1 - Key features of EnergyConnect (NSW – Eastern Section)**

## 1.3 Strategy objective and scope

This Connectivity Strategy has been developed to assist in maintaining connectivity across the landscape during construction of the project. This Connectivity Strategy relates to the NSW - Eastern Section, which will result in the construction of approximately 550km of new transmission line from Buronga to Wagga Wagga.

This Connectivity Strategy has been developed using desktop resources as well as field survey results from the ecological assessments associated with the *Revised Biodiversity Development Assessment Report (August 2022)* (Final BDAR). Specifically, this strategy addresses the requirement for a series of 20-metre-wide connectivity corridors to be established near tower locations that occur in woodland vegetation, with the purpose of better facilitating woodland connectivity. A 10m wide centreline section on the 330kV lines and 20m wide centreline section for the 500kV will still be cleared for stringing purposes and ongoing management.

Connectivity corridors are proposed to be located:

- within woodland plant community types that occur at key riparian crossings (Murrumbidgee River, Yanco Creek, and Colombo Creek);
- in areas of the alignment joining proposed biodiversity stewardship sites and/or conservation reserve estate (e.g. Yanga State Conservation Area); and
- areas of existing dense mallee and belah.

Their location has also considered how best to maintain structural vegetation connectivity linking the connectivity corridor with core habitat areas on either side of the project alignment.

Whilst the project will result in a level of fragmentation, functional connectivity between habitats is likely to be maintained, as a large proportion of vegetation within the alignment will not be completely cleared and/or left intact. Most of the plant community types present within the alignment have a relatively low growth form and will therefore remain largely intact where vegetation height is less than 10m.

## 1.4 Preparation of this strategy

In accordance with condition B1 of the Infrastructure Approval, this strategy has been prepared by a suitably qualified and experienced person. This strategy was prepared by:

- Katie Baxter; and
- Laurenne Coetzee.

The strategy has been reviewed by representatives from the project's ecological team (NGH Consulting).

# 2 Consultation

## 2.1 Development of this strategy

In accordance with condition B1 of the Infrastructure Approval, this strategy as part of the Biodiversity Management Plan (BMP), has been prepared in consultation with the Biodiversity and Conservation Division (BCD).

This strategy was issued to BCD for review and comment. Comments from the consultation process have been incorporated into this strategy where appropriate. Details of all consultation with BCD was submitted to the Department along with the submission of this strategy.

## 2.2 Submission and approval

Prior to submission to the Department, this strategy was reviewed by the Environmental Representative (ER) to ensure that it is consistent with the requirements of the Infrastructure Approval.

This strategy, as part of the BMP, was submitted to the Department for review and approval prior to the commencement of Stage 2 of construction.

# 3 Environmental requirements

## 3.1 Conditions of Approval

The conditions of the Infrastructure Approval relevant to the strategy are presented in Table 3.1. A cross reference is also included to indicate where the condition is addressed within this strategy or other project management documents.

**Table 3.1 - Conditions of Approval relevant to the Connectivity Strategy**

| Condition no. | Requirement | Where addressed | How addressed in this Strategy |
|---|---|---|---|
| **Biodiversity EMP Sub-Plan** | | | |
| C26 | The Biodiversity EMP Sub-Plan required under condition B2 must be prepared in accordance with the *Revised Biodiversity Development Assessment Report* (dated 19 August 2022) and include:<br>a) a description of the measures that would be implemented for: | Biodiversity Management Plan | - |
| | (xii) a Connectivity Strategy and a Supplementary Hollow and Nest Strategy; | This strategy<br>Supplementary Hollow and Nest Strategy | This strategy details the way in which the project will implement connectivity corridors in identified key areas.<br>This includes detailing the selection criteria and process through which key features of connectivity have been chosen. |

## 3.2 Revised mitigation measures

The revised mitigation measures (RMMs) are defined in the Submissions Report and the Amendment Report. The RMMs relevant to this strategy are detailed in Table 3.2. A cross reference is also included to indicate where the measure is addressed within the strategy or other project management documents.

**Table 3.2 - Revised mitigation measures relevant to the Connectivity Strategy**

| Ref. | Revised mitigation measure | How addressed in this Strategy |
|---|---|---|
| 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 and would be developed as part of a Connectivity Strategy. 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. | Refer to Section 9 |
| 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, targeting the following locations (wherever practicable):<br>• key riparian crossings;<br>• areas of the alignment joining proposed biodiversity stewardship sites and or conservation reserve estate; and | This strategy |

| Ref. | Revised mitigation measure | How addressed in this Strategy |
|---|---|---|
| | • areas of existing dense mallee/belah.<br>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).<br>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. | |

# 4 The value of connectivity corridors

Habitat loss and fragmentation are recognised as key issues affecting biological diversity. The term 'fragmentation' refers to changes that occur when large blocks of vegetation or habitat are separated either through partial or complete clearing. This process results in habitat loss, reduced size of available habitat, and isolation of habitats within the landscape.

These altered patterns of habitat result in changes to ecological processes, having significant effects on flora and fauna. Fragmentation results in the loss of individual species and species diversity from an area, restrictions on population size (and biomass), decreased opportunity for movement of animals between habitats, changes to the physical environment and increased invasion and negative impacts by exotic species.

To ameliorate the effects of fragmentation, and to maintain and improve the conservation potential of disturbed environments, strategies to create and/or retain vegetation/habitat linkages (i.e., habitat 'corridors') may be implemented. The use of habitat corridors has been widely embraced as a practical measure to counter the impacts of habitat loss and fragmentation (Bennett 1999).

Given the linear nature of the project, the use of habitat corridors must be broadened to the issue of maintaining connectivity at the landscape scale, rather than on individual patches within the alignment. Landscape patterns that promote connectivity for species, communities and ecological processes are a key element in nature conservation in environments modified by human impacts.

The term 'connectivity' refers to how the spatial arrangement and the quality of elements in the landscape affect the movement of organisms among habitat patches. At the landscape scale, Saunders and Hobbs (1991) define connectivity as the degree to which the landscape enables or impedes movement among habitat patches. The need for connectivity is now recognised as a fundamental principle in land use planning and land management for biodiversity conservation in human-modified landscapes.

As animal species vary considerably in their level of habitat specialisation and their tolerance to disturbance and change, it is often appropriate to manage specific patterns of habitat such as corridors or 'stepping-stones.' Corridors may be especially important for species that regularly move between different resource patches, are relatively mobile and able to move substantial distances, and are tolerant of disturbed landscapes (Bennett 1999). Small remnant patches of vegetation or incomplete sections of remnant linear habitats can function as corridors, promoting connectivity.

Connectivity within the landscape is critical to gene flow and the long-term viability of species populations. Fauna species are often specifically adapted to, and reliant upon, the presence of preferred habitat and linkage between locations of varying carrying capacity. Loss of connectivity imposes a range of threatening processes reducing persistence, limiting population and species recruitment and potential for population decline.

Species use existing habitat in different ways. Behavioural adaptions may dictate the impact to changes to or loss of connectivity, and similarly how they may physically navigate available habitat. Small vulnerable species may be susceptible to increased predation when forced to navigate and cross fragmented and altered habitats. This may lead to avoidance by individuals and species resulting in isolation altering the location population structure.

The benefits of establishing connectivity corridors include, but are not limited to, the following:

- the provision of habitat for plants and animals;
- increased capacity for animals to move through disturbed landscapes;

- greater opportunities for dispersal to habitat isolates;
- maintaining population gene flow;
- maintaining migratory patterns; and
- continuation of ecological processes in altered or developed landscapes.

## 4.1 Importance of connectivity for the project

Mature stands of mallee and belah woodland, such as those identified in the disturbance area, have a mix of available successional habitat stages for species dependent on utilising the habitat for moving through, foraging, and/or breeding activities. The project will impact on these woodlands by fragmenting the continuity of canopy habitats.

### 4.1.1 Fauna species

Fragmentation of canopy cover in mallee and belah habitat reduces patch size and isolates small patches from extensive areas of high-quality vegetation. This can erode connectivity, increase edge effects, introduce weed opportunities, and increase micro-habitat exposure to wind and light. Patch fragmentation, size reduction and isolation affect fauna capacities to connect in the landscape and challenge the ability of populations of many small fauna species to persist.

The Final BDAR (WSP August 2022, Section 6.1) identifies that terrestrial movement (either on the ground and/or below the upper stratum of vegetation) is unlikely to be substantially altered as a result of the project. This is due to the fact that the majority of native vegetation under 4m will be retained, with vegetation up to 10m retained in connectivity corridors (Disturbance Area B4 and B10 respectively, see Section 4.1 below). Table 4.1 provides a brief summary of the expected connectivity impacts to fauna guilds as a result of the project, as summarised within Section 6.1 of the Final BDAR.

Connectivity corridor locations have been prioritised in areas mapped as containing habitat for threatened species, and/or habitat associated with species that are likely to occur.

Particular emphasis has been given to the Squirrel Glider (*Acrobates pygmaeus/frontalis*) during the connectivity corridor selection process. RMM B7, along with the relevant conditions of approval, prescribe the retention of Squirrel Glider habitat as an overarching priority for the project due to the species high ecological value and protected status. This includes the retention of "glider poles" in identified Squirrel Glider habitats (refer to Section 8).

**Table 4.1 - Expected impacts to fauna guilds**

| Scientific name | Associated native vegetation and habitat constraints (PCTs) |
|---|---|
| **Aerial connectivity** | |
| Raptors | 5, 7, 8, 11, 13, 15, 17, 22, 23, 24, 26, 28, 44, 45, 46, 47, 53, 58, 74, 75, 76, 80, 110, 143, 157, 160, 163, 164, 170, 171, 172, 182, 199, 216, 249, 267, 277, 319 |
| Superb Parrot | 5, 7, 8, 11, 13, 15, 26, 28, 45, 46, 74, 75, 76, 80, 110, 249, 267, 277, 319 |
| Regent Parrot | 8, 11, 13, 15, 22, 58, 170, 171, 172 |
| Major Mitchell's Cockatoo | 7, 8, 11, 13, 15, 22, 23, 26, 28, 58, 74, 76, 80, 110, 143, 163, 170, 171, 172,199, 249 |
| Brolga | 7, 8, 11, 13, 15, 24, 26, 45, 47, 53, 160, 163, 182, 249 |
| Waterbirds | 5, 7, 8, 11, 13, 15, 17, 24, 45, 47, 53, 160, 163, 182, 249 |
| Microbats | 5, 7, 8, 11, 13, 15, 17, 23, 24, 26, 28, 45, 53, 58, 74, 75, 76, 80, 110, 143, 160, 170, 182, 249, 267, 277, 319 |

| Scientific name | Associated native vegetation and habitat constraints (PCTs) |
|---|---|
| **Terrestrial connectivity** | |
| Squirrel Glider | 5, 7, 8, 11, 13, 74, 75, 76, 80, 110, 249, 267, 277, 319 |
| Plains-wanderer | 44, 45, 46 |
| Woodland Birds | 5, 7, 8, 11, 13, 15, 17, 22, 23, 24, 26, 28, 44, 45, 47, 53, 58, 74, 75, 76, 80, 110, 143, 157, 160, 163, 164, 170, 171, 172, 182, 199, 216, 249, 267, 277, 319 |
| Mallee Birds | 170, 171, 172 |
| Reptiles | 58, 143, 163, 170, 171, 172, 199 |
| Amphibians | 5, 7, 8, 11, 13, 15, 17, 24, 47, 53, 58, 74, 76, 80, 163, 170, 171, 172, 249 |
| Mammals | 5, 7, 8, 11, 13, 15, 17, 22, 23, 24, 26, 28, 44, 45, 46, 47, 53, 58, 74, 75, 76, 80, 110, 143, 157, 160, 163, 170, 171, 172, 182, 199, 216, 249, 267, 277, 319 |
| Koala | 5, 7, 8, 11, 13, 15, 74, 75, 76, 80, 110, 249, 267, 277 |

### 4.1.2 Threatened ecological communities

Section 9.1.3 of the Final BDAR (WSP August 2022) identified six threatened ecological communities (TEC) that will be impacted by the project. Connectivity corridor locations have been prioritised in areas mapped as containing these TECs and are associated with the following PCTs:

- *Acacia melvillei* shrubland in the Riverina and Murray-Darling Depression bioregions (associated with PCT 23 in South Olary Plain, Lachlan and Murrumbidgee IBRA sub-regions);
- *Allocasuarina luehmanii* woodland in the Riverina and Murray-Darling Depression bioregions (associated with PCT 22 in South Olary Plain IBRA sub-regions);
- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions (associated with PCT 76, PCT 80, and PCT 110 in the Lower Slopes and Inland Slopes IBRA sub-regions);
- Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South Western Slopes bioregions (associated with PCT 26 in the Murrumbidgee IBRA sub-region);
- Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Sloped bioregions (associated with PCT 28 in the Murrumbidgee IBRA sub-region); and
- White Box-Yellow Box-Blakeley's Red Gum Grassy Woodland and Derived Native Grassland (associated with PCT 74, PCT 75, PCT 267, and PCT 277 in the Lower Slopes, Inland Slopes and Murrumbidgee IBRA sub-regions).

No conditional threshold is described in the determination for any of these PCTs, therefore any vegetation in which characteristic native species dominate any structural layer present is considered to constitute the community.

With regards to PCT 80, derived forms of this community lack a native canopy layer and are therefore not considered to form part of the TEC. Consequently, the presence of PCT 80 (derived) has been excluded from the connectivity corridor selection process.

Many instances of where these PCTs occur have not been assigned connectivity corridors given the low density of the existing vegetation or lack of vegetation to connect with on the opposing side of the alignment. It was considered that any benefits associated with creating a connectivity corridor in these locations would be limited, due to the sparse vegetation growth and overall poor condition.

### 4.1.3 Significant landscape features

The project intersects a number of significant landscape features. These features serve as natural corridors connecting different areas of habitat, migratory flight paths to important habitat, or local movement pathways. The project will impact these natural corridors by fragmenting the landscape with a linear disturbance.

#### Murrumbidgee River, Yanco Creek, and Colombo Creek

The project intersects one section of the Murrumbidgee River, one section of Yanco Creek, and one section of Colombo Creek, each of which form part of the Murrumbidgee IBRA sub-region. This ecosystem is characterised by inland floodplain woodlands dominated by Black Box and River Red Gums alongside lignum understorey vegetation types. This stratification unit typically consists of an intact tree canopy with varying levels of modification in the understorey and groundcover, owing to the historical agricultural and grazing use for over 140 years.

The association with the permanent or semi-permanent rivers still lends this stratification unit regional importance as it is a habitat that provides water within an arid or semiarid landscape Also present are intermittent saline lakes and chenopod dominated claypans, fringed with riverine and semi-arid sandhill woodlands. This area represents an important natural corridor and refugia within a largely chenopod and acacia dominated shrubland.

#### Mallee Woodland

The western extent of the project intersects extensive intact and well-connected dense mallee woodlands. Mallee present in the project forms a continuous stretch from south of Buronga to Box Creek, north of Waldaira Lake. These areas cross private land that provides connectivity to conservation estates such as Mallee Cliffs National Park.

Mallee woodland present in the remainder of the project is typically sparse, however nonetheless important represent important habitat in terms of habitat for mallee dependent species and connectivity to Yanga State Conservation Area. These areas have been identified in the area west of where the project intersects the Murrumbidgee River and South of Yanga Lake.

It should be noted that no Mallee woodland has been identified within the project area between Yanga Lake and Wagga Wagga.

#### Belah Woodland

The project intersects intermittent areas of sparse, disconnected belah woodlands characterised by semi-arid and arid woodlands and shrublands. This fauna habitat stratification unit occurs in the arid and semi-arid interior parts of the proposal study area. They do not contain a dense or dominant tree canopy but are dominated by dense shrubs such as Dillon Bush, Cotton Bush and saltbush. Like many of the other fauna habitat stratification units, these have also generally been impacted by agriculture and grazing, with few extensive areas of dense shrublands suitable for a diverse community of native fauna species to persist throughout this unit. Nonetheless, belah woodland is associated with PCT 28 (*Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregion*) and is recognised as endangered under the BC Act, representing critical habitat for belah dependent species.

#### Yanga State Conservation Area (NPWS)

The project intersects with approximately 21km of Yanga State Conservation Area. The area of intersection is predominantly characterised by native arid woodland and shrublands broadly associated with arid interior areas including Mallee, Black Oak, Acacia and Hakea communities. These communities provide habitat for a number of bird species, including those that rely on Acacia specific mistletoes.

The Yanga State Conservation Area protects significant vegetation and landscape types within the largely cleared Riverina Bioregion, that are poorly represented in the reserve system at a national and state level. A range of threatened species are also present in the area.

# 5 Project approach to connectivity corridors

Whilst the project will result in a level of fragmentation, functional connectivity between habitats is likely to be largely maintained, as the alignment will not be completely cleared.

In particular, minimising clearing through only removing the vegetation that is within, or could grow into or fall into, the Transgrid's minimum Vegetation Clearance Requirements will result in reduced (selective) clearing in B4 and B10 zones, particularly in mallee and woodland areas. This will result in reduced fragmentation of habitats and increased connectivity.

The method of clearing requires changes based on the disturbance area. The key disturbance areas are as follows:

1. Disturbance Area A;
2. Disturbance Area A - centreline;
3. Disturbance Area B; and
4. Other areas (hazard/high risk trees and fauna corridors).

### Disturbance Area A

Disturbance Area A includes the tower pads, access tracks, laydowns, parking areas, accommodation camps, construction compounds, asset protection zones and the substation.

Vegetation is permitted to be removed to ground within Disturbance Area A. Where possible opportunities to retain vegetation will occur through review of temporary design and construction methodologies.

### Disturbance Area A – centreline

Disturbance Area A centreline clearing is the area required for line stringing activities. Disturbance Area A centreline clearing is 10m in width for a typical 300kV transmission line section and 20m in width for a typical 500kV transmission line section. Vegetation in this area will be removed, however topsoil and ground material would be retained (where possible).

### Disturbance Area B

Disturbance Area B is the area within the easement between the transmission towers. Disturbance Area B consists of:

- Disturbance Area B4; and
- Disturbance Area B10.

*330 kV transmission line*

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 20m distance from the centreline (i.e. a 40m wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10 metres would be able to be retained in the easement section which is 20m to 30m from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

Hazard/high risk trees (i.e. trees that are so tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist. Clearing of hazard/high risk trees would be removed

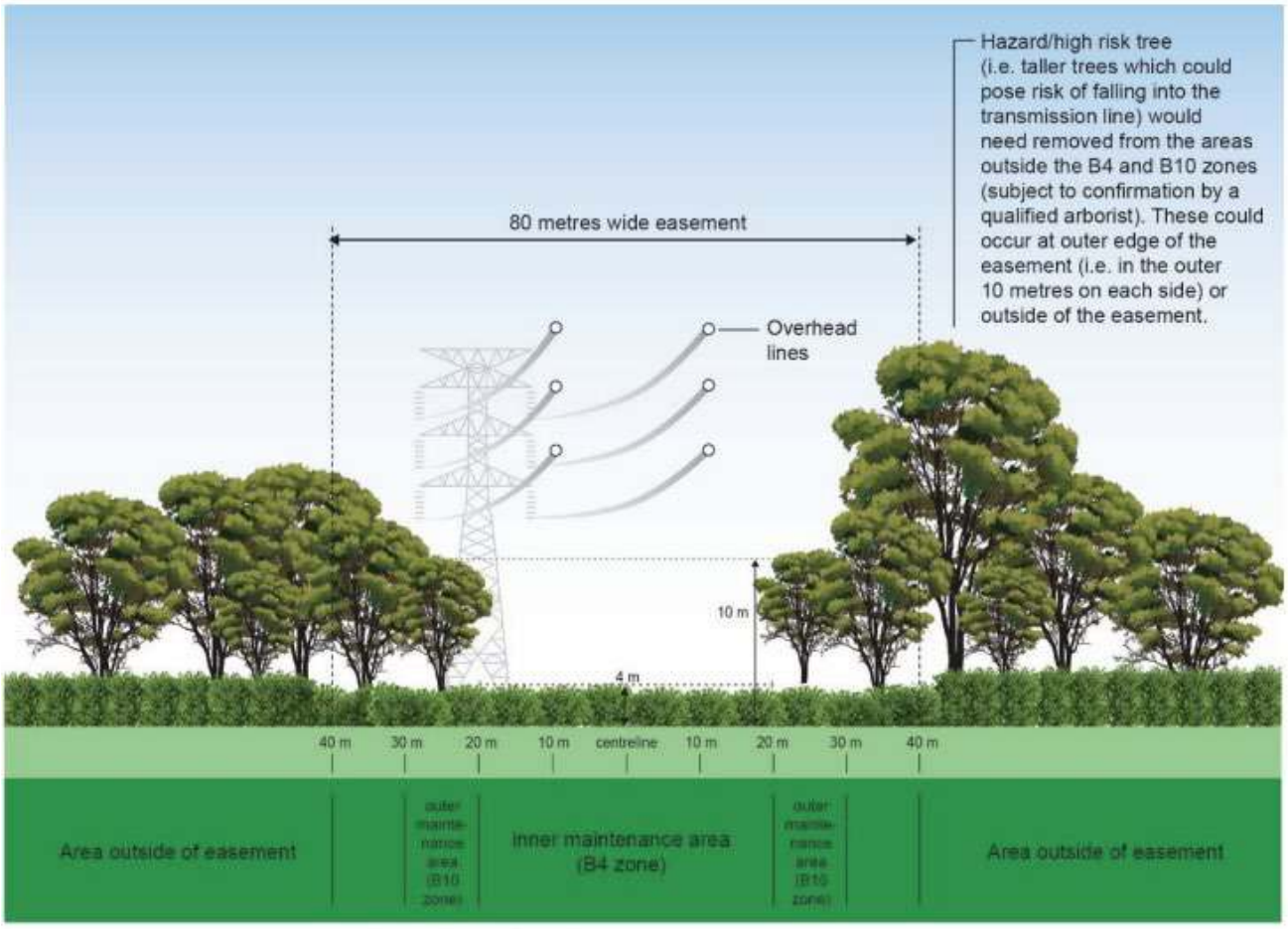
inside and outside of the easement area, where trees have a potential growth height of 30m or more occur within a 10m zone adjacent to the 300kV transmission line easement.

*500 kV transmission line*

Disturbance Area B4 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to four metres can be retained from the centreline out to 30m distance from the centreline (i.e. a 60m wide inner section of the easement).

Disturbance Area B10 is an area where partial vegetation clearing occurs. Vegetation with growth heights of up to 10m would be able to be retained in the easement section which is 30m to 40m from the centreline. This is permitted as the maximum sag point height is increased at this greater distance for the centreline and therefore taller vegetation is permitted without impacting on the vegetation clearance requirements.

Hazard/high risk trees (i.e. trees that are so tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees with a potential growth height of 20m or more occur within a 10m zone adjacent to the 500kV transmission line easement.




Vegetation in the centre 60 metres wide section of 80 metres wide easement to be maintained to achieved minimum clearance requirements (based on growth heights).(Assessed as up to 4 metres growth heights in inner maintenance area and up to 10 metres in outer maintenance area)

**Figure 5.1 - Indicative disturbance area locations and widths applied for 330kV (WSP) (centreline not indicated)**

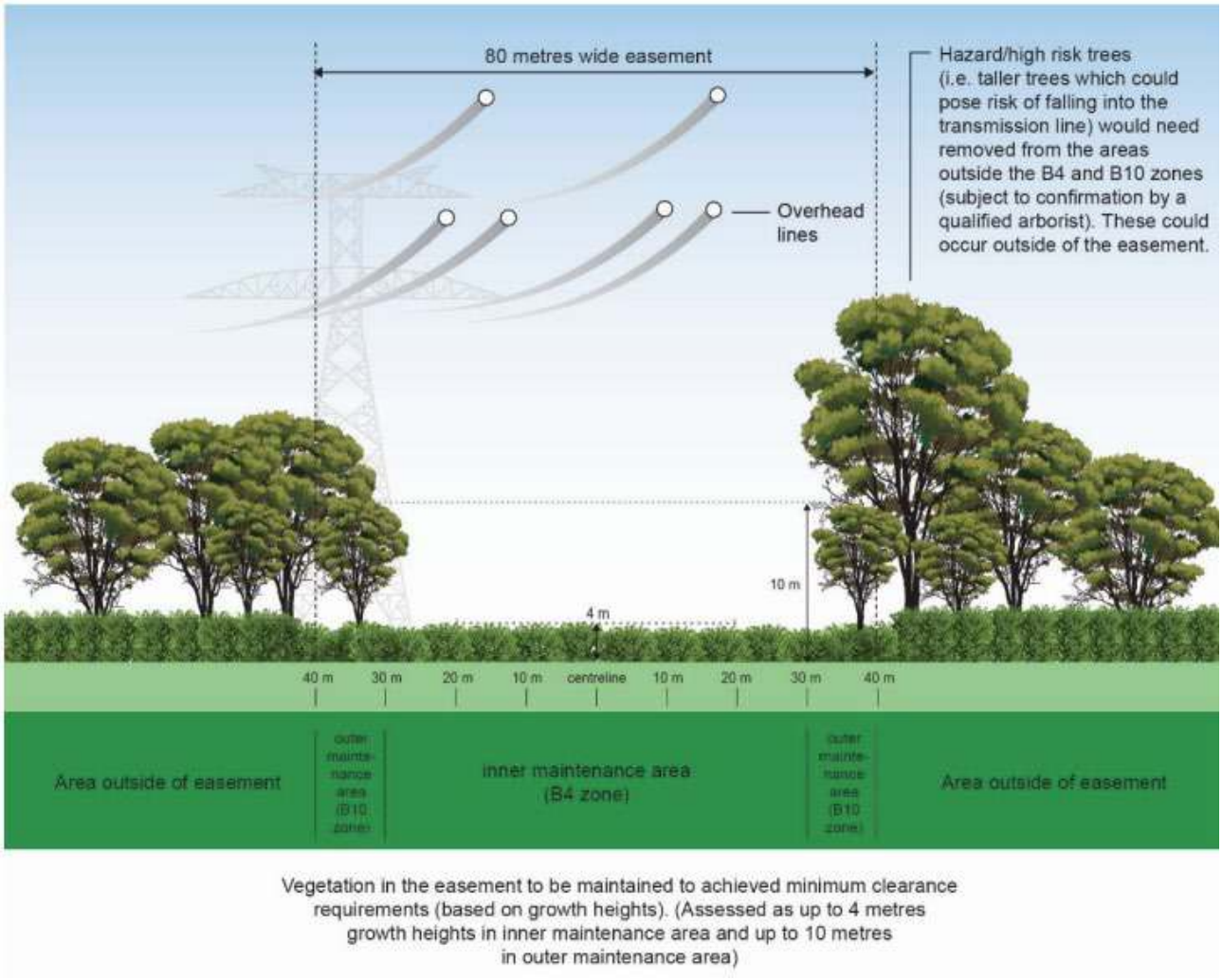



**Figure 5.2 - Indicative disturbance area locations and widths applied for 550kV (WSP) (centreline not indicated)**

Within Disturbance Area B10 the retained vegetation structure will minimise movement impacts on fauna species. In this area, ground cover and shrub layers will be retained, along with canopy in some cases (i.e., in mallee woodland where canopy species rarely exceed 10m in height and will therefore likely not encroach on the minimum VCRs). Given the nature of vegetation growth in semi-arid shrublands it is expected that disturbance to wildlife movement function will be minimal.

### Connectivity corridors

The connectivity corridors will be 20m wide and will typically be located near towers where the height of the transmission line is greater, and an increased vegetation height can be accommodated. The locations of corridors must also consider the requirement to meet Transgrid's Vegetation Clearance Requirements at Maximum Operating Conditions.

These connectivity corridors will involve native vegetation retention up to the 10 metre (330 kV line) or 20 metre (500 kV line) wide temporary construction centreline clearing zone to better facilitate woodland connectivity.

Centreline clearing will occur in the connectivity corridor, however clearing on either side of the centreline will only occur to trees that are above 10m in height or have the potential to grow above 10m in height. The last 10m of the easement (the hazard tree location) will have no clearing at all. Where new or existing access tracks intersect with the connectivity corridor, these access

tracks will be used during the construction period (to limit the need for additional clearing which would otherwise be required outside of, or around, the connectivity corridor). Clearing of the connectivity corridor will therefore be required to install a new access track within the easement or maintain existing tracks.

Where a connectivity corridor is proposed and this intersects with an access track outside the easement, the existing tracks remain narrow enough not to present a significant barrier to connectivity corridors. Furthermore, the short-term duration of use of the temporary access tracks for construction, and the rare intermittent use during operation will not impact on the proposed effectiveness of the connectivity corridors.

The approach to vegetation clearing in the connectivity corridors is discussed in the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027).

# 6 Methodology

The location of connectivity corridors will be undertaken as a two-step process, which can be summarised as:

- desktop-based GIS assessment to identify potential locations; and
- field-based ground truthing during pre-clearing surveys by the project ecologist to validate connectivity locations on site in addition to vegetation management approach to retention of native vegetation.

## 6.1 Desktop based assessment

The desktop GIS assessment will be undertaken to identify the potential location of connectivity corridors based on existing information within and adjacent to the disturbance zone.

Satellite imagery will be used to identify wooded areas with good connectivity. Shapefiles created through the Final BDAR were loaded to display the project footprint, and biodiversity values such as TECs, threatened species, watercourses, and conservation areas.

### 6.1.1 Selection principles

General connectivity principles:

- prioritise on a regional landscape scale connection of remnant vegetation across the alignment;
- retention of representative woodland vegetation if limited or poorly represented;
- major riparian crossings; and
- connectivity corridors are to be located where they provide benefit to the local landscape and should include structural vegetated connectivity linking the connectivity corridor with core habitat areas on either side of the project alignment.

### 6.1.2 Determining corridor locations

Applying the general selection principles above, potential corridor locations were selected based on their proximity (within or adjacent to) to:

- an abundance of threatened flora;
- threatened fauna;
- a mapped field verified TECs or in close proximity to field verified TECs;
- watercourses and riparian vegetation;
- as default preferred corridor location adjacent tower footprint in targeted woodland vegetation types and/or otherwise 'timbered' areas where transmission conductor height is high enough to maximise vegetation retention and comply with Transgrid's VCRs at Maximum Operating Conditions; and
- proximity/connected to land adjacent to conservation areas and reserves and stewardship sites.

### 6.1.3 Detailed design change

As detailed design is progressed and finalised, tower locations, and therefore connectivity corridor locations, may change. To accommodate necessary changes, each connectivity corridor will be given a determination as to whether their location is flexible (and can therefore be

realigned) or fixed (and will ideally remain in place). Heritage features may also influence the final connectivity corridor locations.

### 6.1.4 PCT selection

Of the 38 PCTs identified across five IBRA subregions with nine vegetation formations, a total of 28 target PCTs were identified as target woodland or 'timbered' vegetation types. Table 6.1 provides a description of these PCTs.

**Table 6.1 - List of PCTs within the project site considered suitable woodland vegetation types for connectivity corridor locations**

| PCT no. | PCT description | Vegetation class | Vegetation formation | IBRA subregion |
|---|---|---|---|---|
| 5 | River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion | Inland Riverine Forests | Forested Wetlands | Lower Slopes<br>Inland Slopes |
| 7 | River Red Gum – Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion | Inland Riverine Forests | Forested Wetlands | Murrumbidgee |
| 8 | River Red Gum - Warrego Grass - Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion) | Inland Riverine Forests | Forested Wetlands | Murrumbidgee |
| 11 | River Red Gum – Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | Inland Riverine Forests | Forested Wetlands | Murrumbidgee |
| 13 | Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | Inland Floodplain Woodlands | Semi-arid Woodlands (Grassy sub-formation) | Murrumbidgee |
| 15 | Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | Inland Floodplain Woodlands | Semi-arid Woodlands (Grassy sub-formation) | South Olary Plain<br>Lachlan<br>Murrumbidgee |
| 22 | Semi-arid shrubby Buloke – Slender Cypress Pine woodland, far south-western NSW | Riverine Sandhill Woodlands | Semi-arid Woodlands (Shrubby sub-formation) | South Olary Plain |
| 23 | Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones | Riverine Sandhill Woodlands | Semi-arid Woodlands (Shrubby sub-formation) | South Olary Plain<br>Lachlan<br>Murrumbidgee |
| 26 | Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion | Riverine Plain Woodlands | Semi-arid Woodlands (Grassy sub-formation) | Murrumbidgee |
| 28 | White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zones | Riverine Sandhill Woodlands | Semi-arid Woodlands (Shrubby sub-formation) | Murrumbidgee |

| PCT no. | PCT description | Vegetation class | Vegetation formation | IBRA subregion |
|---|---|---|---|---|
| 58 | Black Oak – Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion | Semi-arid Sand Plain Woodlands | Semi-arid Woodlands (Shrubby sub-formation) | South Olary Plain<br>Lachlan<br>Murrumbidgee |
| 74 | Yellow Box – River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion | Floodplain Transition Woodlands | Grassy Woodlands | Lower Slopes<br>Inland Slopes |
| 75 | Yellow Box – White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion | Riverine Sandhill Woodlands | Semi-arid Woodlands (Shrubby sub-formation) | Murrumbidgee<br>Lower Slopes |
| 76 | Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions | Floodplain Transition Woodlands | Grassy woodlands | Lower Slopes |
| 80 | Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion | Floodplain Transition Woodlands | Grassy woodlands | Lower Slopes<br>Inland Slopes |
| 110 | Western Grey Box – Cypress Pine shrubby woodland on stony footslopes in the NSW South Western Slopes Bioregion and Riverina Bioregion | Western Slopes Dry Sclerophyll Forests | Dry Sclerophyll Forests (Shrubby sub-formation) | Inland Slopes |
| 170 | Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones | Sand Plain Mallee Woodlands | Semi-arid Woodlands (Shrubby sub- formation) | South Olary Plain<br>Lachlan<br>Murrumbidgee |
| 171 | Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion | Dune Mallee Woodlands | Semi-arid Woodlands (Shrubby sub- formation) | South Olary Plain |
| 172 | Deep sand mallee of irregular dunefields of the semi-arid (warm) zone | Dune Mallee Woodlands | Semi-arid Woodlands (Shrubby sub- formation) | South Olary Plain |
| 249 | River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW | Inland Riverine Forests | Forested Wetlands | Lower Slopes |
| 267 | White Box – White Cypress Pine – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion | Western Slopes Grassy Woodlands | Grassy Woodlands | Inland Slopes |
| 277 | Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion | Western Slopes Grassy Woodlands | Grassy Woodlands | Lower Slopes<br>Inland Slopes |
| 319 | Tumbledown Red Gum – White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion | Inland Rocky Hill Woodlands | Semi-arid Woodlands (Shrubby sub-formation) | Inland Slopes |

## 6.2 Field site validation

Connectivity corridor locations identified by the GIS desktop process will be validated through the pre-clearing survey to be undertaken by an ecologist. The pre-clearing survey will be undertaken to validate the corridor selection against the priority considerations.

Specifically, the following process will be undertaken:

- undertake site visit to connectivity corridor georeferenced locations;
- confirm site values against priority selection considerations; and
- validate selection or recommend necessary changes.

The pre-clearing survey will provide the rationale to any changes required that may include:

- the movement of locations as required as part of detailed design considerations to mitigate impacts;
- the movement or removal of connectivity corridors in response to change on ground conditions (e.g., vegetation has been recently cleared, quality significant reduced, etc.); and
- the movement or removal as a result of previously undetected barrier (e.g., new fence).

## 6.3 Assessment against Transgrid vegetation clearance requirements

The location and management of all connectivity corridors must be in accordance with on Transgrid's Vegetation Clearance Requirements at Maximum Operating Conditions. Specifically, corridor locations reviewed on a site-by-site basis will need to meet the Vegetation Clearance Requirements (VCR) as summarised below in Table 6.2.

**Table 6.2 - Summary vegetation clearance requirements**

| Nominal system voltage | Vegetation clearance at maximum line operating conditions (min. safe working distance and regrowth rate) |
|---|---|
| 330kV | 3.0m + regrowth allowance |
| 500kV | 3.9m + regrowth allowance |

# 7 Indicative corridor locations

A total of 13 regional and seven (7) local connectivity corridors have been identified within the project area.

The distance between connectivity corridors differs considerably in response to identified landscape features/factors, and where biodiversity assets are considered restricted or immovable in context to the ecological benefits sought with the establishment of a corridor. Indicative corridor locations are shown in Figure 7.1 with proposed locations of the connectivity corridors indicated within Annexure A.

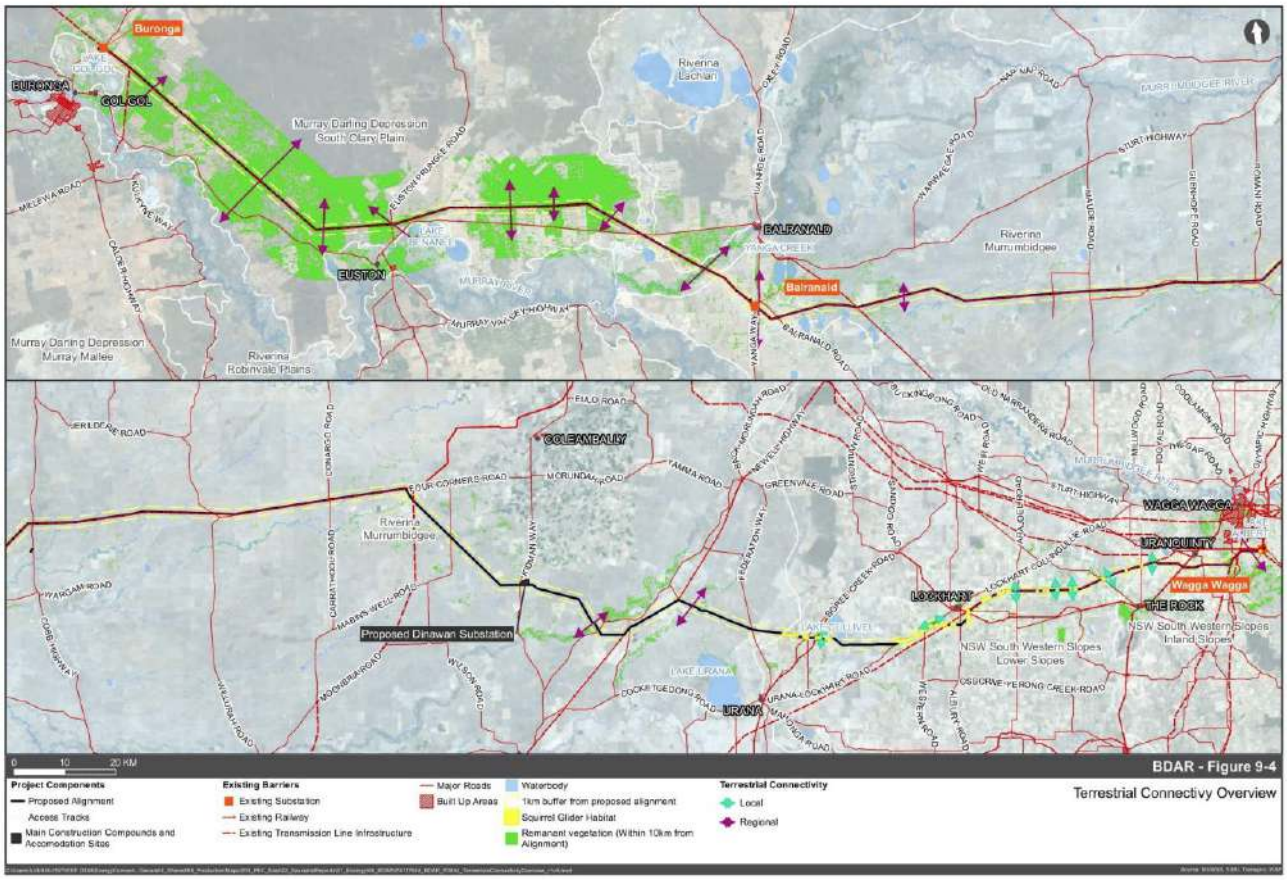



**Figure 7.1 - Indicative fauna connectivity corridor locations (Figure 9.4 in the Final BDAR)**

## 7.1 PCT representation

Woodland based PCT types have been considered a priority focus for locating connectivity locations, in accordance with RMM B7. Mallee and arid woodland and tall canopy riparian zones, floodplains and grassy woodland habitats dominate the woodland vegetation types which have been targeted for corridor locations. Table 7.1 lists those woodland PCTs where connectivity corridors have been located.

**Table 7.1 - Proportion of connectivity corridors per woodland-based PCT**

| PCT | PCT description | Total no. corridors |
|---|---|---|
| 5 | River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and eastern Riverina Bioregion | 2 |

| PCT | PCT description | Total no. corridors |
|---|---|---|
| 7 | River Red Gum – Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion | 1 |
| 8 | River Red Gum – Warrego Grass – Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion) | 1 (could be two if count either side of Murrumbidgee River) |
| 11 | River Red Gum – Lignum very tall open forest / woodland wetland | 1 |
| 13 | Black Box – Lignum woodland wetland | 0 |
| 15 | Black Box open woodland wetland with chenopod understorey | 1 |
| 22 | Semi-arid shrubby Buloke – Slender Cypress Pine woodland, far south-western NSW | 1 |
| 23 | Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones | 0 |
| 26 | Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion | 2 |
| 28 | White Cypress Pine open woodland of sand plains, prior streams and dunes mainly of the semi-arid (warm) climate zones | 1 |
| 58 | Black Oak – Western Rosewood open woodland | 2 |
| 74 | Yellow Box – River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion | 1 |
| 75 | Yellow Box – White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion | 1 |
| 76 | Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregions | 1 |
| 80 | Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion | 2 |
| 110 | Western Grey Box – Cypress Pine shrubby woodland on stony footslopes in the NSW South Western Slopes Bioregion and Riverina Bioregion | 1 |
| 170 | Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones | 5 |
| 171 | Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion | 2 |
| 172 | Deep sand mallee of irregular dunefields of the semi-arid (warm) zone | 1 |
| 249 | River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW | 0 |
| 267 | White Box – White Cypress Pine – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion | 1 |
| 277 | Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion | 1 |
| 319 | Tumbledown Red Gum – White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion. | 1 |

## 7.2 Habitat for threatened species and TEC presence

The occurrence of threatened flora, fauna, and ecological communities has been considered a priority when selecting locations for connectivity corridors. The representation by priority location of corridors based on threatened flora, fauna, and TEC presence is shown in Table 7.2.

**Table 7.2 - Number of connectivity corridor locations selected based on threatened species factors and proximity to a TEC**

| Connectivity corridor attribute | No. of key connectivity corridor locations | Associated PCTs |
|---|---|---|
| Within or in proximity to TEC | 13 | PCT 22, 23, 26, 28, 74, 75, 76, 80, 110, 267 and 277 |
| Contains or in proximity to threatened flora and fauna records or significant habitat including dense woodland vegetation. | Threatened flora records mainly occurs in area non-woodland vegetation formations PCTs.<br>Threatened fauna occur in 17 PCTs. | PCT 7, 8, 11, 13, 15, 26, 28, 58, 74, 75, 76, 80, 170, 171, 172, 267, 277 |
| Squirrel Glider crossings | 9 | PCT 74 |

## 7.3 Presence of landscape features

Alignment with significant landscape features as per RMM B7, such key riparian crossings, Yanga Conservation Reserve, and the (Confidential BSA 2), was a priority for connectivity corridor identification. Table 7.3 provides the number of connectivity locations that were identified to meet these priority connectivity corridor locations.

**Table 7.3 - Number of connectivity corridor locations selected based on significant landscape features presence**

| Connectivity corridor attribute | No. of connectivity corridor locations | Associated PCTs |
|---|---|---|
| Along or in proximity to a waterway | 10 | 5, 7, 8, 15, 11, 13 |
| Adjacent to offset area | - | None – offset area in Western Section |

## 7.4 Other PCTs

Table 4.1 of this strategy lists the fauna guilds which may have impacts to either aerial or terrestrial connectivity and their associated PCTs. Connectivity locations have also been provided for these relevant PCTs as detailed within Table 7.4.

**Table 7.4 - Number of corridor locations based on other PCTs**

| Connectivity type | No. of connectivity corridor locations | Associated PCTs (other than those already listed above) |
|---|---|---|
| Aerial and terrestrial connectivity | 12 | 17, 24, 44, 45, 46, 47, 53, 143, 157, 160, 163, 164, 182, 199 and 216 |

# 8 Under-transmission line glider poles

RMM B7 identifies the requirement for the installation of under-transmission glider poles in five (5) potential locations (refer to Figure 8.3 to Figure 8.7), in order to assist Squirrel Gliders who do not typically run along the ground but glide from tree to tree.

The approach to mitigate impacts to connectivity for Squirrel Gliders could include the use of timber poles and/or retained tall tree stumps.

Post approval targeted species surveys have been conducted to verify Squirrel Glider habitat. All verified habitat and non-habitat areas in correlation with the locations outlined in RMM B7, will be analysed for their suitability for glider pole installation. Any validated squirrel glider habitat in accordance with RMM B7, will require glider poles. Pole specifications for all areas deemed suitable for glider poles will adhere to a Glider Pole Strategy developed by Elecnor.

## 8.1 Process for identification of suitable mitigation

The project's arborist will assess the trees that require clearing within the locations identified in Figure 8.3 to Figure 8.7 in order to determine whether any trees may provide suitable tall tree stumps that meet the following criteria:

- the tree is located at a suitable distance away from the transmission lines and towers so that they cannot present as a hazard/high risk tree;
- the tree once cut would provide a stump wider than timber poles, to provide a large landing surface (ideally 10-20cm wide);
- the tree once cut would be relatively straight and vertical to reduce the risk of collapse and maximise standing longevity; and
- the tree once cut would be resistant to decay and the root system would remain intact.

Hazard/high risk trees (i.e. trees that are so tall that they pose a risk of falling into transmission lines) will need to be removed from the areas outside the centreline, B4 and B10 zones, subject to confirmation from a qualified arborist. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees have a potential growth height of 30m or more occur within a 10m zone adjacent to the 300 kV transmission line easement. Clearing of hazard/high risk trees would be removed inside and outside of the easement area, where trees with a potential growth height of 20m or more occur within a 10m zone adjacent to the 500 kV transmission line easement.

Should trees be unable to provide the required connectivity for Squirrel Gliders, man-made glider poles will be investigated as an alternative. An example of what these man-made glider poles could look like is reflected in Figure 8.1.



**Figure 8.1 - Example of man-made glider poles (Source: Fauna Crossings Australia)**

As much canopy cover should be maintained as possible in order to provide connection to and from the under-transmission glider poles.

## 8.2 Calculating the height of under-transmission line glider poles

The Final BDAR stipulated that the glide ratio (glide distance divided by height dropped) of Squirrel Gliders has been calculated at 1.84 (equivalent to a glide angle of 29° (Goldingay & Taylor 2009)). With this ratio, the maximum distance between stumps that are 10m in height is 18.4m. The Final BDAR also noted that gliders should however land at least 2 to 3m above the ground and shorter glides are typically steeper in descent initially because of the effect of a steep launch and less distance to level off.

Therefore, stumps that are 10m in height should be a maximum of 10–15m apart.

Figure 8.2 reflects a potential arrangement for under-transmission line glider poles.

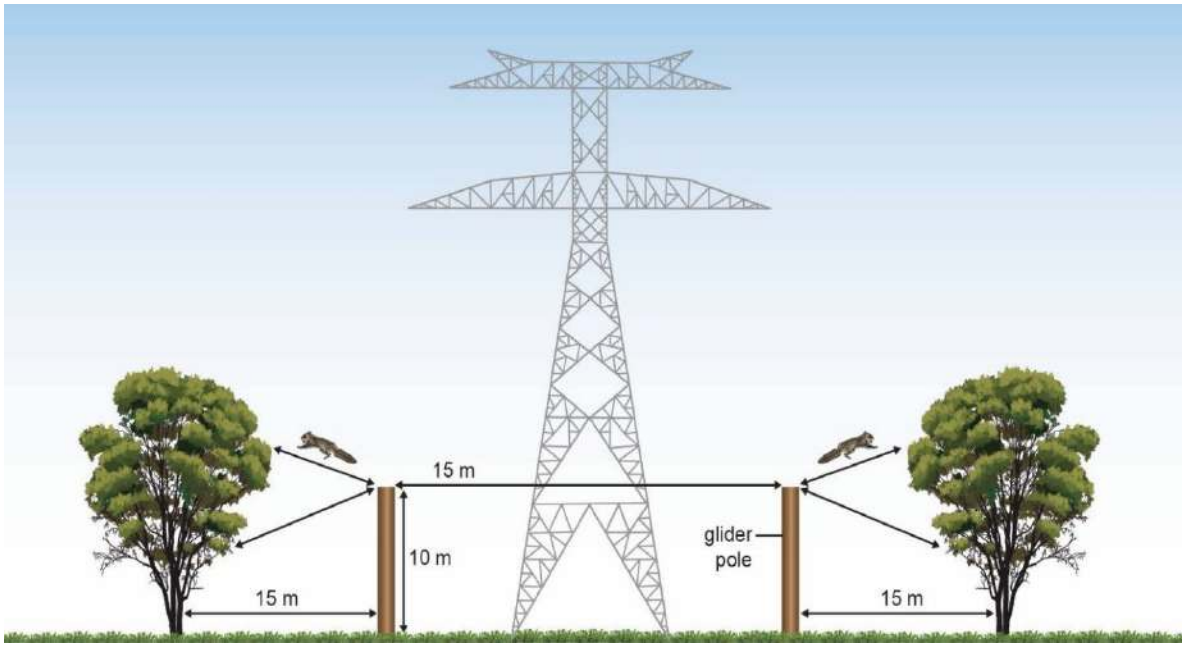



**Figure 8.2 - Potential under-transmission line glider poles arrangement (Figure 9.8 in Final BDAR)**

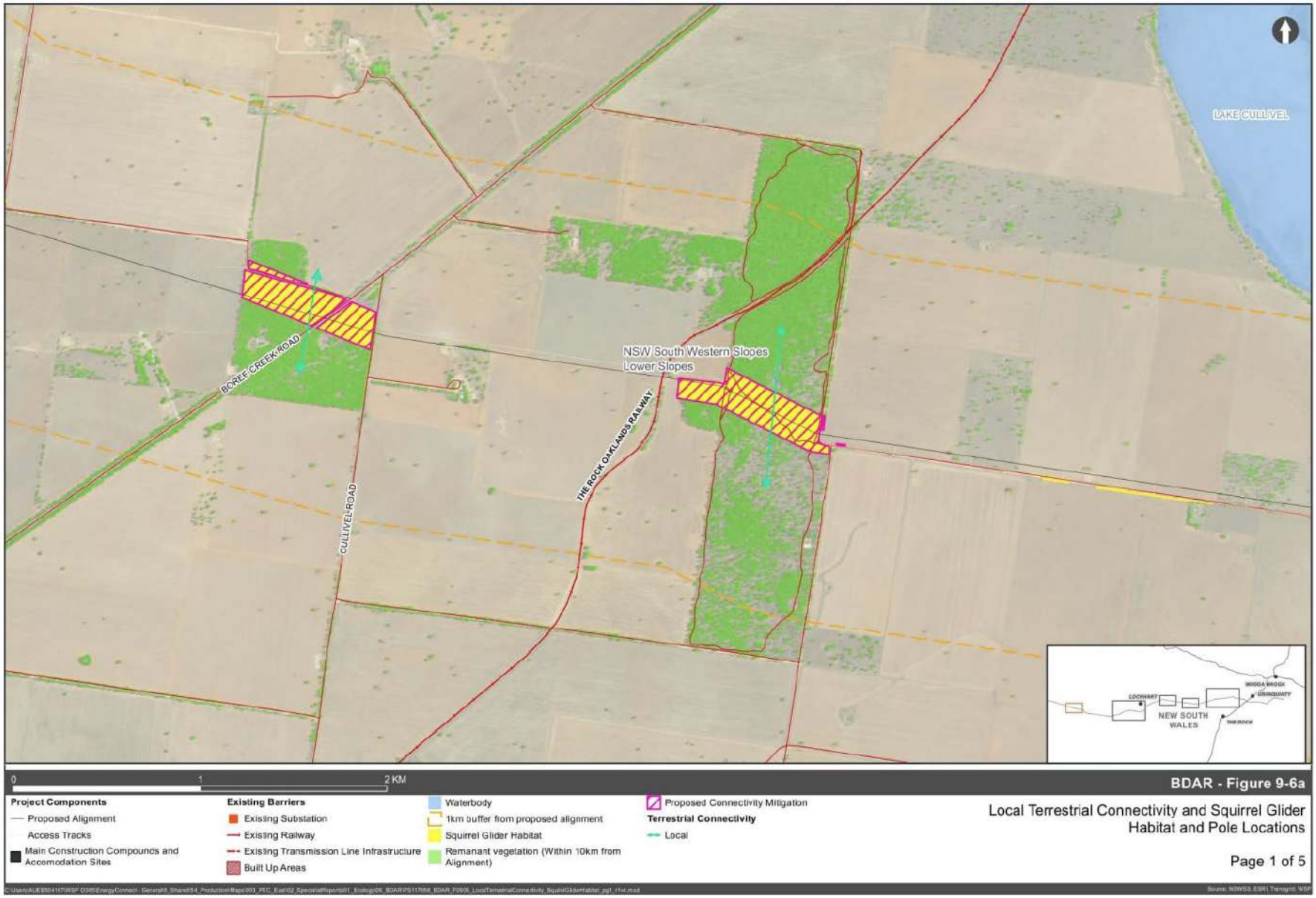



**Figure 8.3 - Areas for proposed under-transmission glider poles (Figure 9-6a in the Final BDAR)**

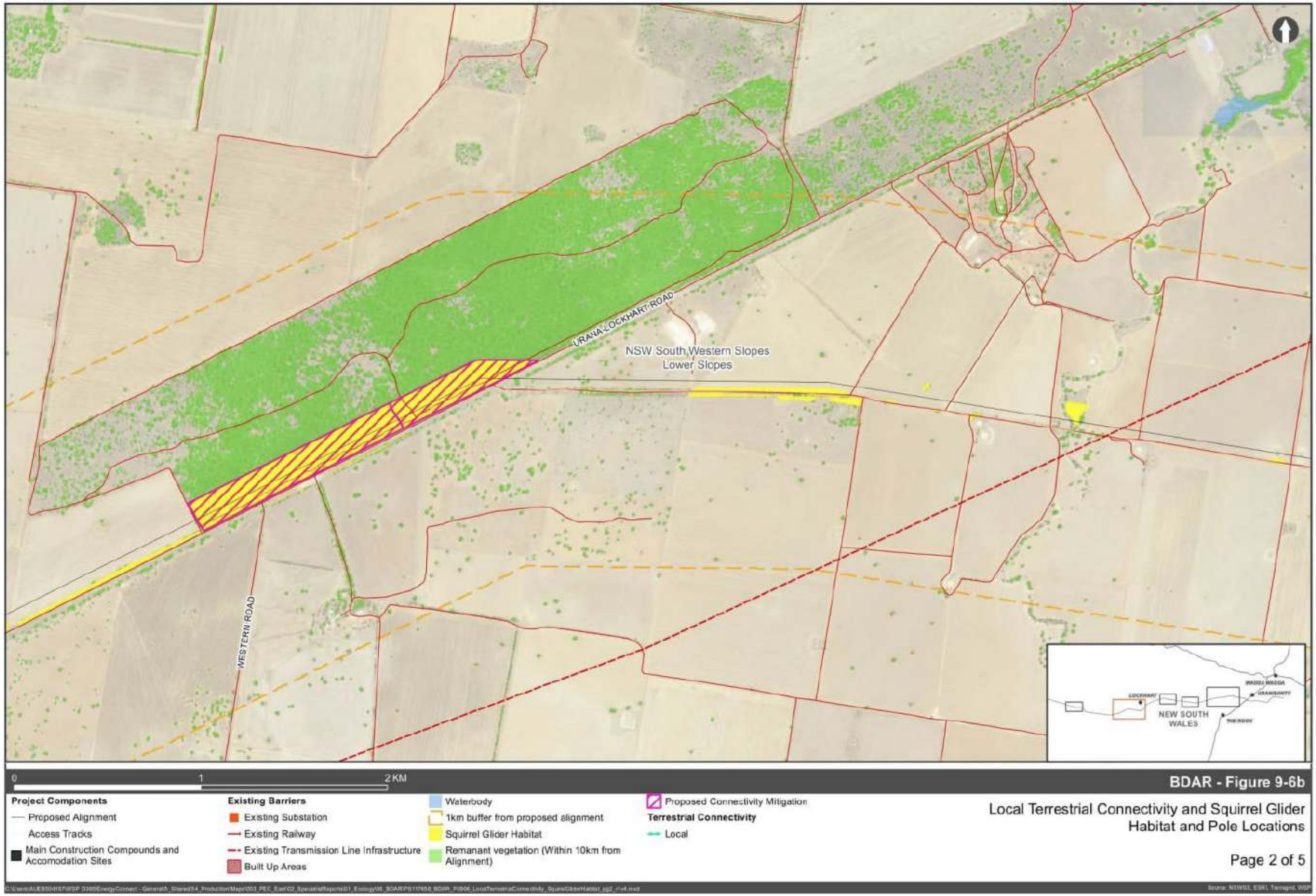



**Figure 8.4 - Areas for proposed under-transmission glider poles (Figure 9-6b in the Final BDAR)**

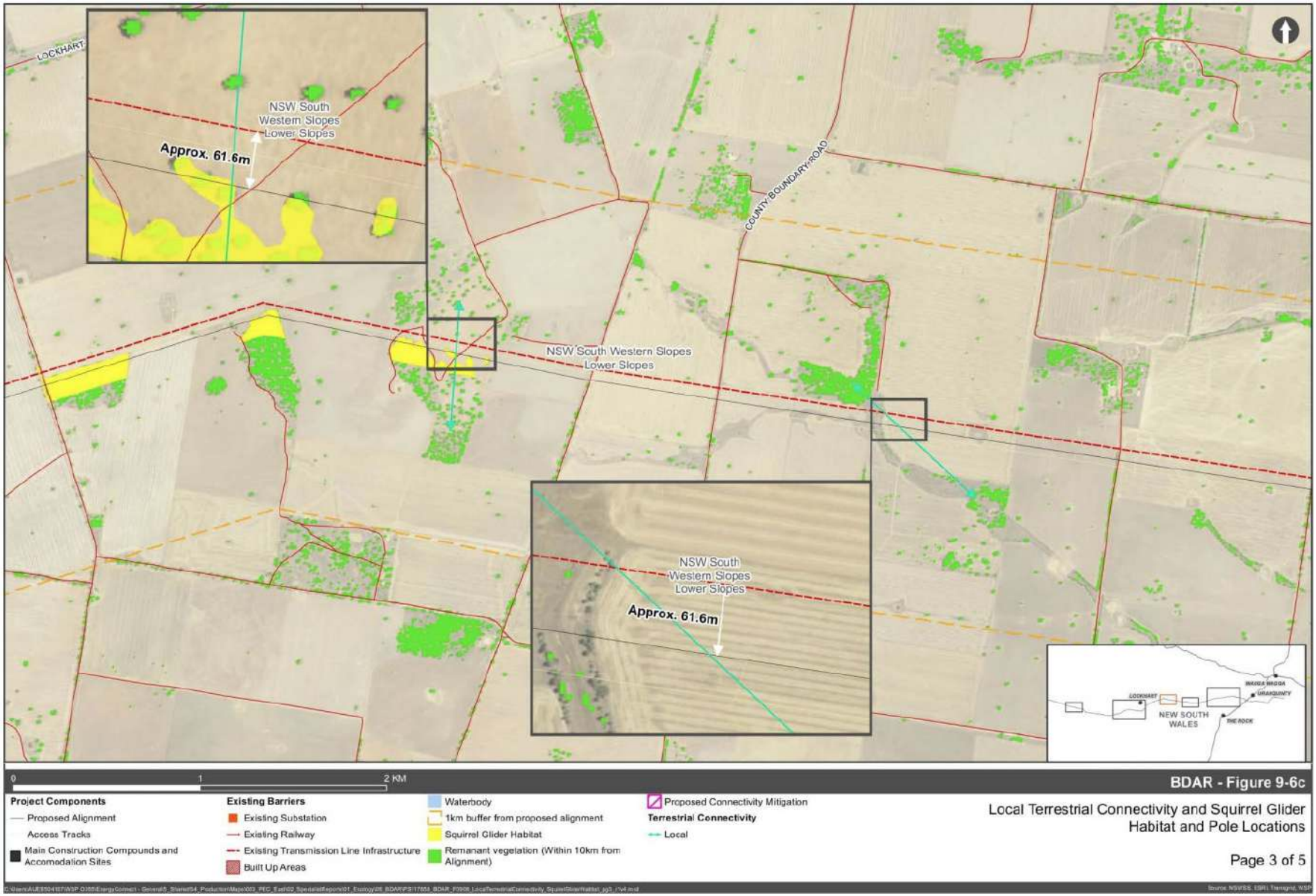



**Figure 8.5 - Areas for proposed under-transmission glider poles (Figure 9-6c in the Final BDAR)**

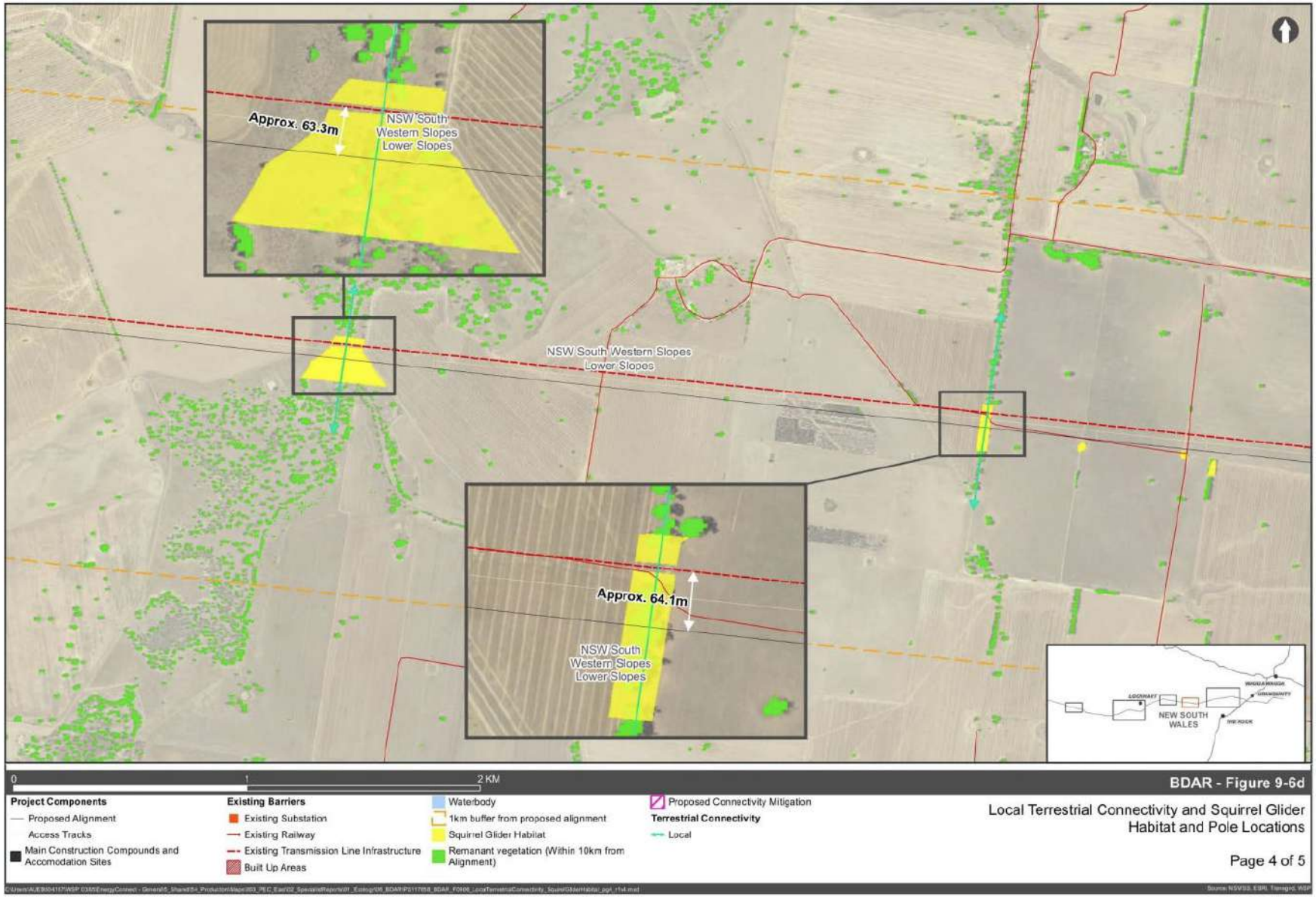



**Figure 8.6 - Areas for proposed under-transmission glider poles (Figure 9-6d in the Final BDAR)**

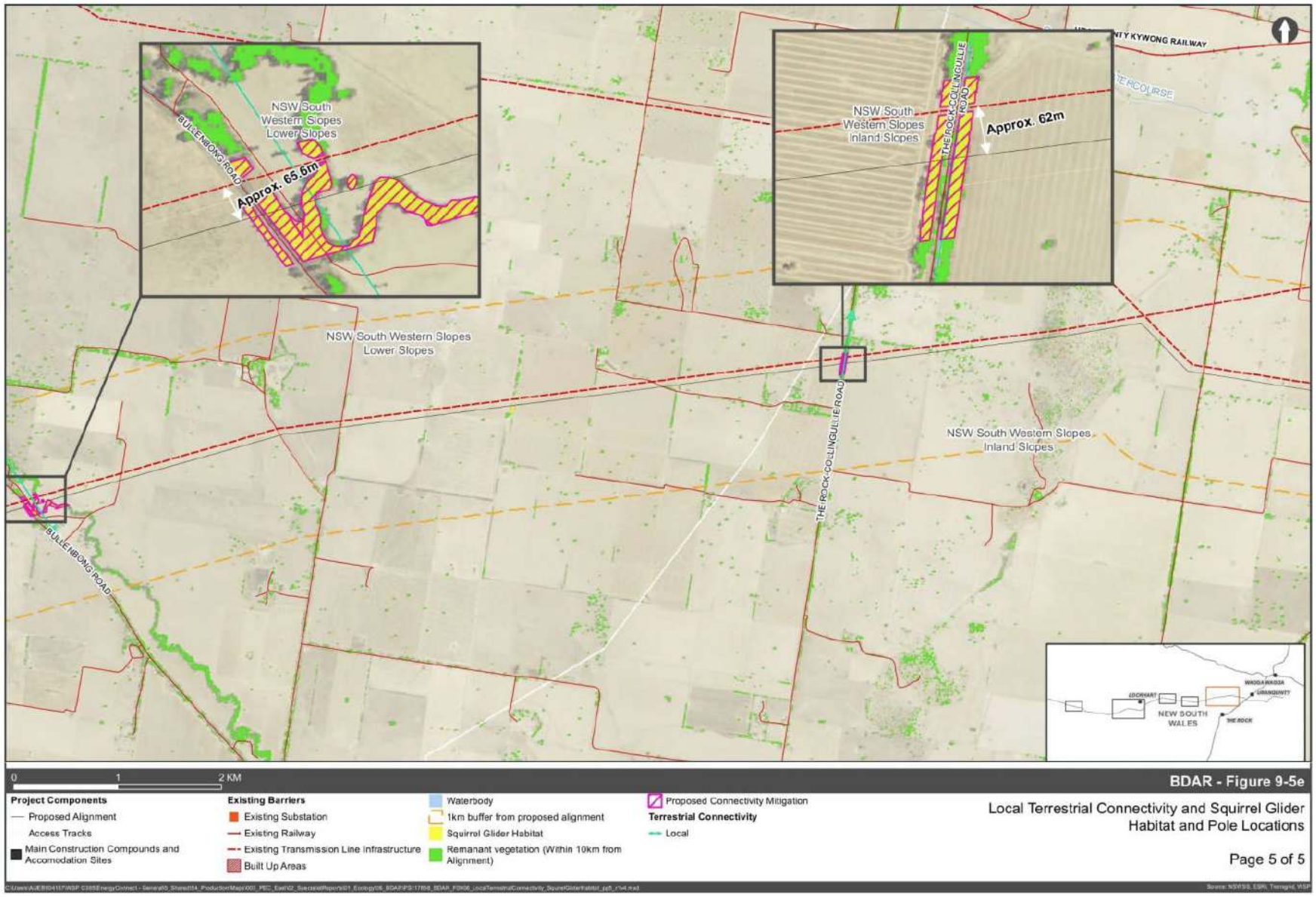



**Figure 8.7 - Areas for proposed under-transmission glider poles (Figure 9-6e in the Final BDAR)**

# 9 Conductor line marking and bird diverters

Revised mitigation measure B6 requires conductor line marking techniques to be incorporated during detailed design to minimise bird strike.

## 9.1 Locations

As required by RMM B6, bird diverter positioning and exact diverter model would be finalised during design refinement. Bird diverters are also to be installed on the transmission lines within one kilometre of wetland/riverine habitats and key waterbodies listed in Section 3.1.3 of the Final BDAR.

The likely key waterbody locations for waterbirds within one kilometre of the proposal (west to east) are:

- Dry Lake/Lake Benanee;
- Box Creek;
- Murrumbidgee River;
- Condoulpe Creek/Condoulpe Lake;
- Lintot Lake;
- Abercrombie Creek;
- the Forest Creek;
- Yanco Creek;
- Colombo Creek; and
- Lake Cullivel.

These are mapped in Figure 9.2 and Figure 9.3

## 9.2 Design standards

The potential types of bird diverters which are currently proposed are identified in Figure 9.1 (though will be subject to the detailed design process). The spacings of the bird diverters installed on the lines will be in accordance with the manufacturer's specifications of approximately 250m spacing and local conditions. The diverters will be installed via drone (UAV) or by clamping (hot stick).

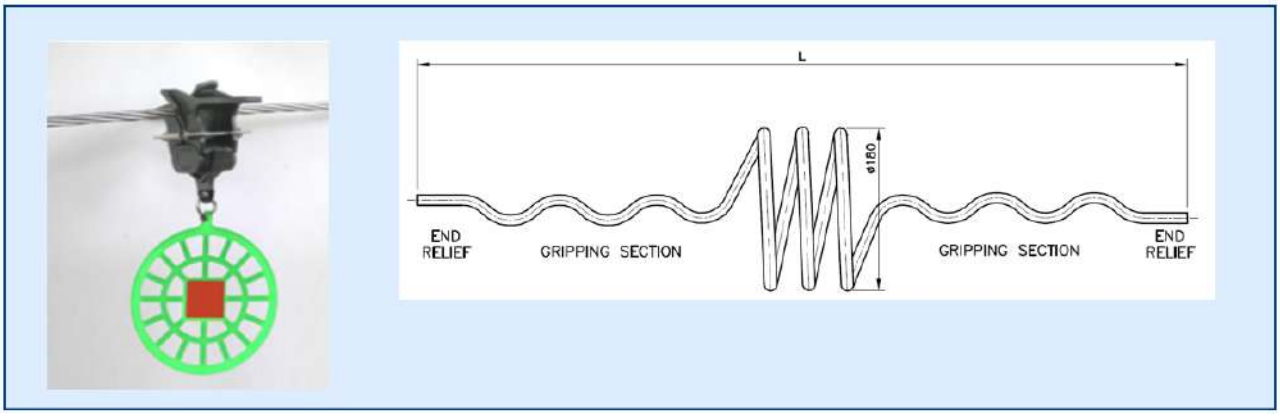



**Figure 9.1 - Types of bird diverters**

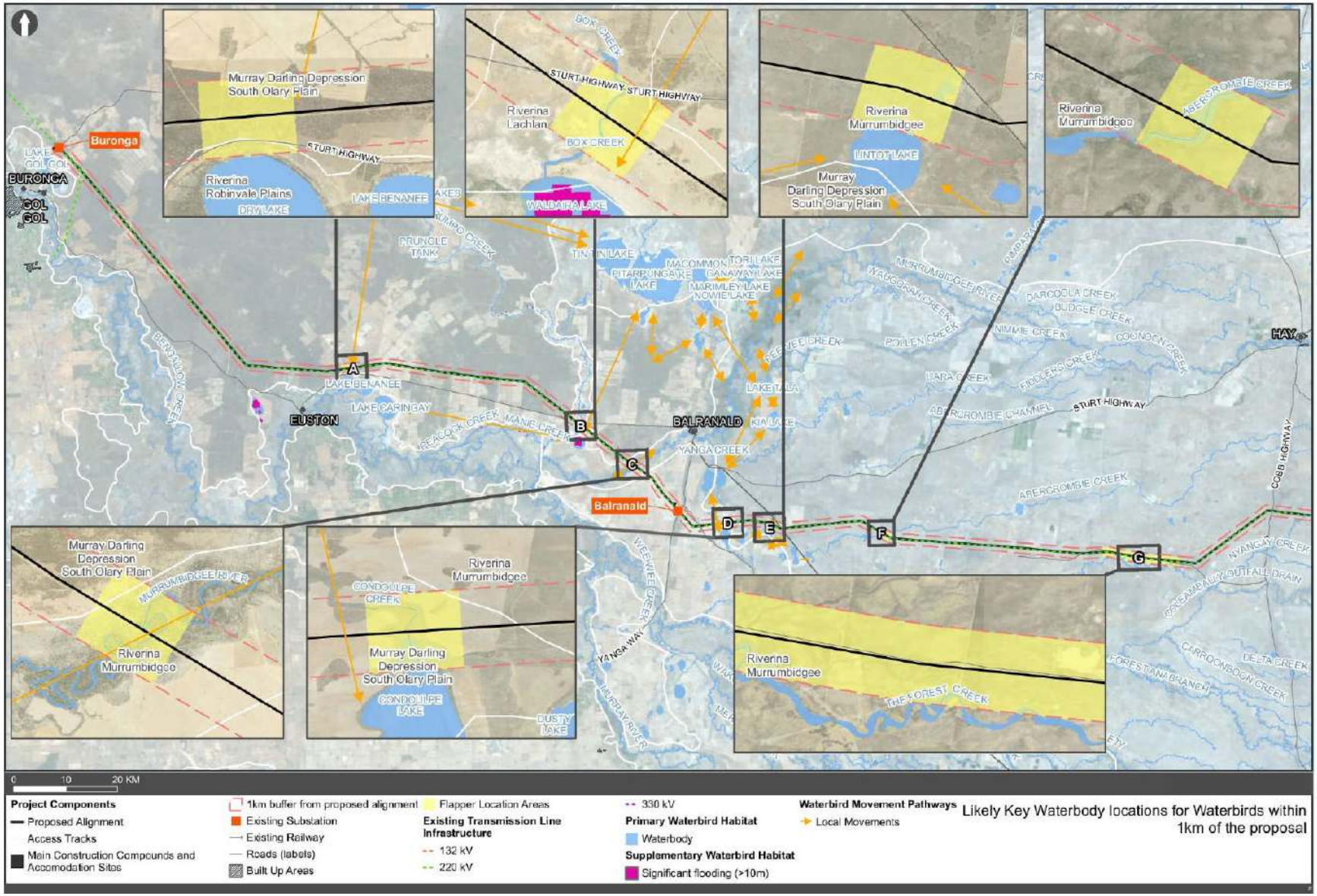



**Figure 9.2 - Key waterbodies for bird diverter installation (Figure 3.5a in the Final BDAR)**

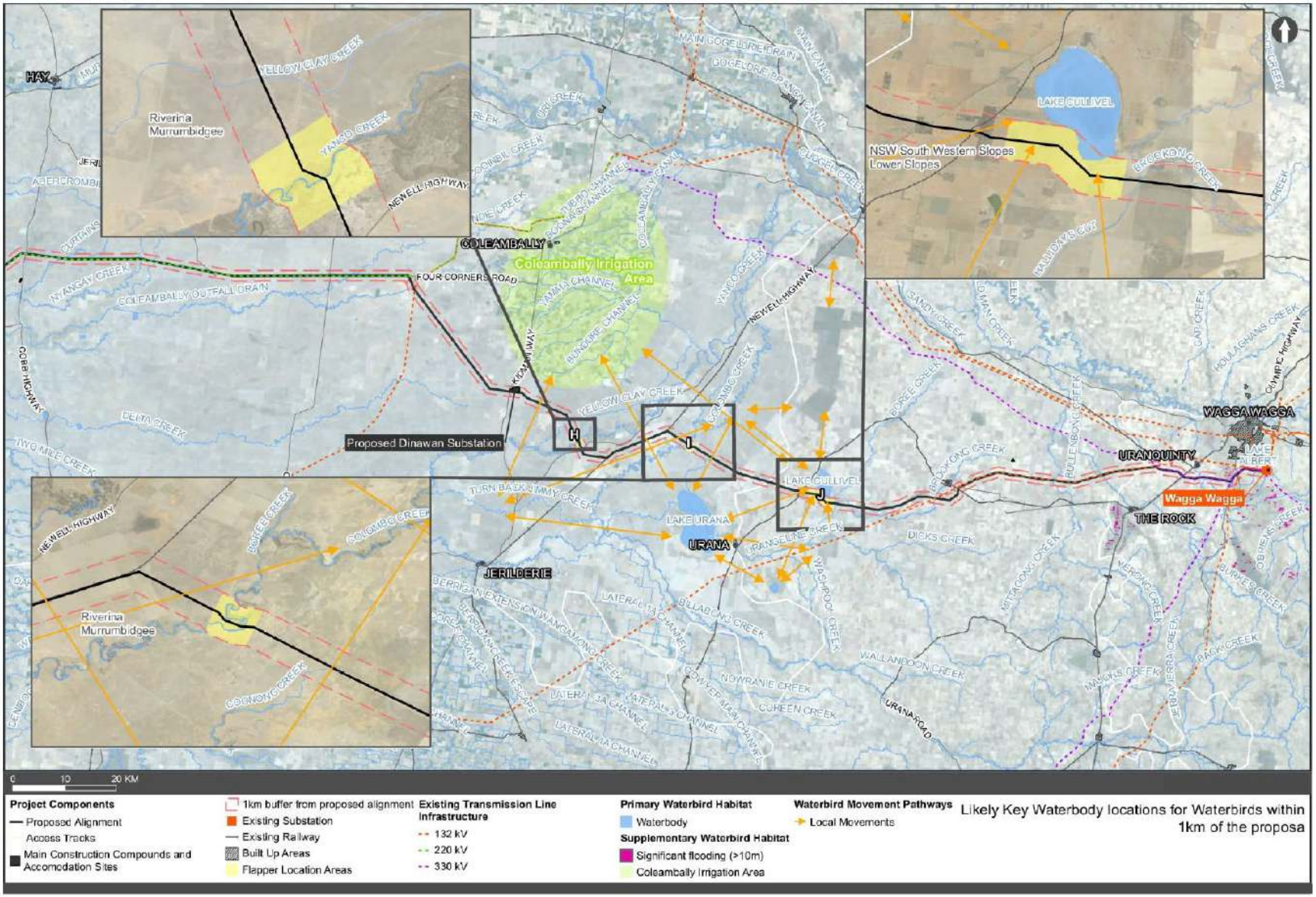
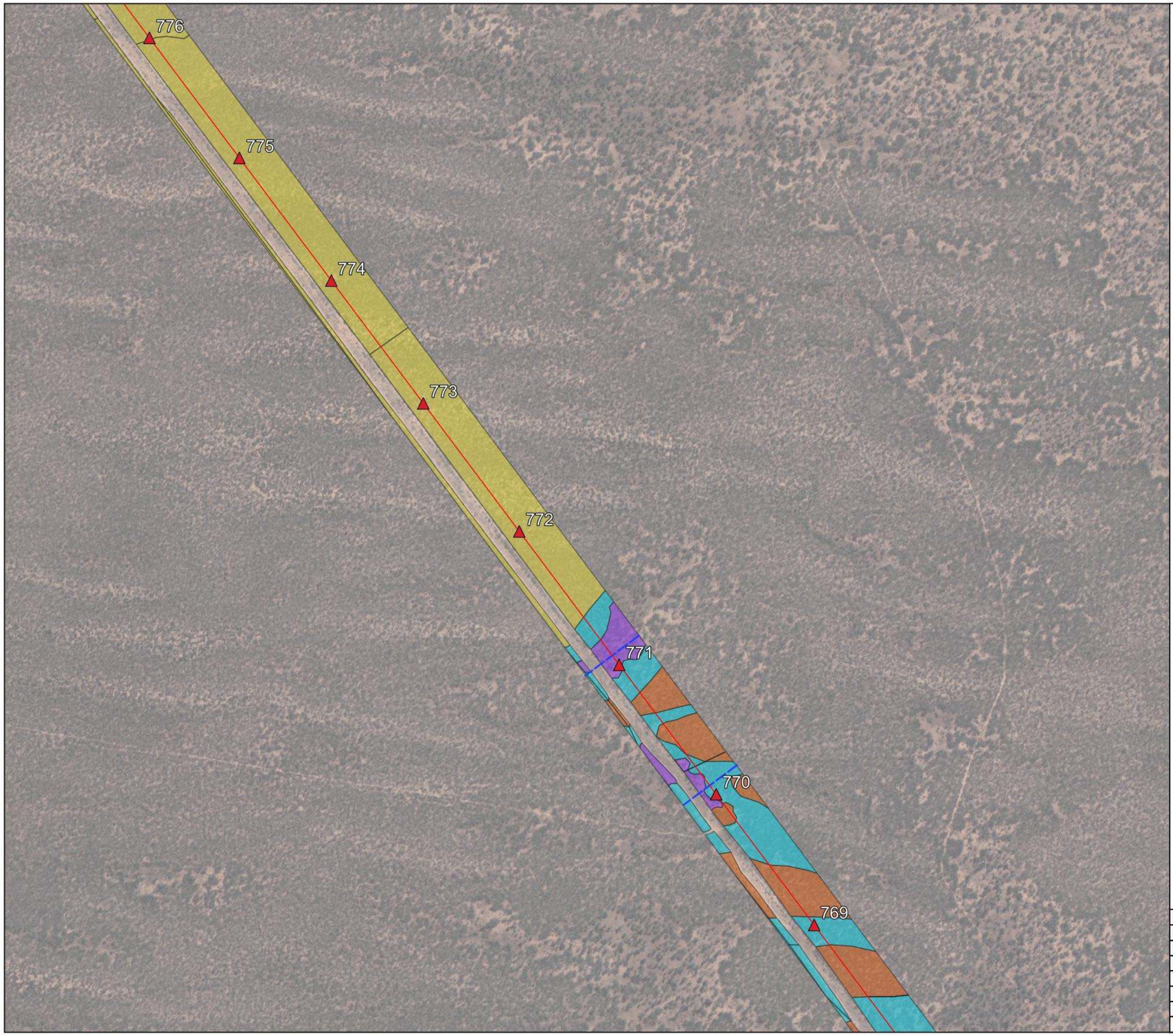



**Figure 9.3 - Key waterbodies for bird diverter installation (Figure 3.5b in the Final BDAR)**

**Once printed this document becomes uncontrolled. Refer to the Elecnor Australia intranet for a controlled copy.**

# Annexure A – Connectivity corridor mapping




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

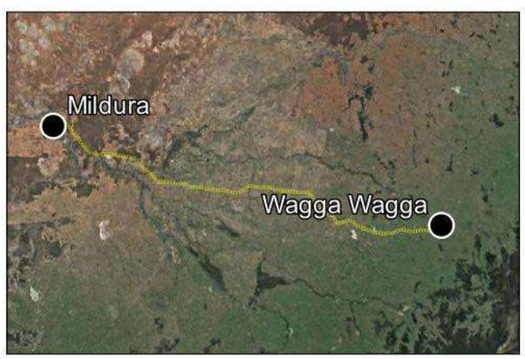
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171
- PCT172
- PCT58

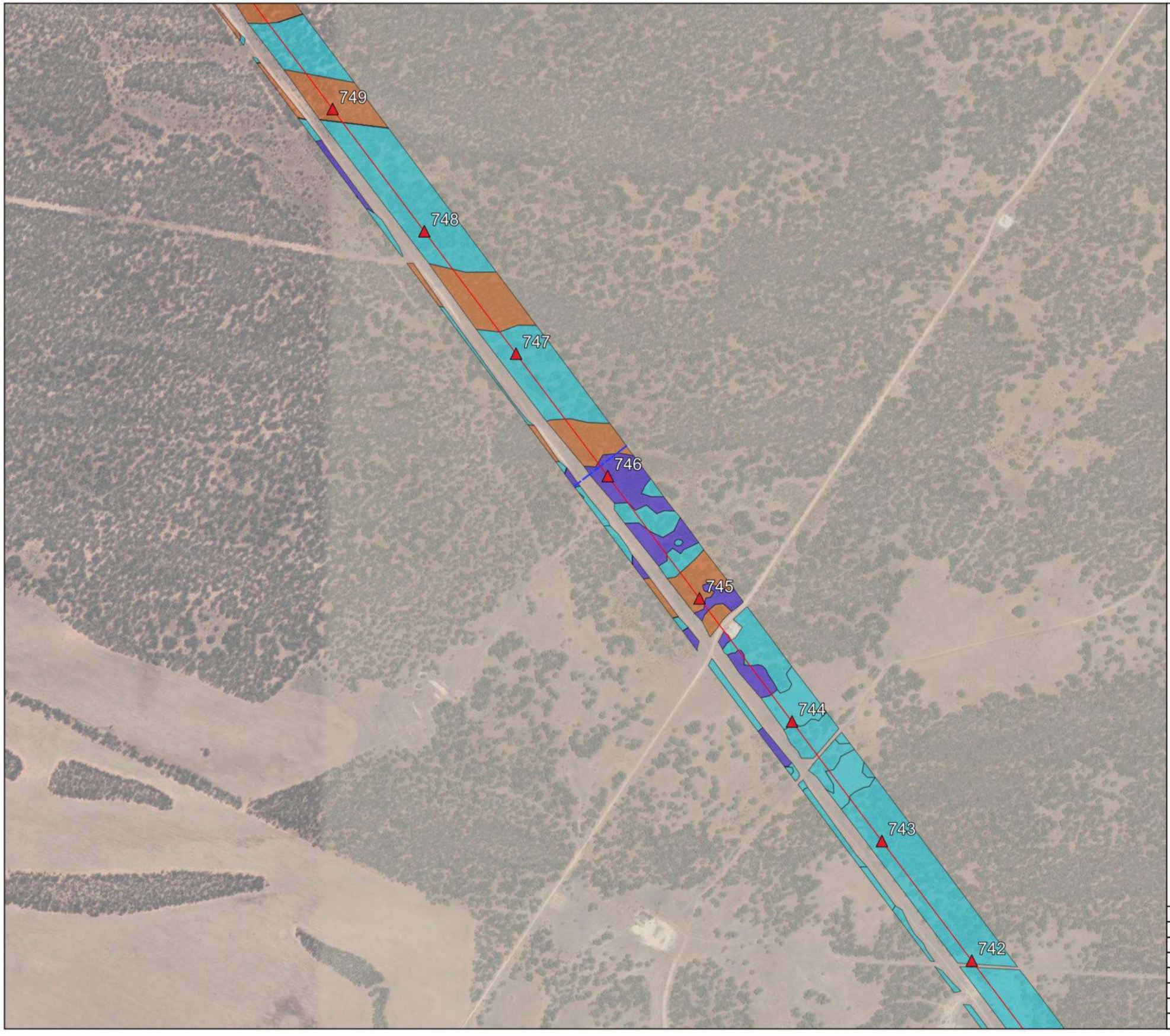
Note: Tower locations are indicative and may be subject to change during detailed design.




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| VERIFIED: | |
| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 1 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

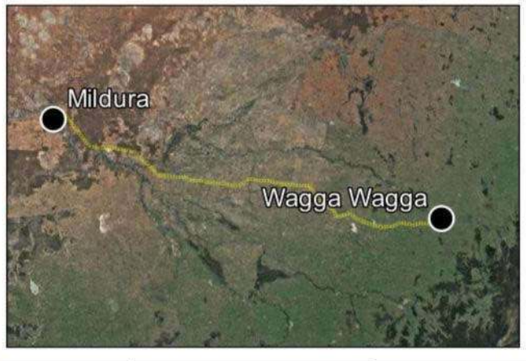
PCTs (Fauna Guilds)

- 143

PCTs (Woodland)

- PCT170
- PCT171

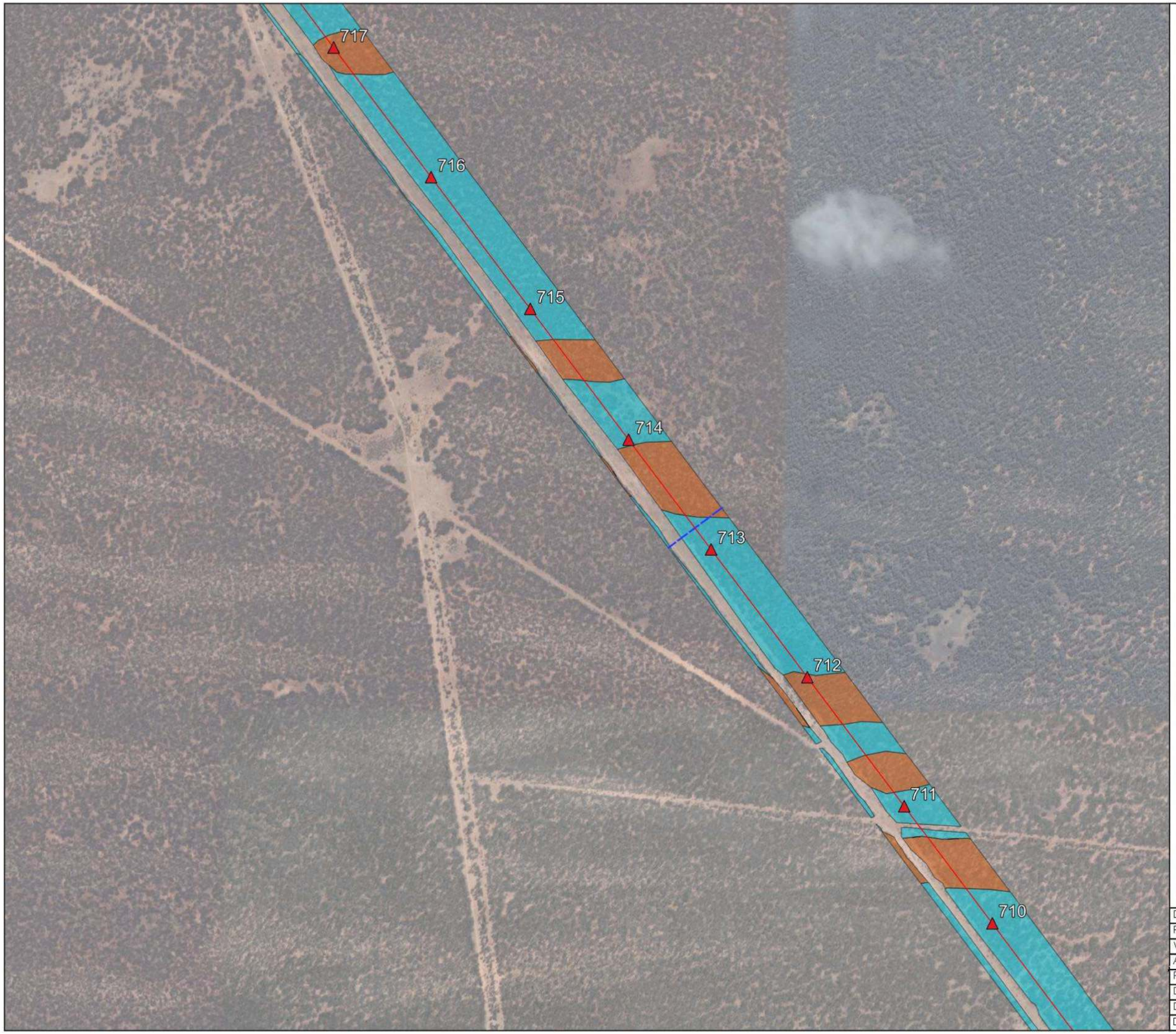
Note: Tower locations are indicative and may be subject to change during detailed design.




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| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 2 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171

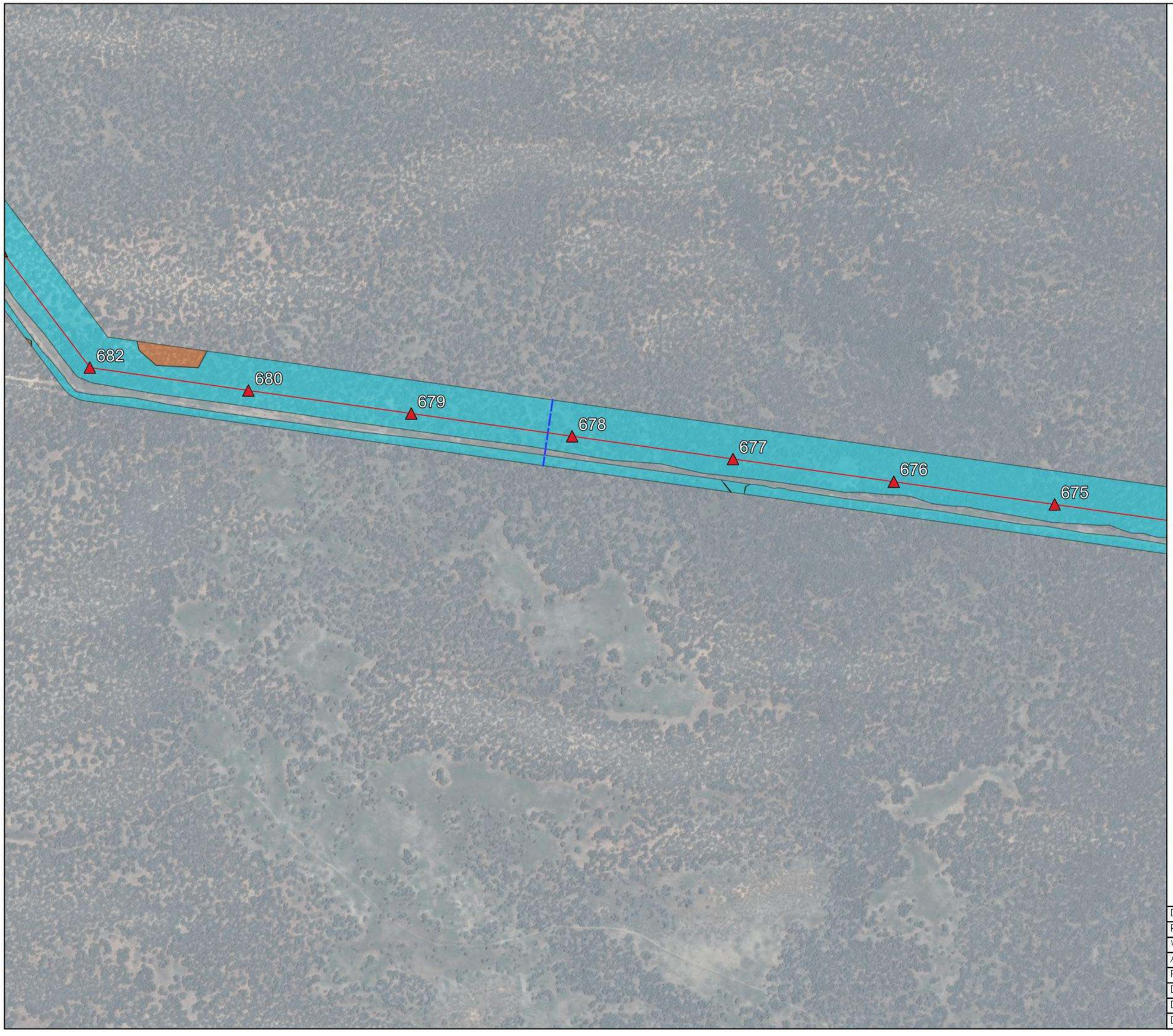
Note: Tower locations are indicative and may be subject to change during detailed design.




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| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 4560-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 3 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

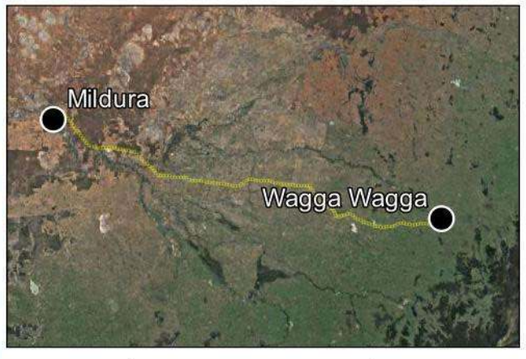
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171

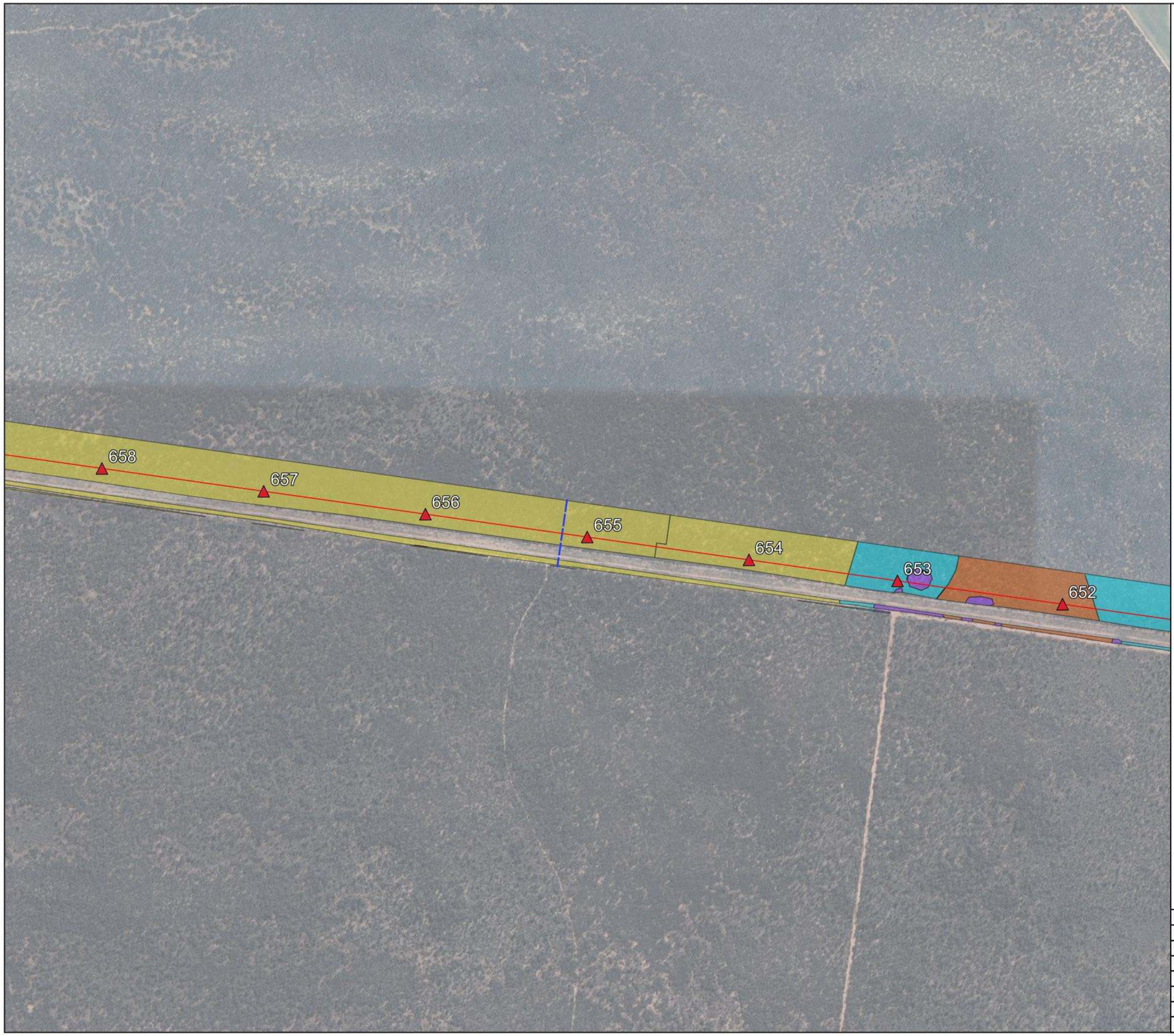
Note: Tower locations are indicative and may be subject to change during detailed design.




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| REV: | C |
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Connectivity Corridors NSW-Eastern

Map 4 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

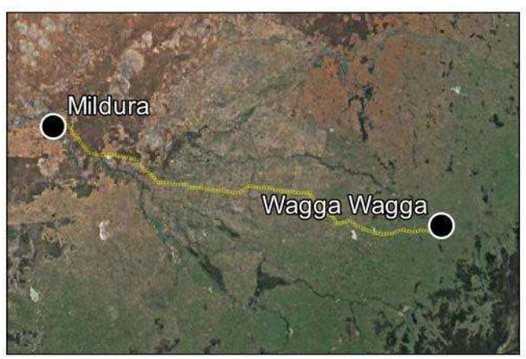
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171
- PCT172
- PCT58

Note: Tower locations are indicative and may be subject to change during detailed design.




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| APPROVED: | |
| REV: | C |
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| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 5 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

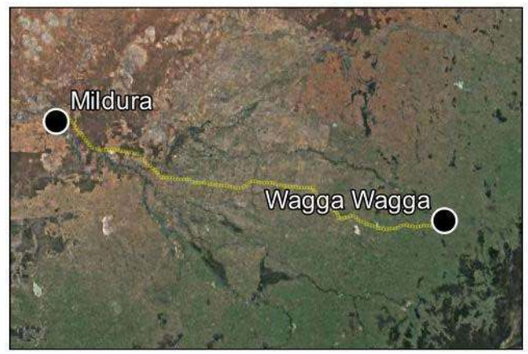
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171

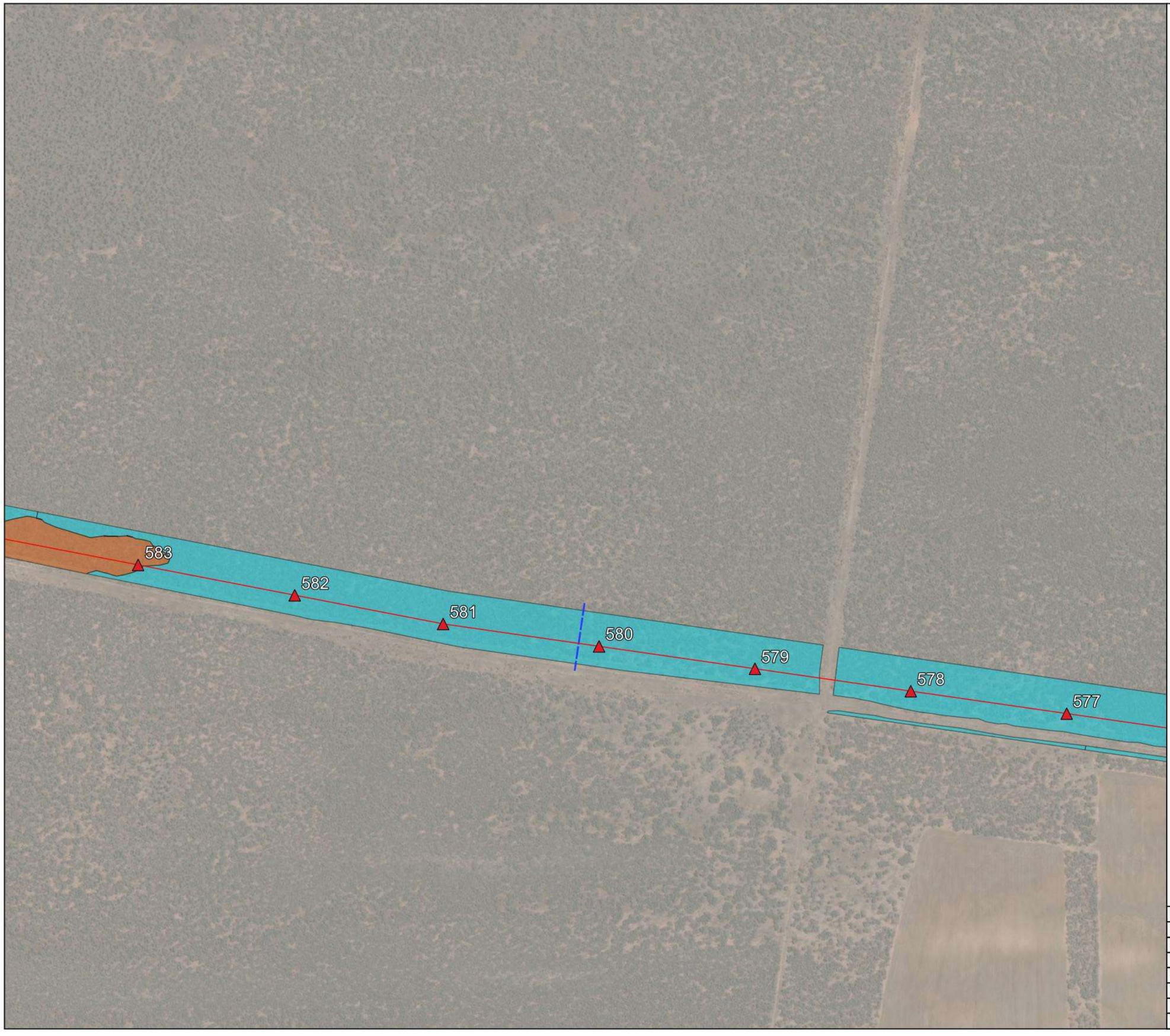
Note: Tower locations are indicative and may be subject to change during detailed design.




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| DRAWN: | MMH |
| REVIEWED: | RWE |
| VERIFIED: | |
| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 6 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

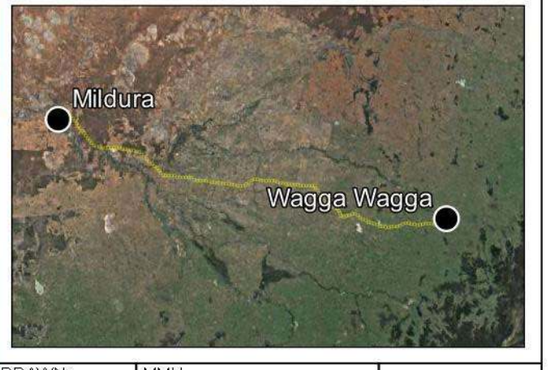
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Woodland)

- PCT170
- PCT171

Note: Tower locations are indicative and may be subject to change during detailed design.




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| DRAWN: | MMH |
| REVIEWED: | RWE |
| VERIFIED: | |
| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 7 of 36

564
563
562
560
559
558
557
556
555

0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

Threatened Ecological Communities

- Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions

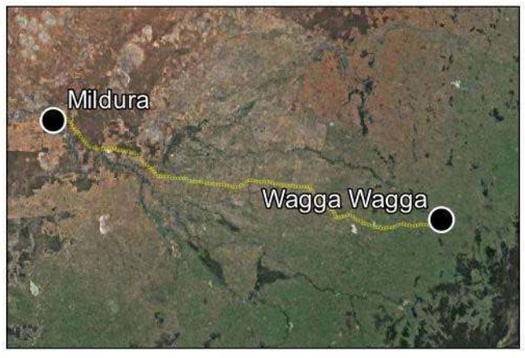
PCTs (Fauna Guilds)

- 163

PCTs (Woodland)

- PCT170
- PCT23
- PCT58

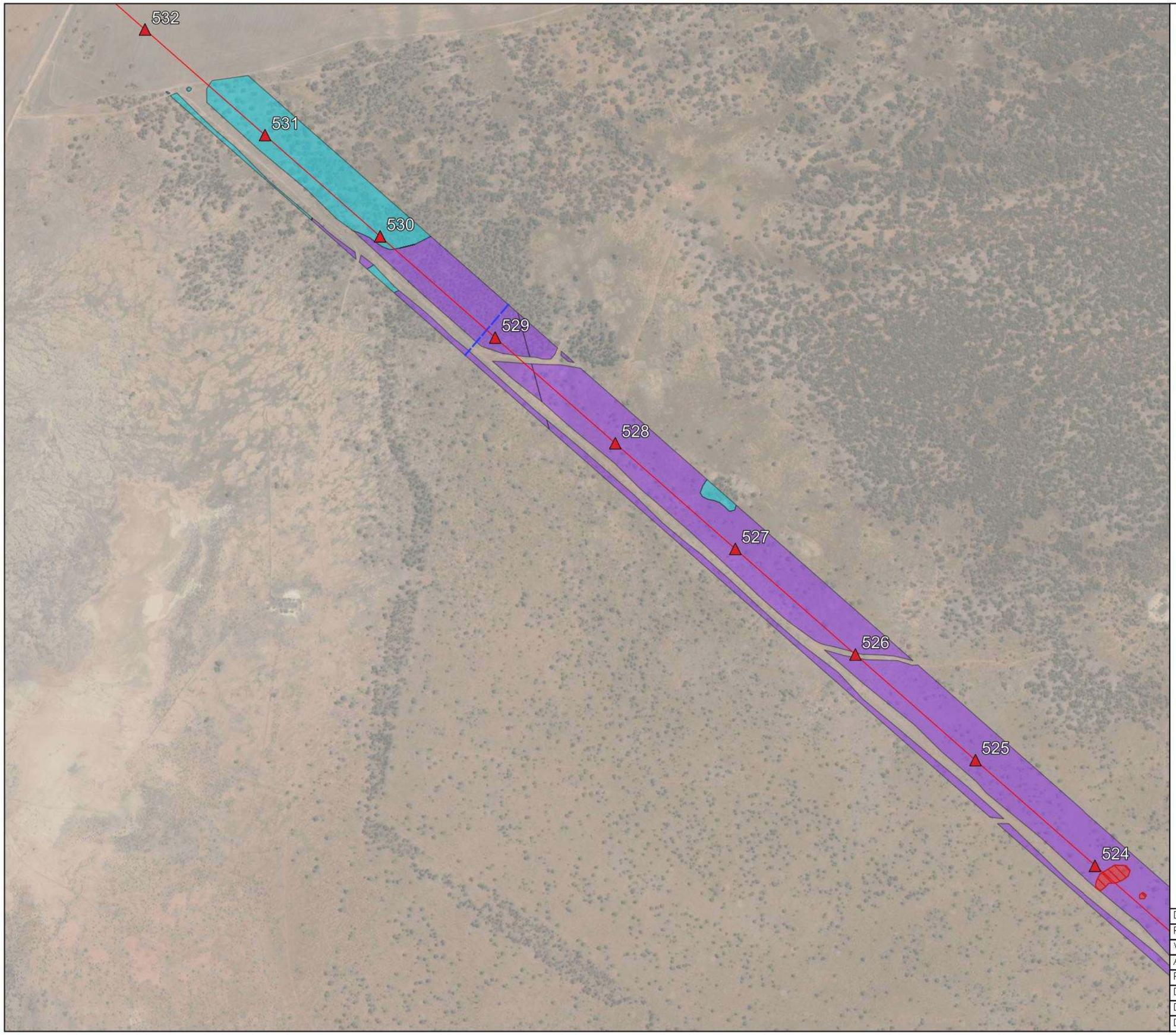
Note: Tower locations are indicative and may be subject to change during detailed design.




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| VERIFIED: | |
| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 8 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

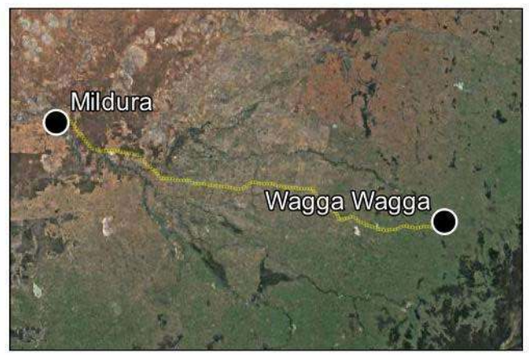
Threatened Ecological Communities

- Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions

PCTs (Woodland)

- PCT170
- PCT23
- PCT58

Note: Tower locations are indicative and may be subject to change during detailed design.




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|---|---|
| DRAWN: | MMH |
| REVIEWED: | RWE |
| VERIFIED: | |
| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 9 of 36

515
514
513
512
511
510
509
508
507
MURRUMBIDGEE RIVER

0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

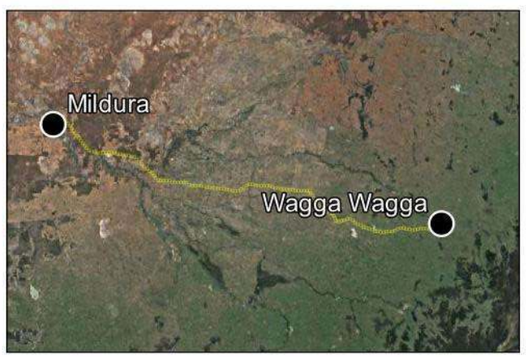
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors
- Watercourse

PCTs (Fauna Guilds)
- 163

PCTs (Woodland)
- PCT11
- PCT170
- PCT58
- PCT8

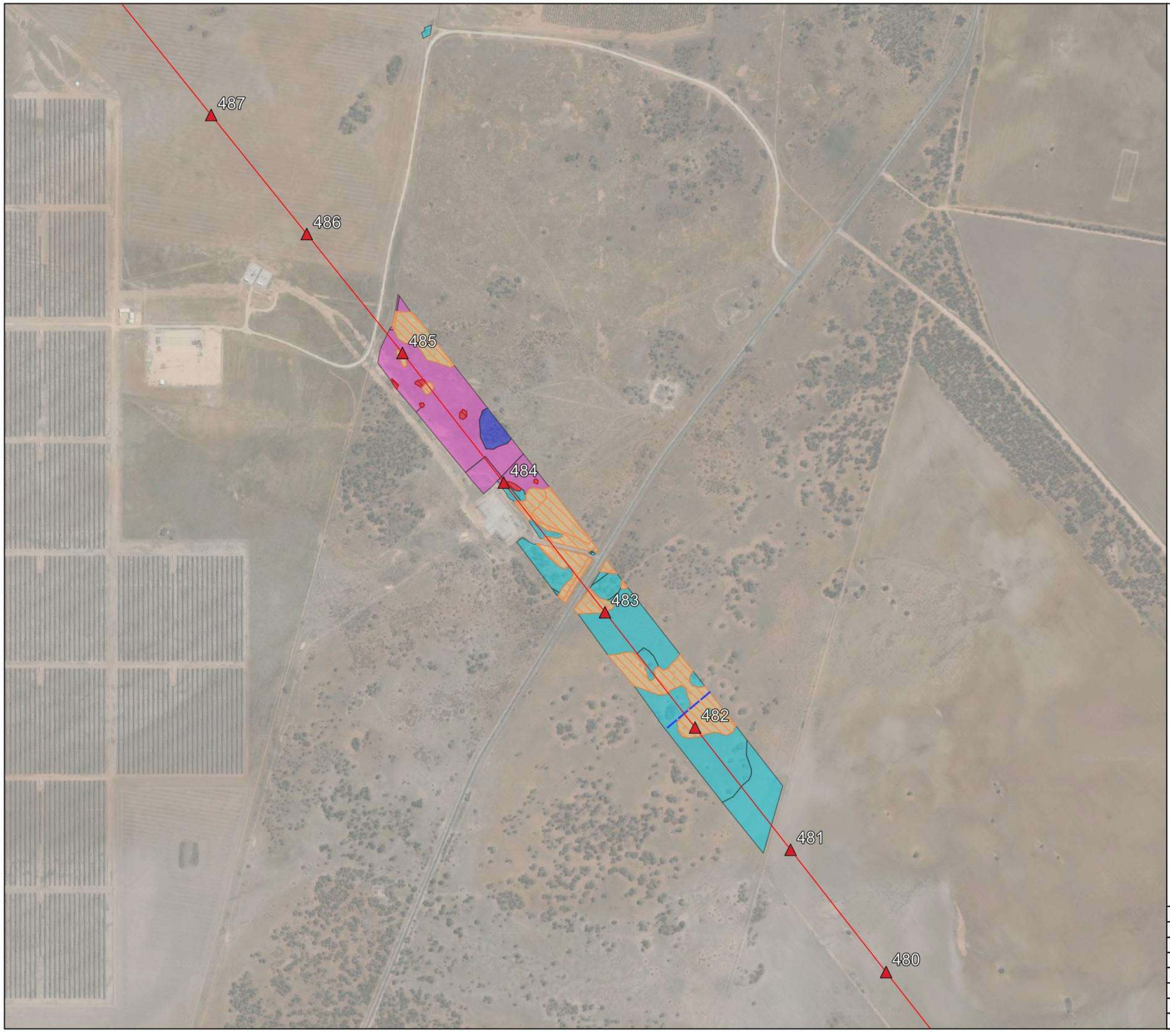
Note: Tower locations are indicative and may be subject to change during detailed design.




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| VERIFIED: | |
| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 10 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

Threatened Ecological Communities

- Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions
- Allocasuarina luehmanii woodland in the Riverina and Murray-Darling Depression bioregions

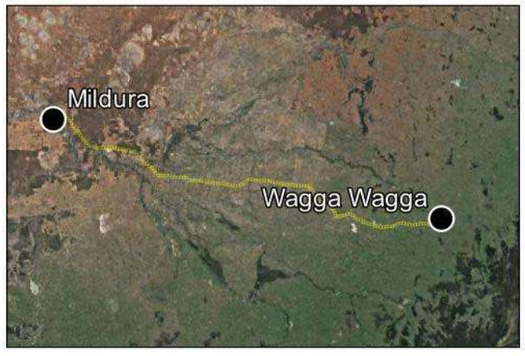
PCTs (Fauna Guilds)

- 163

PCTs (Woodland)

- PCT15
- PCT170
- PCT22
- PCT23

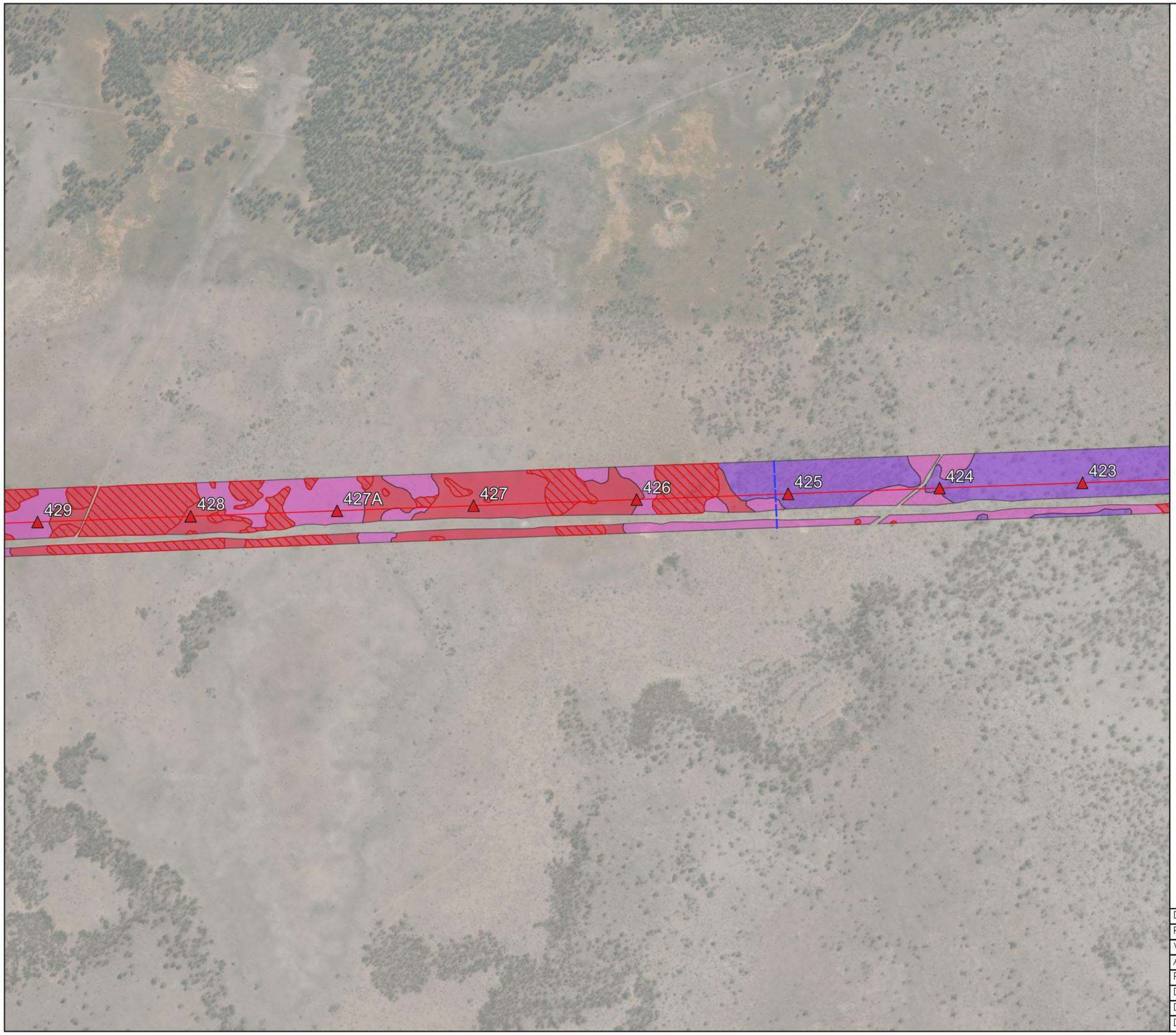
Note: Tower locations are indicative and may be subject to change during detailed design.




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|---|---|
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| VERIFIED: | |
| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 11 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

Threatened Ecological Communities

- Acacia melvillei shrubland in the Riverina and Murray Darling Depression bioregions

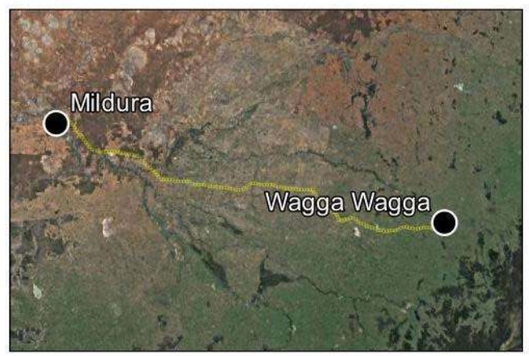
PCTs (Fauna Guilds)

- 163

PCTs (Woodland)

- PCT23
- PCT58

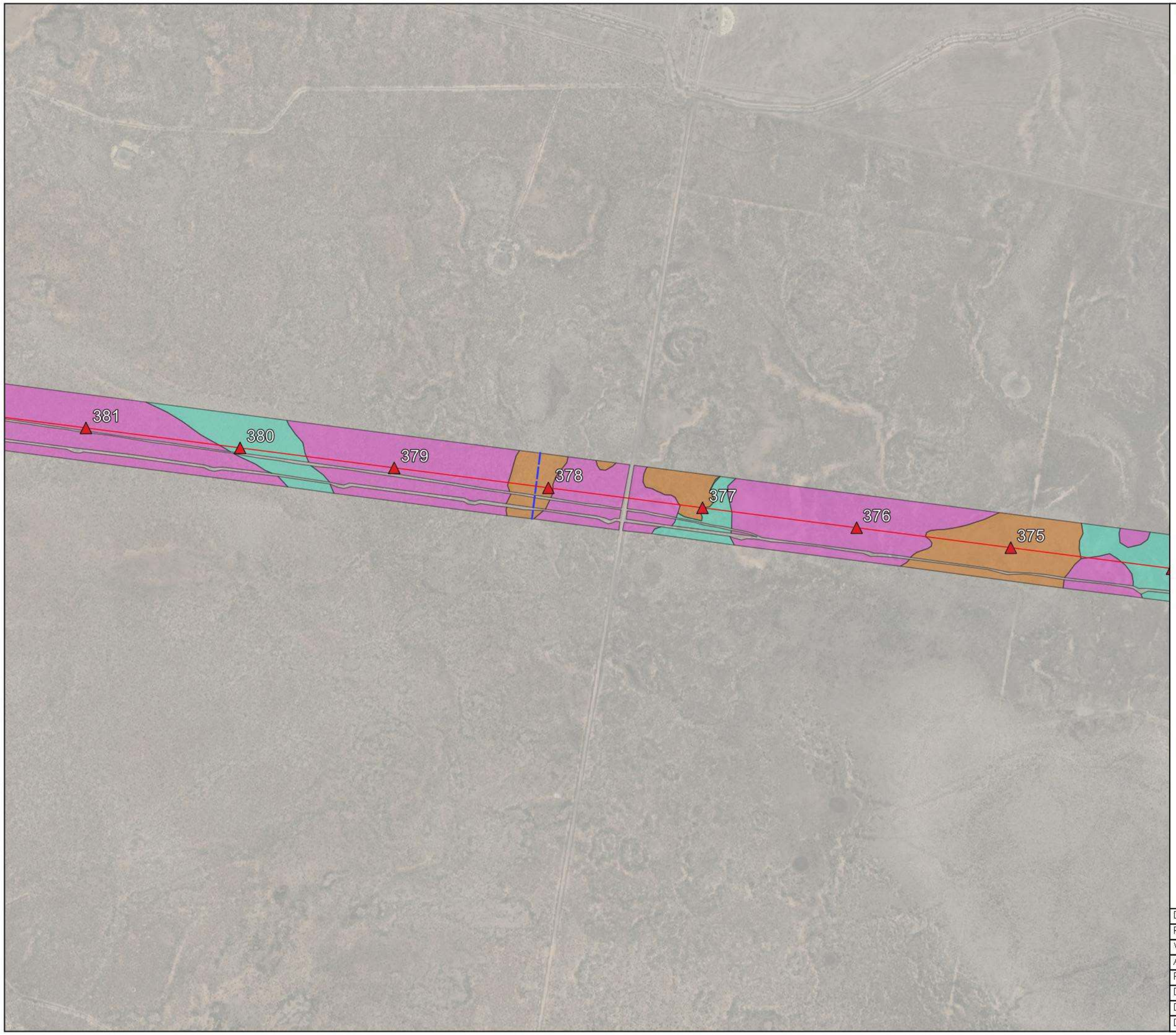
Note: Tower locations are indicative and may be subject to change during detailed design.




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|---|---|
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| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 12 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

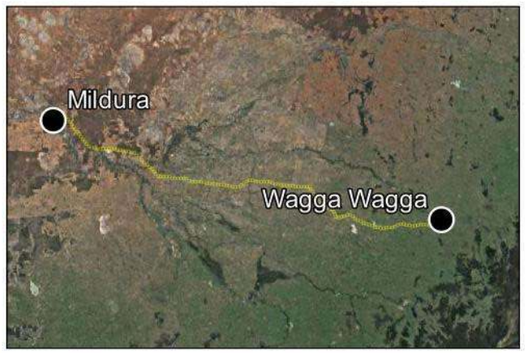
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Fauna Guilds)

- 17
- 163
- 164

Note: Tower locations are indicative and may be subject to change during detailed design.




| | |
|---|---|
| DRAWN: | MMH |
| REVIEWED: | RWE |
| VERIFIED: | |
| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 13 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

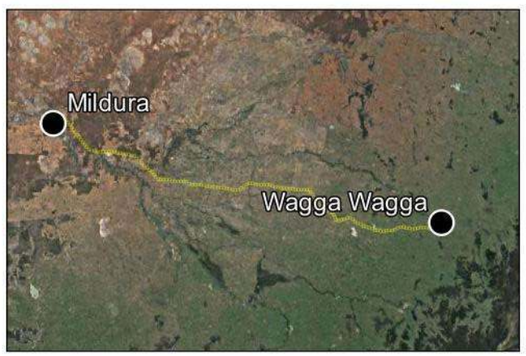
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Fauna Guilds)

- 24
- 157
- 163
- 164

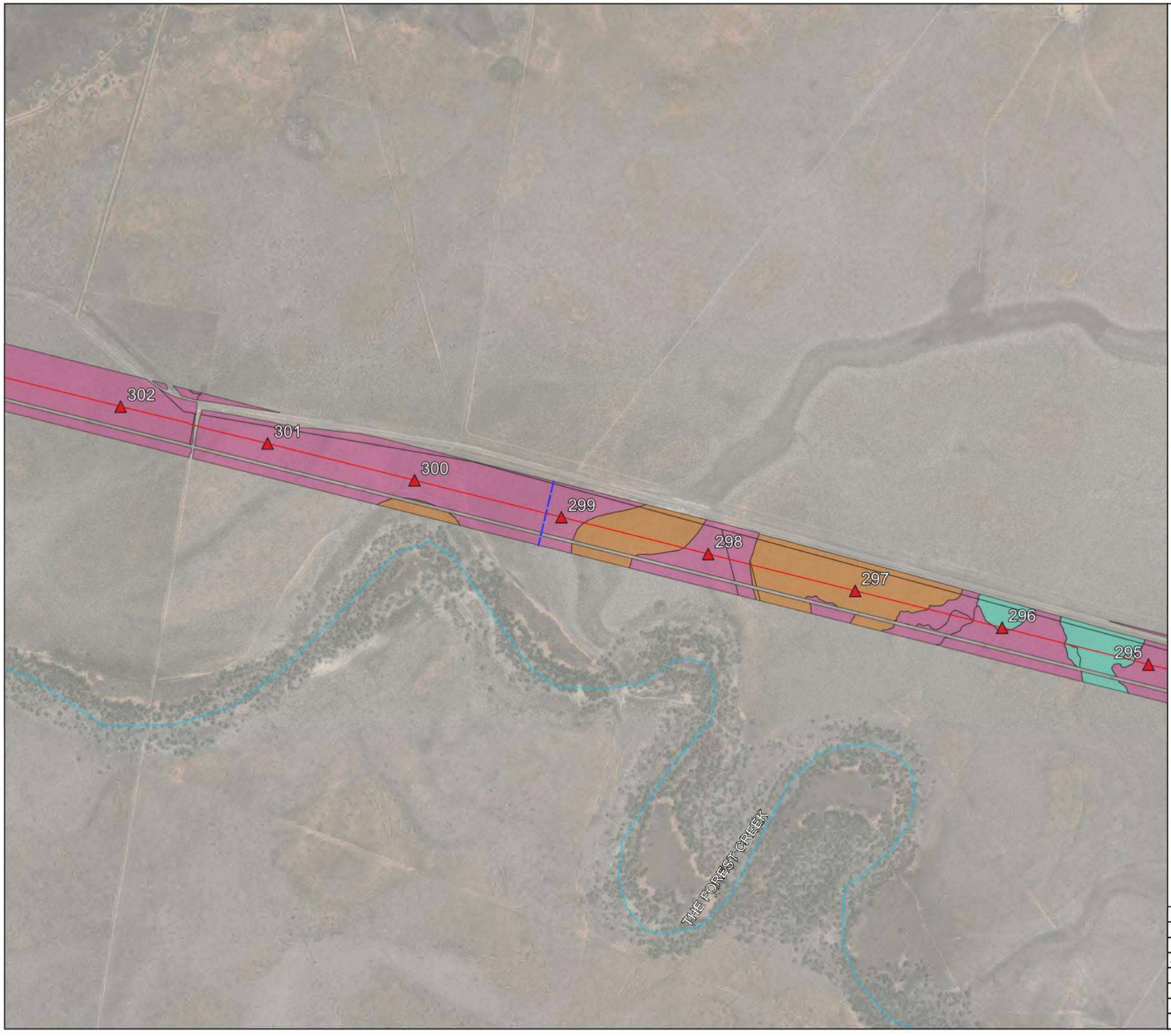
Note: Tower locations are indicative and may be subject to change during detailed design.




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| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 14 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors
- Watercourse

PCTs (Fauna Guilds)

- 17
- 157
- 164

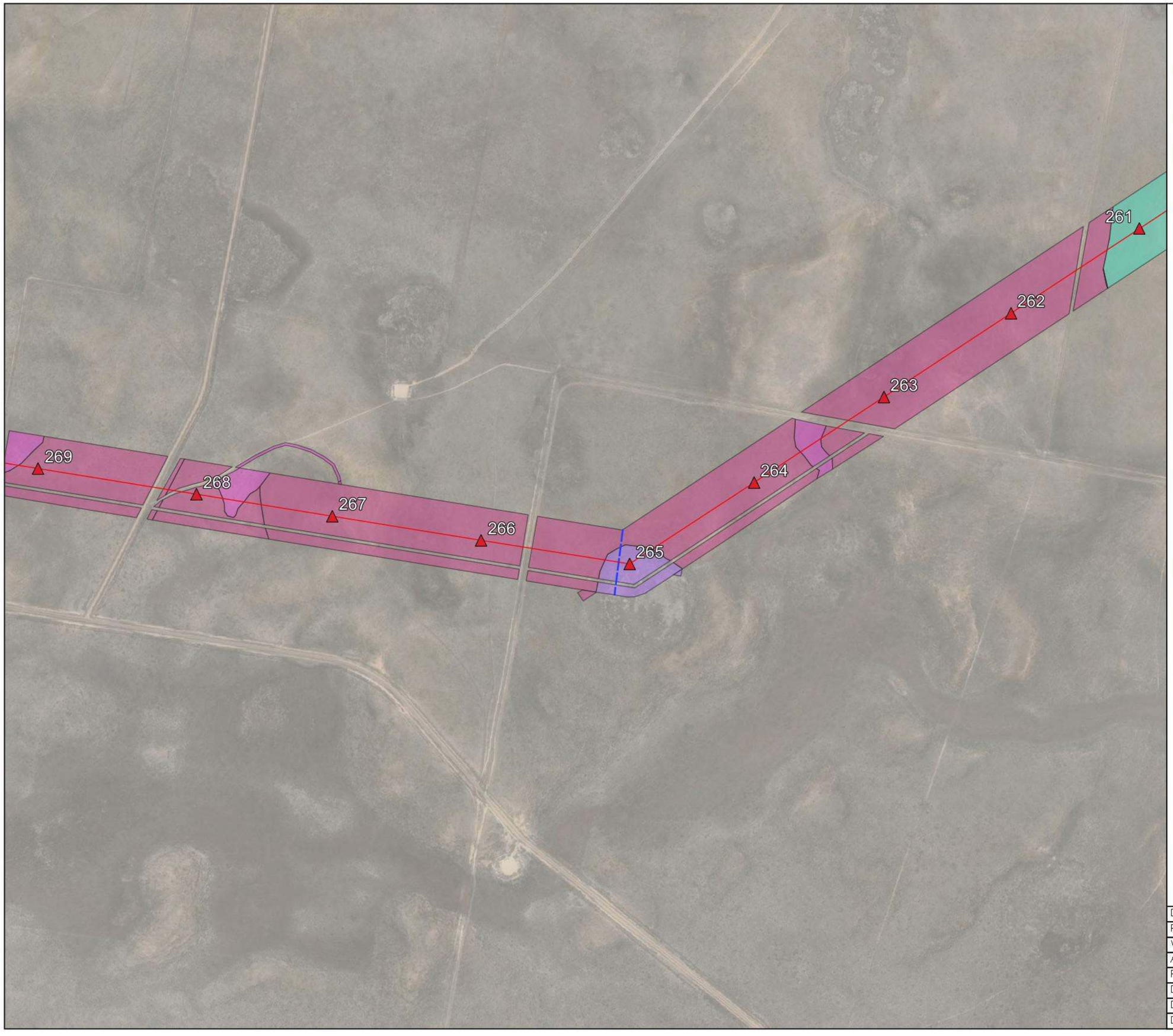
Note: Tower locations are indicative and may be subject to change during detailed design.




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| APPROVED: | |
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| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 15 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

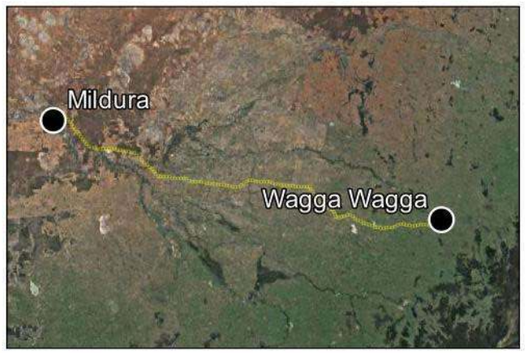
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Fauna Guilds)

- 24
- 157
- 163
- 164

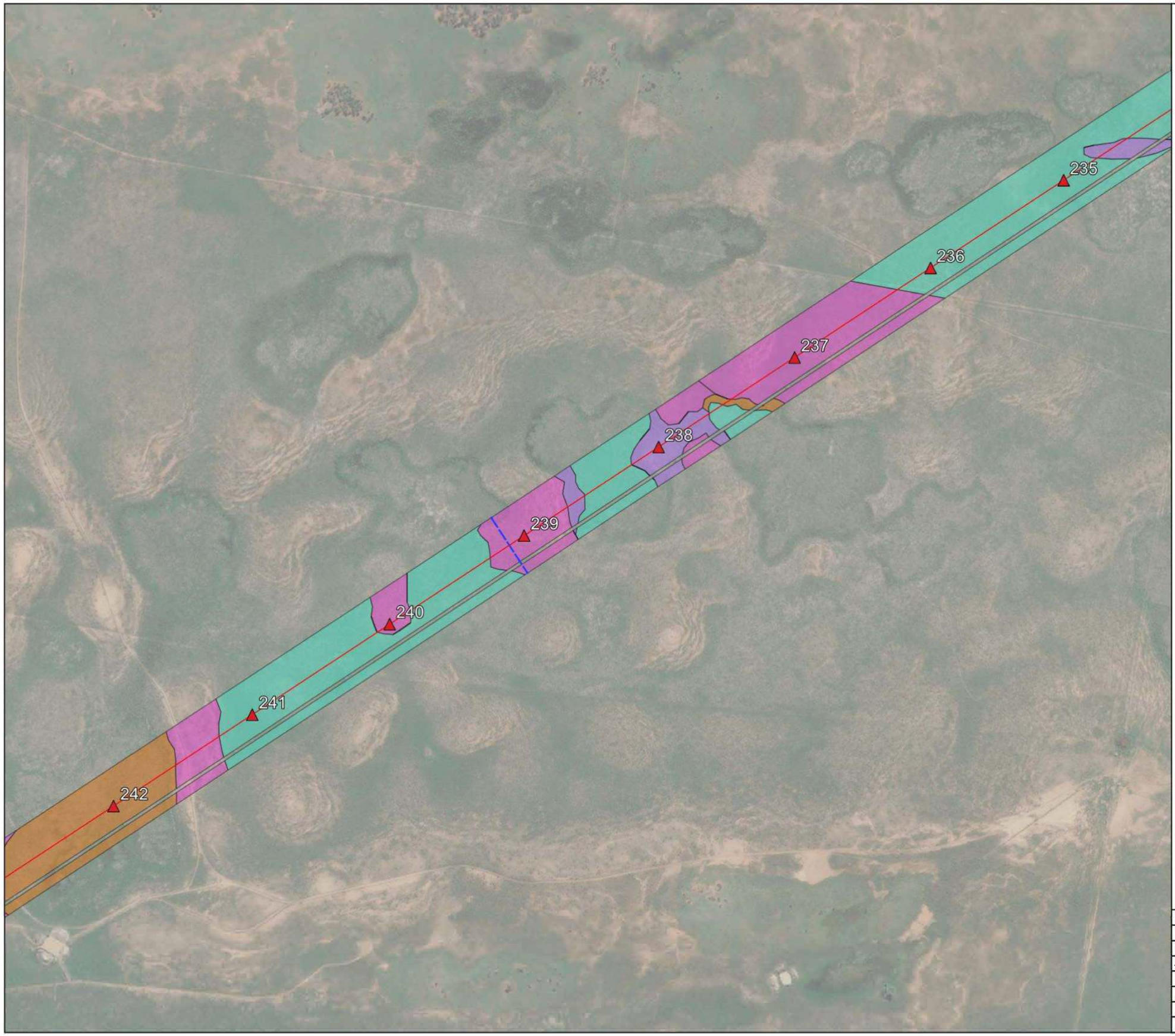
Note: Tower locations are indicative and may be subject to change during detailed design.




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Connectivity Corridors NSW-Eastern

Map 16 of 36







1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

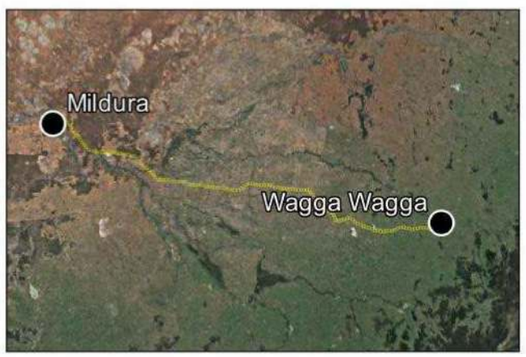
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors

PCTs (Fauna Guilds)

- 17
- 24
- 163
- 164

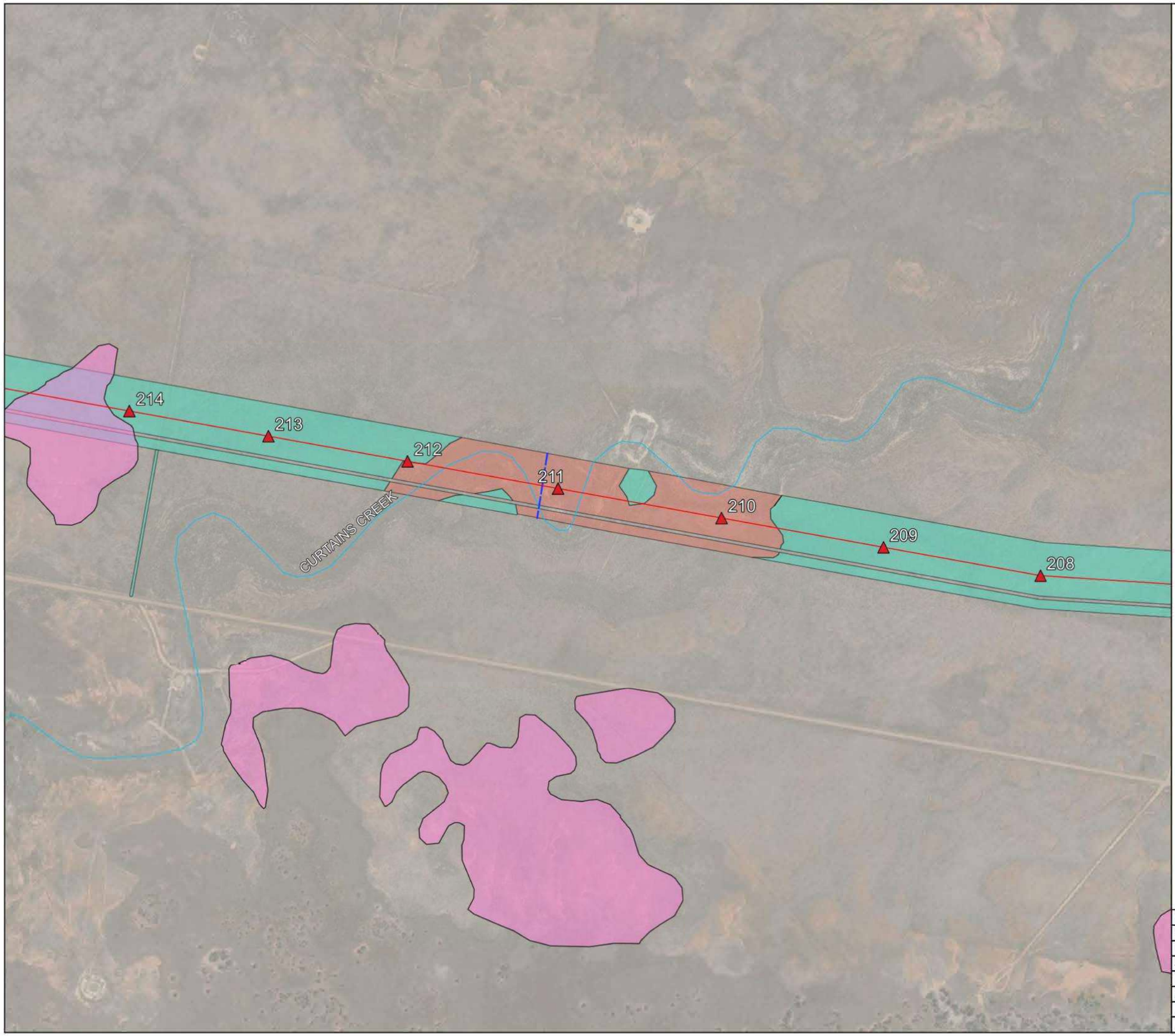
Note: Tower locations are indicative and may be subject to change during detailed design.




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| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 4560-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 17 of 36






0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

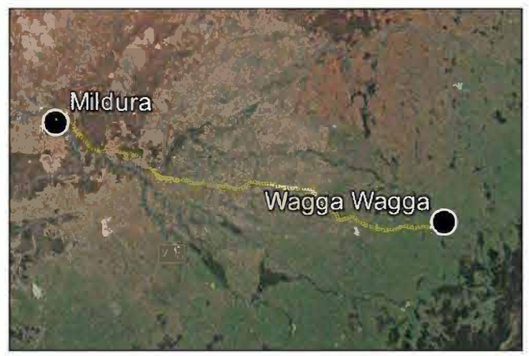
## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors
- Watercourse
- Plains Wanderer Habitat

PCTs (Fauna Guilds)

- 160
- 164

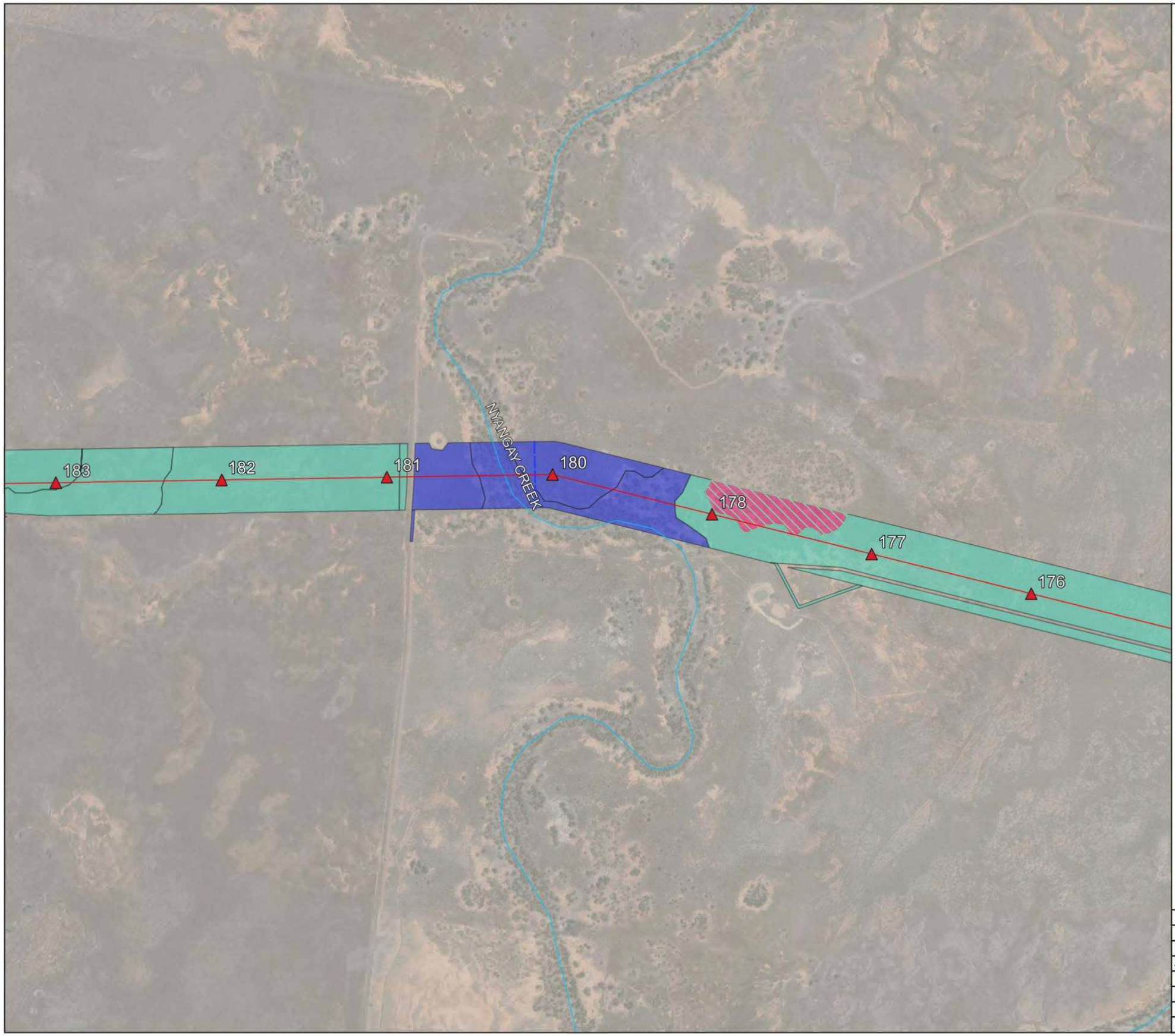
Note: Tower locations are indicative and may be subject to change during detailed design.




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| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 4560-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 18 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors
- Watercourse

Threatened Ecological Communities

- Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions

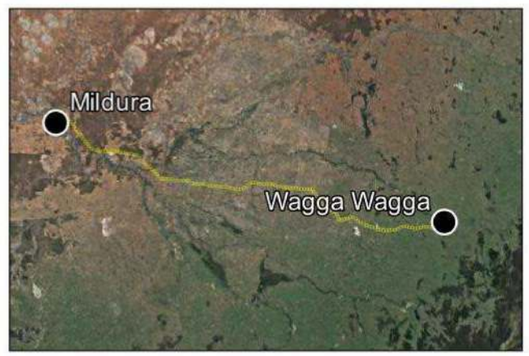
PCTs (Fauna Guilds)

- 164

PCTs (Woodland)

- PCT15
- PCT28

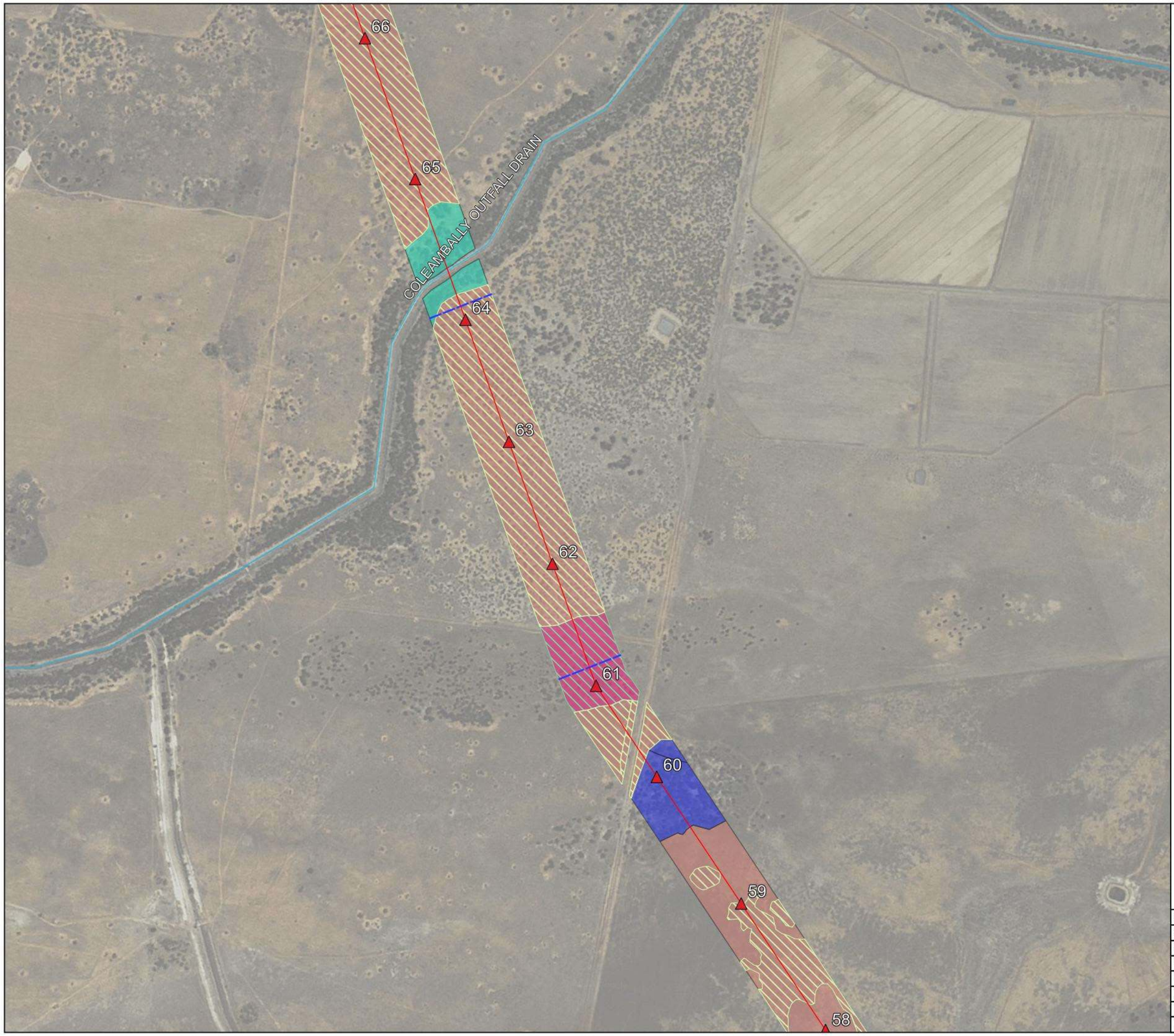
Note: Tower locations are indicative and may be subject to change during detailed design.




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| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45360-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 19 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L2
- Connectivity Corridors
- Watercourse

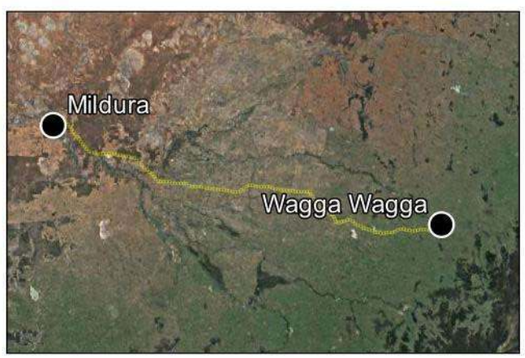
Threatened Ecological Communities

- Myall woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray – Darling Depression, Riverina and NSW South Western Slopes bioregions
- Sandhill Pine Woodland in the Riverina, Murray-Darling Depression and NSW South Western Slopes bioregions

PCTs (Woodland)

- PCT13
- PCT15
- PCT26
- PCT28

Note: Tower locations are indicative and may be subject to change during detailed design.




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|---|---|
| DRAWN: | MMH |
| REVIEWED: | RWE |
| VERIFIED: | |
| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

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303
302
301
300
299
298
297
296
YANGO CREEK

0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse
- Plains Wanderer Habitat

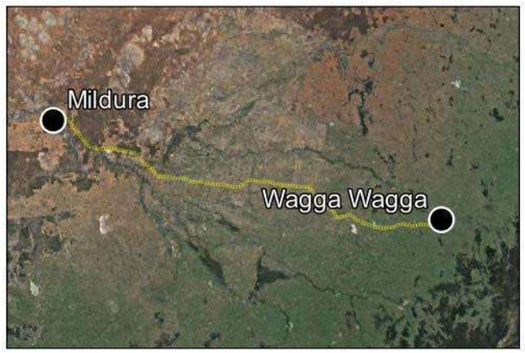
PCTs (Fauna Guilds)

- 7

PCTs (Woodland)

- PCT11
- PCT26

Note: Tower locations are indicative and may be subject to change during detailed design.




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|---|---|
| DRAWN: | MMH |
| REVIEWED: | RWE |
| VERIFIED: | |
| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

Map 21 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

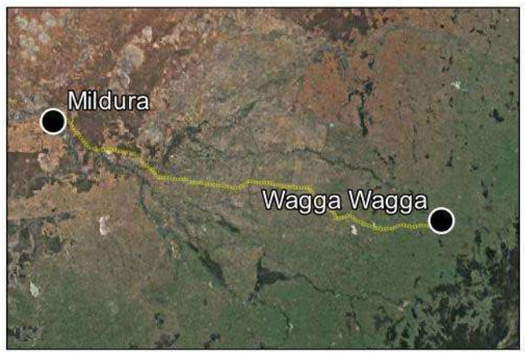
## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Plains Wanderer Habitat

PCTs (Fauna Guilds)

- 44
- 46
- 47
- 160
- 164
- 216

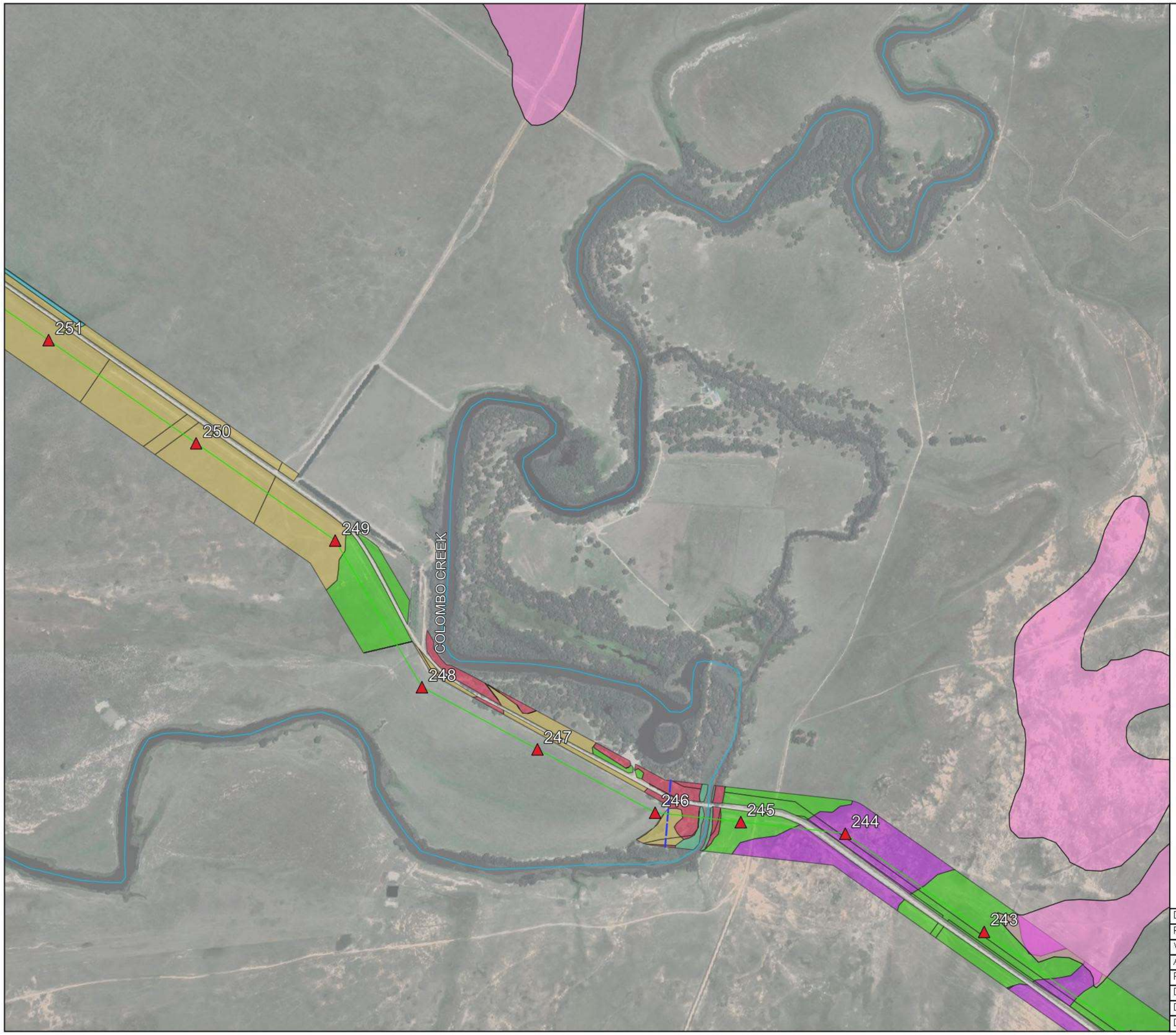
Note: Tower locations are indicative and may be subject to change during detailed design.




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|---|---|
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| APPROVED: | |
| REV: | C |
| DATE: | 9.02.2023 |
| DESCRIPTION: | INTERNAL REVIEW |
| DRAWING NO: | 45860-MP-10001-G-00997 |

Connectivity Corridors NSW-Eastern

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1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

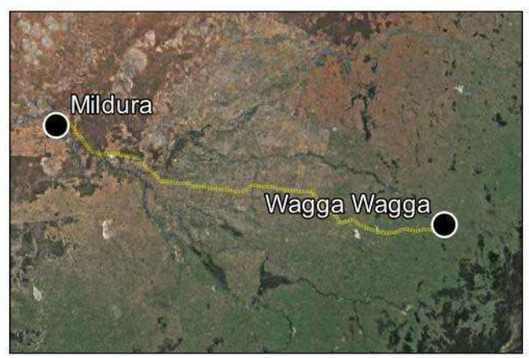
## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse
- Plains Wanderer Habitat

PCTs (Fauna Guilds)

- 7
- 44
- 45
- 46
- 182
- 216

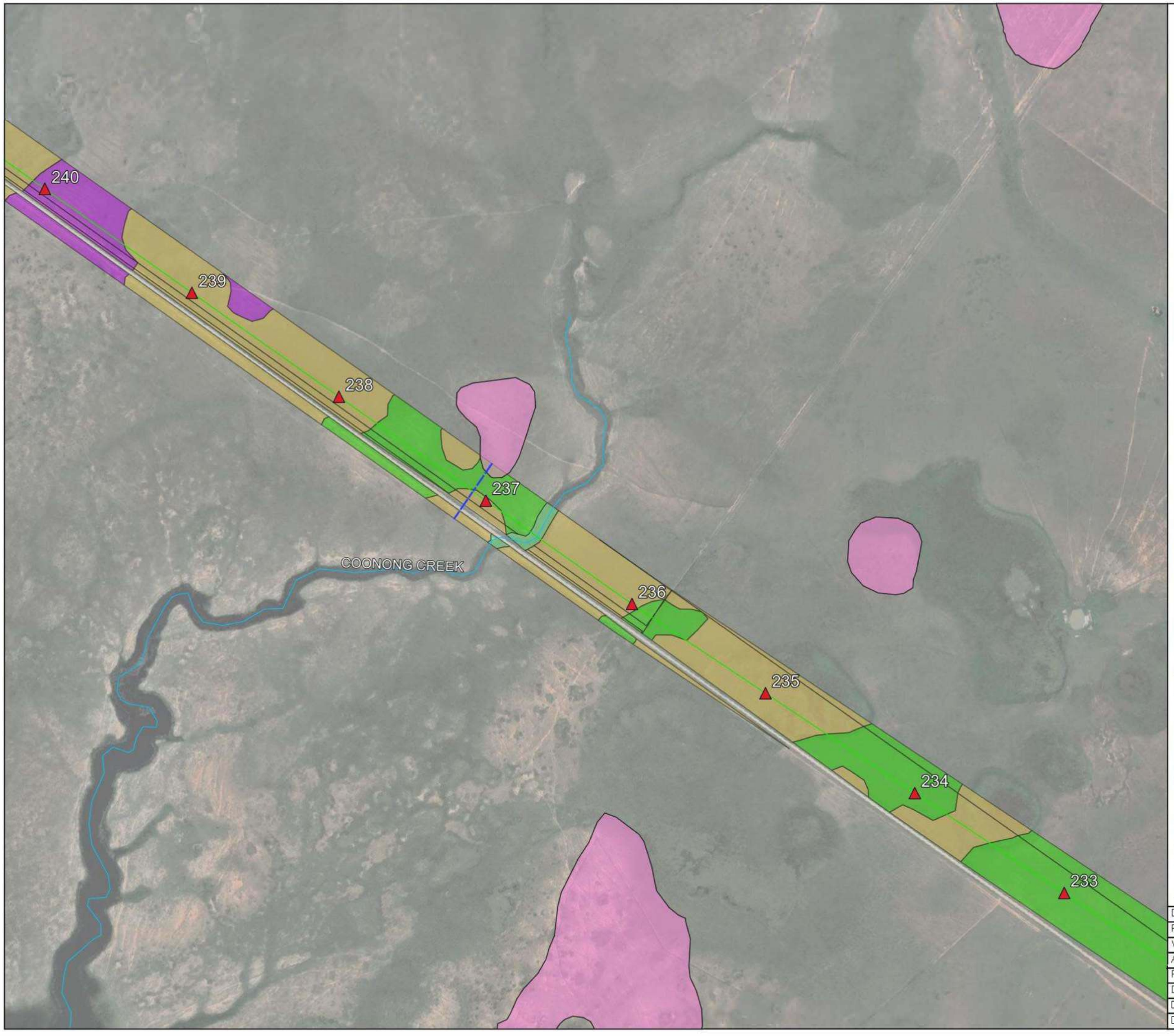
Note: Tower locations are indicative and may be subject to change during detailed design.




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Connectivity Corridors NSW-Eastern

Map 23 of 36




0 250 500 m

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Datum: GDA2020 Projection: New South Wales Lambert

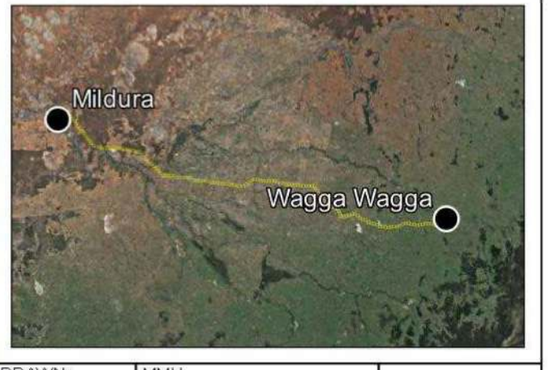
## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse
- Plains Wanderer Habitat

PCTs (Fauna Guilds)

- 44
- 45
- 46
- 53

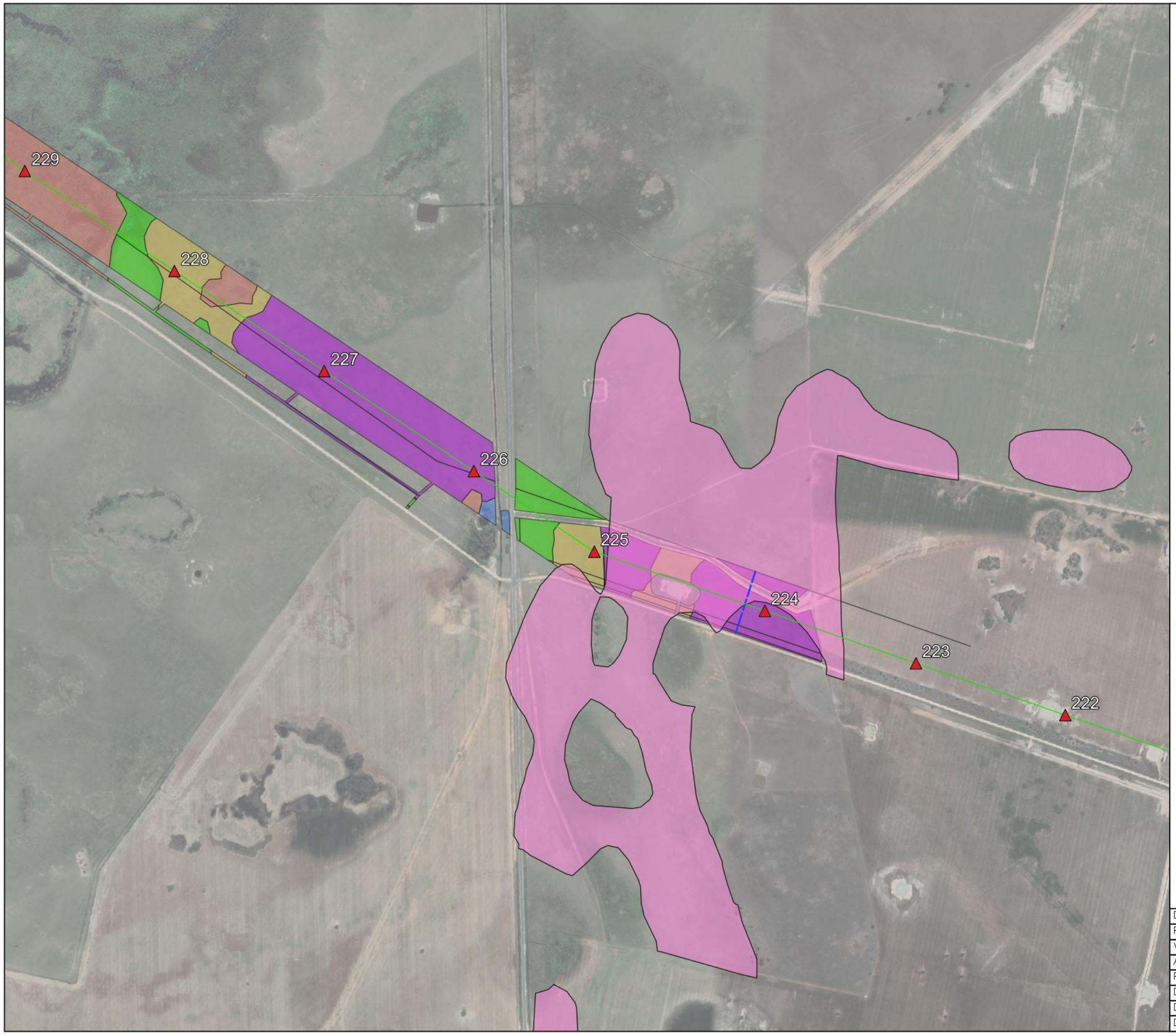
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Connectivity Corridors NSW-Eastern

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0 250 500 m

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Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Plains Wanderer Habitat

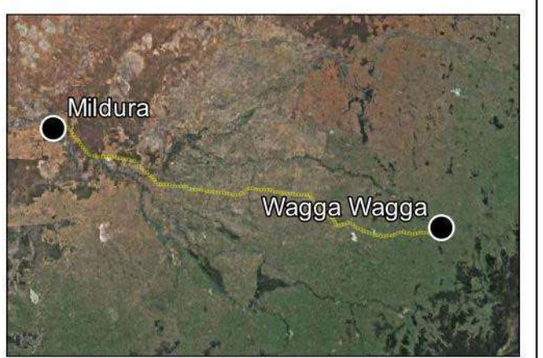
PCTs (Fauna Guilds)

- 44
- 45
- 46
- 160

PCTs (Woodland)

- PCT11

Note: Tower locations are indicative and may be subject to change during detailed design.




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Connectivity Corridors NSW-Eastern

Map 25 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

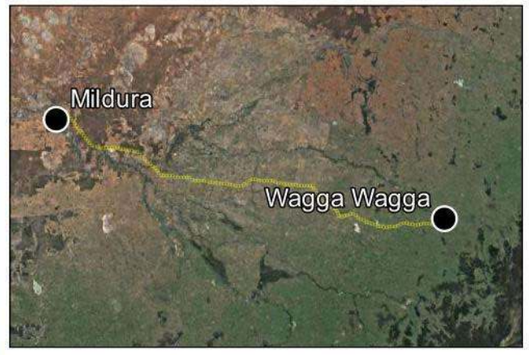
Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT75
- PCT80

Note: Tower locations are indicative and may be subject to change during detailed design.




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Connectivity Corridors NSW-Eastern

Map 26 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

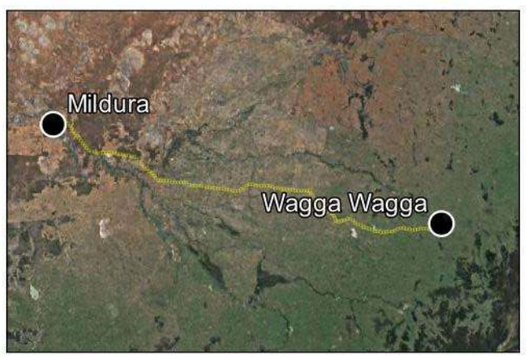
Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT75
- PCT80

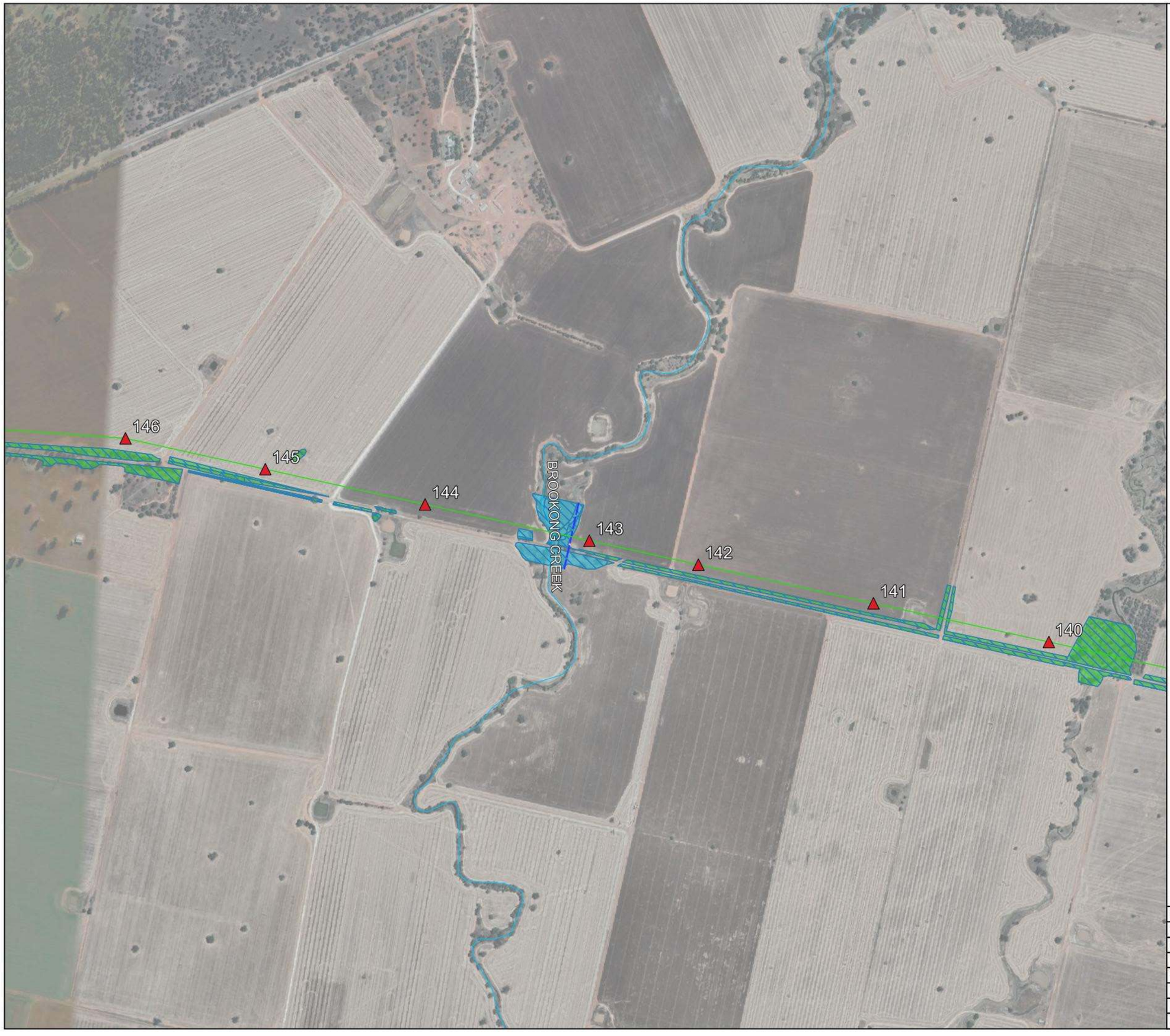
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Connectivity Corridors NSW-Eastern

Map 27 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse

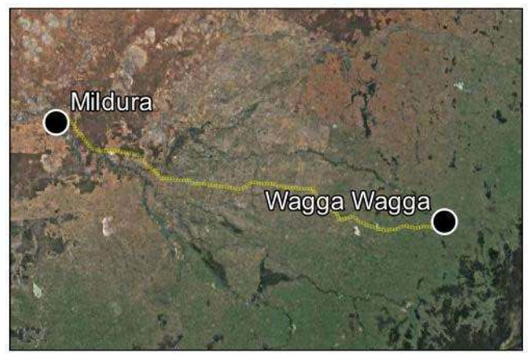
Threatened Ecological Communities

- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT74
- PCT75

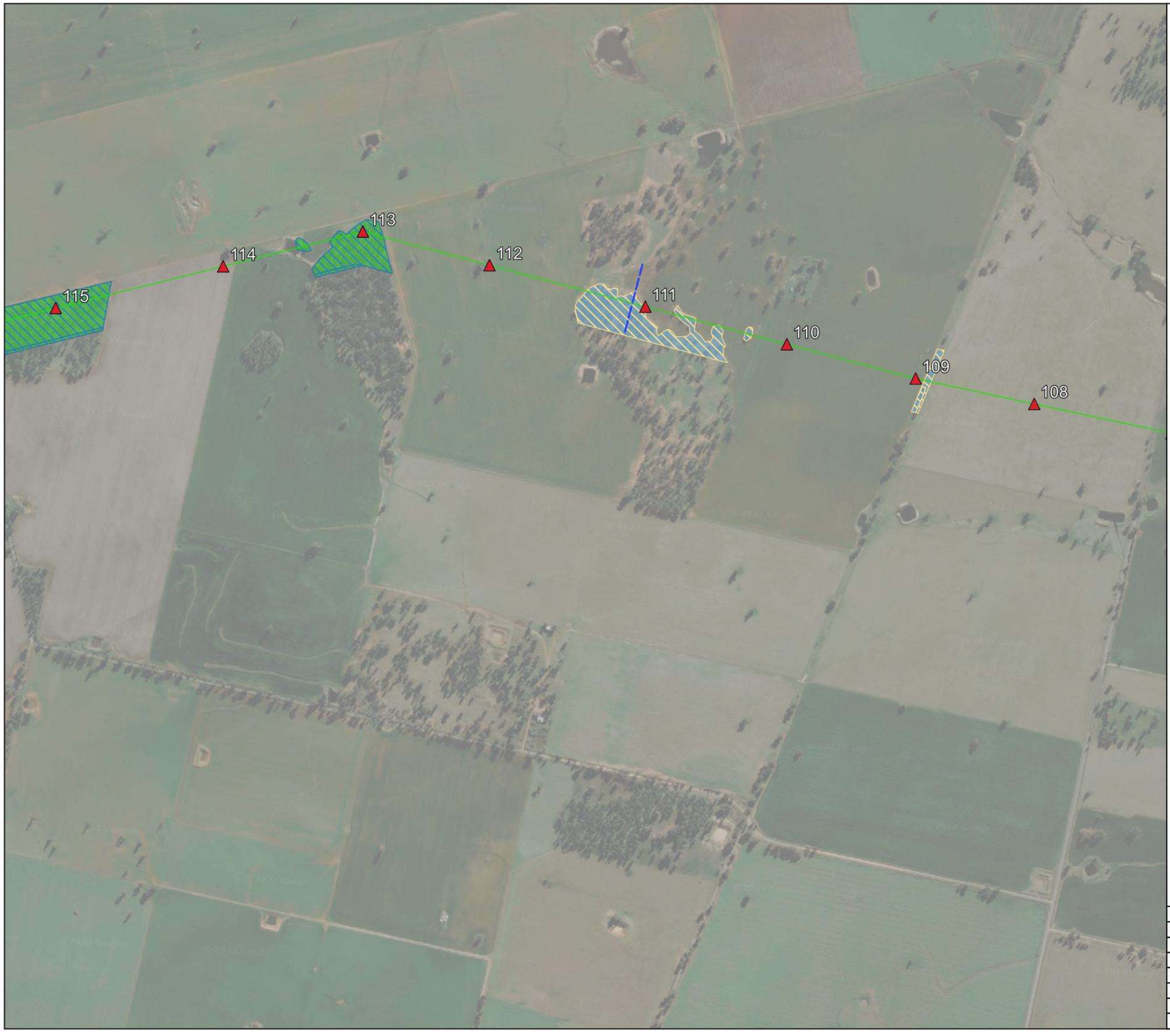
Note: Tower locations are indicative and may be subject to change during detailed design.




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Connectivity Corridors NSW-Eastern

Map 28 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

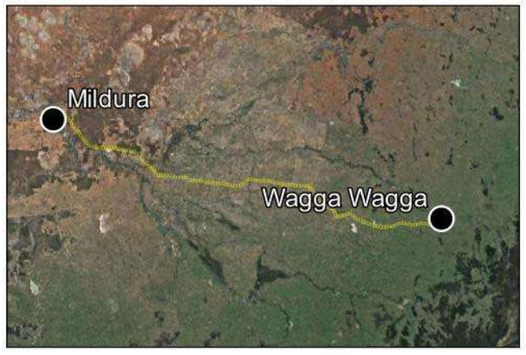
Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT75
- PCT80

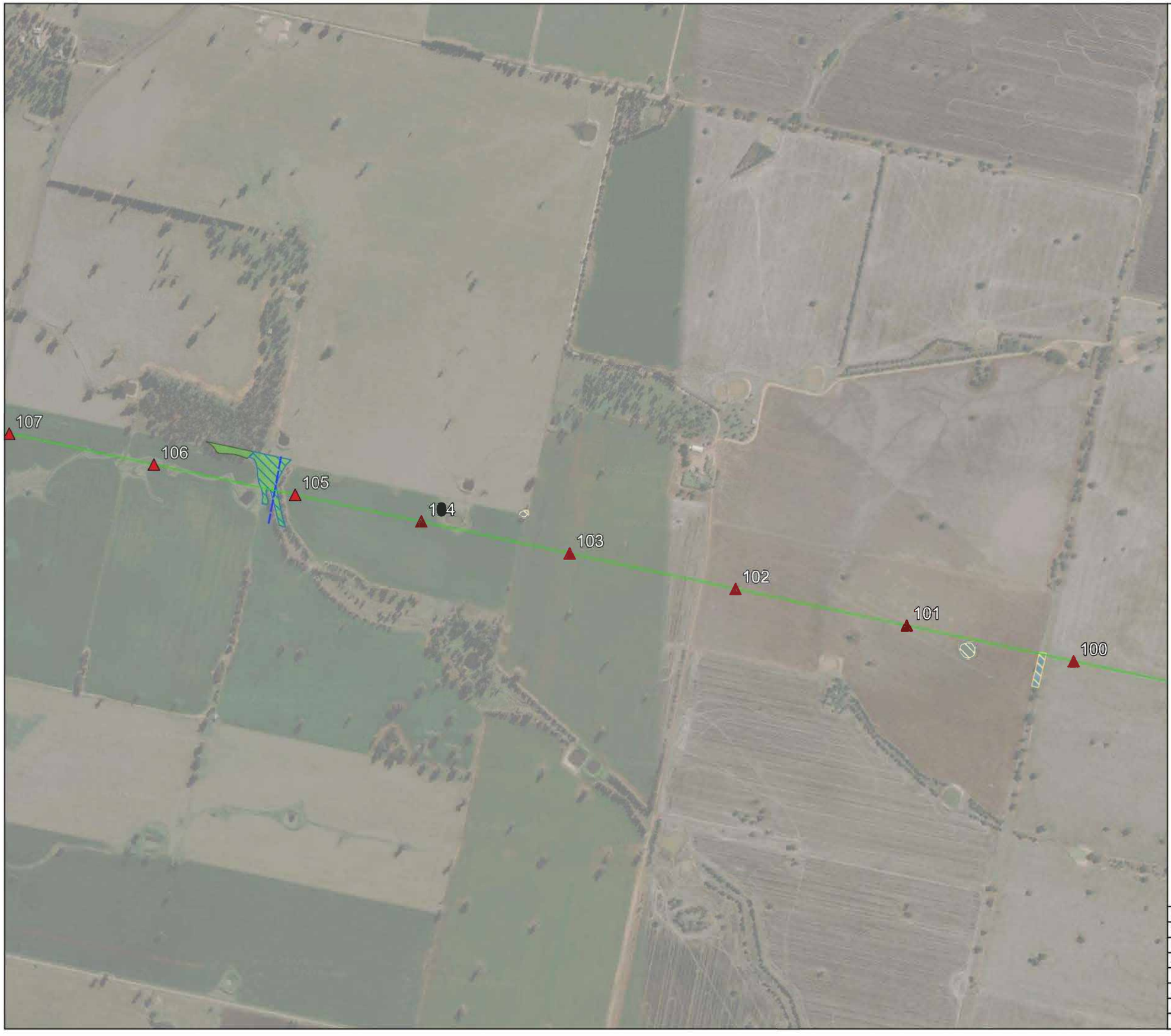
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Connectivity Corridors NSW-Eastern

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0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

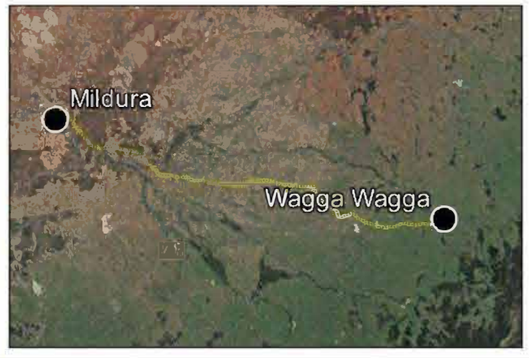
Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT277
- PCT80

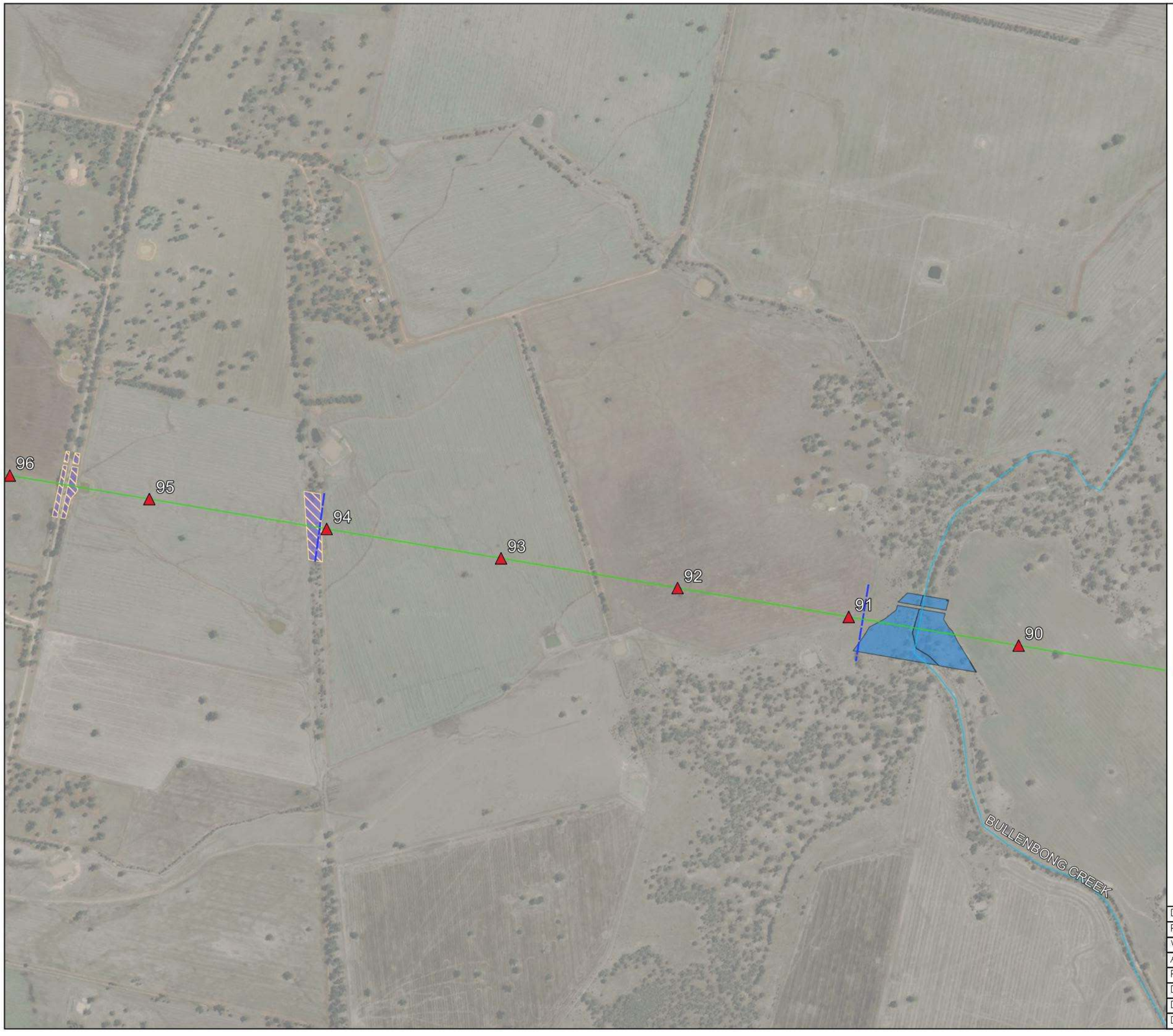
Note: Tower locations are indicative and may be subject to change during detailed design.




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Connectivity Corridors NSW-Eastern

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0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse

Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions

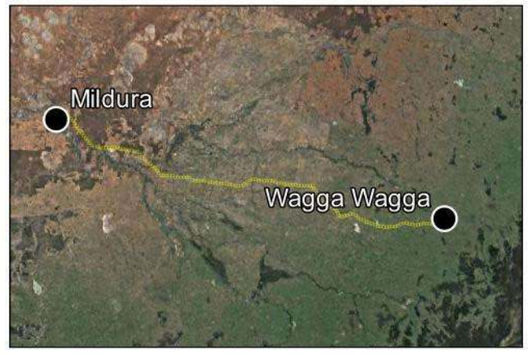
PCTs (Fauna Guilds)

- 5

PCTs (Woodland)

- PCT76

Note: Tower locations are indicative and may be subject to change during detailed design.




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Connectivity Corridors NSW-Eastern

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0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

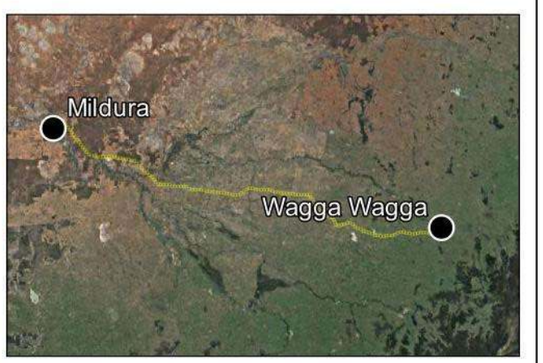
Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions

PCTs (Woodland)

- PCT76
- PCT80

Note: Tower locations are indicative and may be subject to change during detailed design.




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Connectivity Corridors NSW-Eastern

Map 32 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

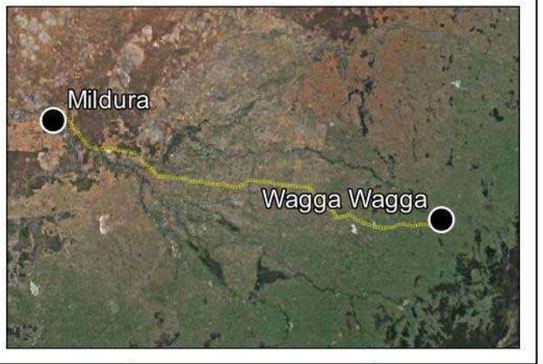
## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse

PCTs (Fauna Guilds)

- 5

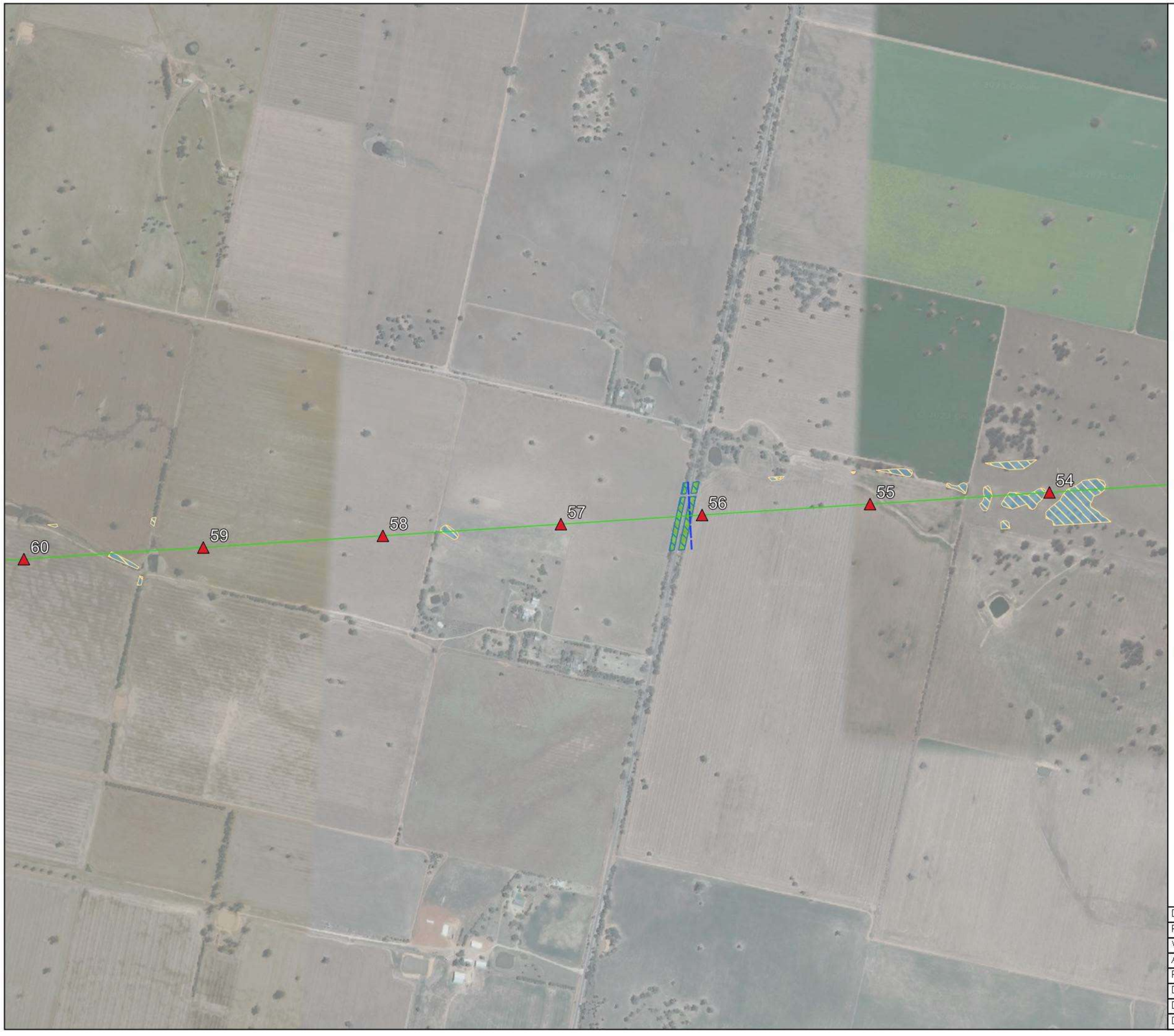
Note: Tower locations are indicative and may be subject to change during detailed design.




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Connectivity Corridors NSW-Eastern

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0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors

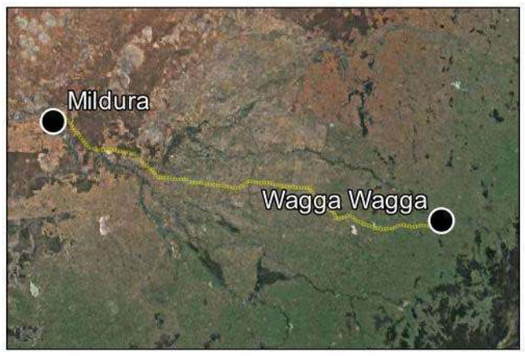
Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT267
- PCT80

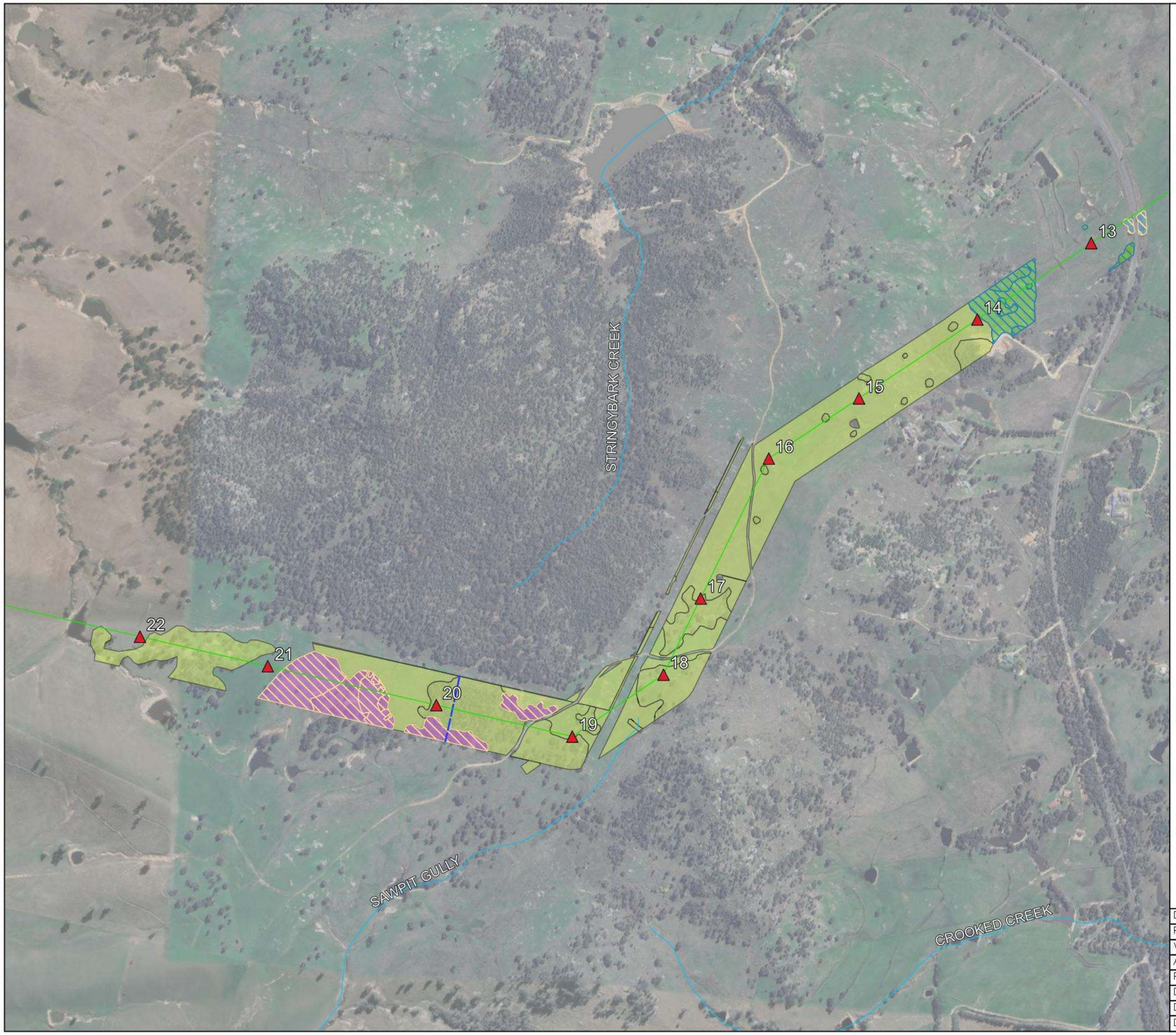
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Connectivity Corridors NSW-Eastern

Map 34 of 36




0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse

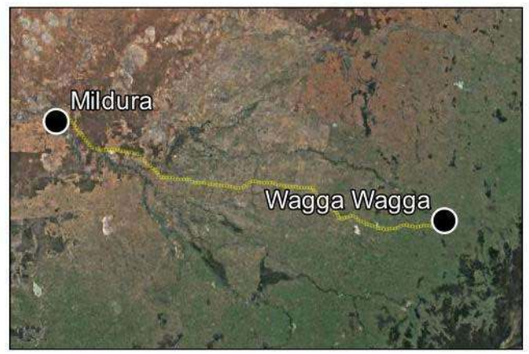
Threatened Ecological Communities

- Inland Grey Box Woodland in the Riverina, NSW South Western Slopes, Cobar Peneplain, Nandewar and Brigalow Belt South Bioregions
- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

PCTs (Woodland)

- PCT110
- PCT267
- PCT277
- PCT319
- PCT80

Note: Tower locations are indicative and may be subject to change during detailed design.




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Connectivity Corridors NSW-Eastern

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CROOKED CREEK

COXS CREEK

BOILING DOWN CREEK

6

5

4

3

2

1

WAG GAN 330-1

330-2

330-3

0 250 500 m

1 : 11,000

Datum: GDA2020 Projection: New South Wales Lambert

## Legend

- Tower Structures Centres
- L5
- Connectivity Corridors
- Watercourse

Threatened Ecological Communities

- White Box Yellow Box Blakely's Red Gum grassy woodland and derived native grassland

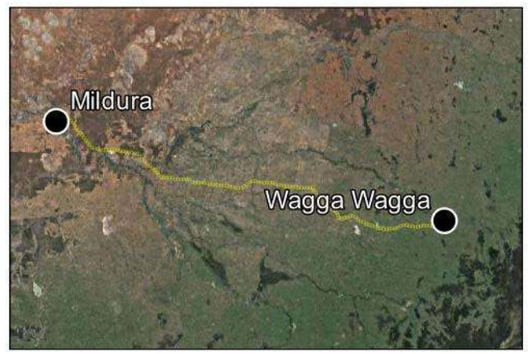
PCTs (Fauna Guilds)

- 5

PCTs (Woodland)

- PCT277
- PCT74

Note: Tower locations are indicative and may be subject to change during detailed design.




| | |
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Connectivity Corridors NSW-Eastern

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# Appendix H – Supplementary Hollow and Nest Strategy

**PUBLIC**

# Supplementary Hollow and Nest Strategy EnergyConnect (NSW – Eastern Section)

45860-HSE-DOC-D-0021

| REV | DATE | GENERAL DESCRIPTION | PREPARED | REVIEWED | VERIFIED | APPROVED |
|---|---|---|---|---|---|---|
| A | 4/11/2022 | Internal review | K.Baxter | R.Walker-Edwards | A.Boyd | S.Basanta |
| B | 7/11/2022 | Issued to Transgrid | L.Coetzee | R.Walker-Edwards | A.Boyd | S.Basanta |
| C | 18/11/2022 | Issued to agencies | K.Baxter | R.Walker-Edwards | A.Boyd | S.Basanta |
| D | 19/06/2023 | Revised to address DPE comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| E | 5/07/2023 | Revised to address DPE comments | R.Walker-Edwards | C.Curlewis | G.Crighton | S.Basanta |
| F | 27/05/2025 | Revised to Elecnor template and updated following independent audit | N.Dwyer | R.Walker-Edwards | G.Crighton | F.Delgado |

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| Revision History | |
|---|---|
| **Rev.** | **Detailed Description** |
| A | Issued for internal review |
| B | Issued to Transgrid |
| C | Issued to agencies |
| D | Revised to address DPE comments |
| E | Revised to address DPE |
| F | Revised to Elecnor template and updated following independent audit |
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| Key Document Stakeholders |
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## Abbreviations

| Acronym | Definition |
|---|---|
| Amendment Report | *Amendment Report EnergyConnect (NSW – Eastern Section)* |
| BAM | *Biodiversity Assessment Method 2020* |
| BC Act | *Biodiversity Conservation Act 2016* |
| BCD | Biodiversity and Conservation Division, now known as Conservation Programs, Heritage and Regulation |
| BCS | Biodiversity, Conservation and Science Directorate, now known as Conservation Programs, Heritage and Regulation |
| BDAR | Biodiversity Development Assessment Report |
| BMP | Biodiversity Management Plan |
| Biodiversity study area | The biodiversity study area is defined within the Final BDAR as '*a 200-metre-wide corridor (being 100 metre either side of the proposed transmission easement centreline) where field surveys in accordance with the Biodiversity Assessment Method (BAM) have been applied. The area also includes the proposed Dinawan 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. Throughout this report this is also referred to as proposal study area*'.<br>The biodiversity study area is defined within the Commonwealth Approval as '*the area represented in Attachment A by the zone enclosed by the white line designated 'Biodiversity study area.'* |
| BOS | Biodiversity Offset Strategy |
| CEMP | Construction Environmental Management Plan |
| CPHR | Conservation Programs, Heritage and Regulation |
| CSSI | Critical State significant infrastructure |
| Cth | Commonwealth |
| DPE | NSW Department of Planning and Environment, now known as NSW Department of Planning, Housing and Infrastructure |
| DPHI or Department | NSW Department of Planning, Housing and Infrastructure |
| DPIE | NSW Department of Planning, Industry and Environment, now known as NSW Department of Planning, Housing and Infrastructure |
| EIS | *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* |
| Elecnor | Elecnor Australia |
| EP&A Act | *Environmental Planning and Assessment Act 1979* |
| EPBC Act | *Environmental Protection and Biodiversity Conservation Act 1999* |
| Final BDAR | *Revised Biodiversity Development Assessment Report* (August, 2022) |
| FM Act | *Fisheries Management Act 1994* |
| NSW | New South Wales |
| PCT | Plant community type |
| project, the | EnergyConnect (NSW – Eastern Section) |
| Project study area | The proposal study area comprises a generally one-kilometre-wide corridor between the Buronga substation and the Wagga Wagga substation. It traverses around 540 kilometres in total. |
| RMM | Revised mitigation measures |

| Acronym | Definition |
|---|---|
| SA | South Australia |
| SHNS or strategy | Supplementary Hollow and Nest Strategy (this document) |
| Submissions Report | *Submissions Report EnergyConnect (NSW – Eastern Section)* |

# 1 Introduction

## 1.1 Context

This Supplementary Hollow and Nest Strategy (SHNS or this strategy) forms part of the Biodiversity Management Plan (BMP) which is part of the Construction Environment Management Plan (CEMP) for Stage 2 of EnergyConnect (NSW – Eastern Section) refer to Figure 1.1.

This plan has been prepared to address the relevant requirements of the Infrastructure Approval (SSI-9172452), the *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (EIS), the *Submissions Report EnergyConnect (NSW – Eastern Section)* (Submissions Report) and the *Amendment Report EnergyConnect (NSW – Eastern Section)* (Amendment Report).

## 1.2 Background

On 29 August 2019, the then New South Wales (NSW) Minister for Planning and Public Spaces declared the NSW component of EnergyConnect to be critical State significant infrastructure (CSSI) under the *Environmental Planning and Assessment Act 1979* (EP&A Act) on the basis that it is critical to the State for environmental, economic or social reasons. EnergyConnect is therefore subject to assessment under Part 5, Division 5.2 of the EP&A Act.

Transgrid have two environmental planning approval applications for the sections within NSW:

- EnergyConnect (NSW – Western Section) – South Australia (SA)/NSW border to Buronga and Buronga to the NSW/Victorian border; and
- EnergyConnect (NSW – Eastern Section) – Buronga to Wagga Wagga (the project).

A referral under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) was submitted on 25 August 2020. The Australian Department of Agriculture, Water and the Environment (DAWE) determined the project to be a controlled action on 30 September 2020 and thus, it would be assessed using the bilateral assessment process. As such, the project also requires approval from the Australian Minister for the Environment under the EPBC Act.

The EIS was prepared for the project in January 2022 and was placed on public exhibition from 19 January 2022 to 15 February 2022. A total of 75 submissions were received, with 17 from government agencies, five from special interest groups, nine from local councils and 44 from the public.

The Submissions Report was prepared for the project in response to the submissions received during the public exhibition of the EIS and includes the final set of revised mitigation measures (RMMs) that are to be applied. The Submissions Report was finalised in May 2022.

Transgrid also prepared a separate Amendment Report to document design changes and additional environmental assessment undertaken since exhibition of the EIS. The Amendment Report describes the updated project for which approval has been sought and was also finalised in May 2022.

On 2 June 2022, the Department requested additional information (Project EnergyConnect (NSW -Eastern Section) (SSI-9172452) Request for Additional Information (June 2022)) to assist with the assessment of the project. In response TransGrid prepared and provided the *EnergyConnect (NSW –Eastern Section) Response to Department of Planning and Environment Request for Information* (Response to DPE Request for Information) to address the requests for information raised by the Department. The Response to DPE Request for Information was dated 30 August 2022.

Approval for the project under the EP&A Act was granted by the NSW Minister for Planning (Infrastructure Approval SSI-9172452). Approval for the project under the EPBC Act was granted by the Australian Minister for the Environment.

Transgrid have engaged Elecnor Australia design and construct their portion of the EnergyConnect project.

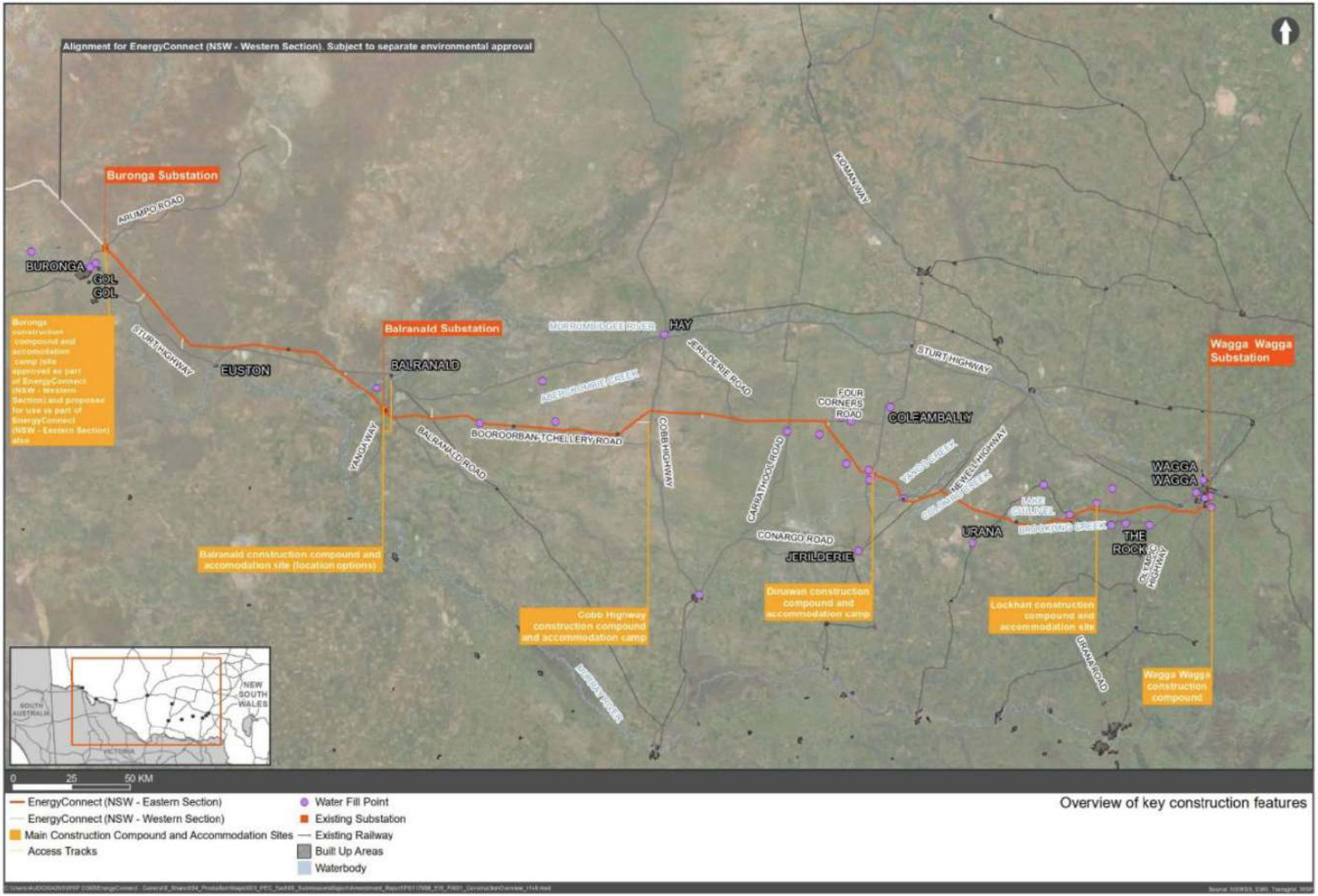



**Figure 1.1 - EnergyConnect (NSW Eastern Section)**

## 1.3 Strategy objective and scope

The strategy has been developed to address condition C26 (xii) of the Infrastructure Approval, revised mitigation measure B8 as detailed within the Amendment Report (May 2022) and Table 10-1 of the *Revised Biodiversity Development Assessment Report* (Final BDAR) (August 2022).

The objective of this strategy is to assist in mitigating the impacts of clearing required for the project by identifying target species and prescribing the necessary processes required to install and manage nest boxes for threatened species. The scope of this strategy is to identify threatened fauna species that are likely to be adversely affected by the project, and to provide:

- a process to identify known locations of hollow-bearing trees and nests (based on the results of subsequent ecological surveys), including characterisation of hollow resources;
- a process to identify target locations for nest box installation;
- a process to identify number, type, size, and GPS location of nest boxes for target species to be installed to compensate for hollow bearing tree removal;
- methods and procedures for nest box installation, natural tree hollow re-use and new tree hollow creation, including timing and reporting; and
- measures to address and manage nests (such as raptor nests) prior to clearing.

## 1.4 Preparation of this strategy

In accordance with condition B1 of the Infrastructure Approval, this strategy has been prepared by a suitably qualified and experienced person. This strategy was prepared by:

- Laurenne Coetzee; and
- Katie Baxter.

The strategy has been reviewed by a representative from the project's ecological team, Michelle Patrick. Michelle is a senior ecologist and an accredited NSW BAM assessor (BAAS19078).

## 1.5 Consultation

### 1.5.1 Development of this strategy

In accordance with condition B1 of the Infrastructure Approval, this strategy, as part of the Biodiversity Management Plan (BMP), has been prepared in consultation with the Biodiversity and Conservation Division (BCD).

This strategy will be issued to BCD for review and comment. Comments from the consultation process will be incorporated into this Strategy where appropriate. Details of all consultation with BCD will be submitted to DPE along with the submission of this Strategy.

## 1.6 Submission and approval

Prior to submission to DPE, this strategy will be reviewed by the Environmental Representative (ER) to ensure that it is consistent with the requirements of the Infrastructure Approval. A written statement to this effect will be prepared and submitted to DPE. This review will be undertaken in accordance with condition A12 of the Infrastructure Approval.

This strategy, as part of the BMP, will be submitted to DPE for review and approval by the Planning Secretary prior to the commencement of Stage 2 of construction.

# 2 Environmental requirements

## 2.1 Conditions of Approval

The conditions of the Infrastructure Approval relevant to the strategy are presented in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this Strategy or other project management documents.

**Table 2.1 - Conditions of Approval relevant to the Supplementary Hollow and Nest Strategy**

| Condition no. | Requirement | Where addressed | How addressed in this Strategy |
|---|---|---|---|
| **Biodiversity EMP Sub-Plan** | | | |
| C26 | The Biodiversity EMP Sub-Plan required under condition B2 must be prepared in accordance with the *Revised Biodiversity Development Assessment Report* (dated 19 August 2022) and include:<br>a) a description of the measures that would be implemented for: | Biodiversity Management Plan | - |
| | (xii) a Connectivity Strategy and a Supplementary Hollow and Nest Strategy; | This strategy<br>Connectivity Strategy | This strategy details the way in which the project will provide for alternative roosting and/or nesting habitat for threatened fauna displaced during clearance. |

## 2.2 Revised mitigation measures

The revised mitigation measures (RMMs) are defined in the Submissions Report and the Amendment Report. The RMMs relevant to this strategy are detailed in Table 2.2.

A cross reference is also included to indicate where the measure is addressed within the strategy or other project management documents.

**Table 2.2 - Revised mitigation measures relevant to the Supplementary Hollow and Nest Strategy**

| No. | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| 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:<br>• survey of tree hollows and nests within the proposed clearing extents<br>• 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<br>• 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 | All locations where threatened fauna is displaced during clearing | Section 5<br>Section 5.5.2 | The presence of tree hollow habitat for threatened fauna species within the project disturbance area will be confirmed prior to clearing.<br>Where possible, nest box installation will commence prior to clearing in a particular location. Nest boxes would be installed within the vicinity of hollow bearing trees no more than two weeks prior to clearing of the tree. |

| No. | Revised mitigation measure | Application location(s) | Where addressed | How addressed |
|---|---|---|---|---|
| | • nest boxes would also include the re-use of existing hollows salvaged prior to or during clearing where practicable; and<br>• measures to address and manage nests (such as raptor nests) prior to clearing. | | | |
| B9 | Pre-clearing surveys will be completed prior to clearing at each location by a suitably qualified ecologist.<br>The proposed clearing extents will be marked out on site prior to the pre-clearing surveys. During the surveys, the ecologist will:<br>• survey the proposed clearing extent<br>• identify any fauna that will require relocation prior to clearing<br>• confirm the location and mark out the extents of any biodiversity exclusion zones<br>• confirm that hollow-bearing trees within and adjacent to the clearing extents are prominently marked/tagged<br>• 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; and<br>• survey and confirm the presence of raptor nests within and adjacent to the clearing extents. | All locations where threatened fauna is displaced during clearing | *Pre-clearing and Clearing Procedure*<br>Section 5 | Pre-clearing surveys will be undertaken in accordance with the *Pre-clearing and Clearing Procedure*.<br>Pre-clearing surveys will be undertaken by the project ecologist in accordance with RMM B9, including confirming that nest boxes are in place where required or that suitable locations have been identified, as well as surveying and confirming the presence of raptor nests within and adjacent to the clearing extents. |

## 2.3 Relevant documents, guidelines and specifications

Documents and guidelines which are relevant to this strategy include:

- Biodiversity Management Plan – Stage 2 (45860-HSE-PL-D-0117);
- *Revised Biodiversity Development Assessment Report* and Appendices (August 2022) (Final BDAR);
- *Environmental Impact Statement EnergyConnect (NSW – Eastern Section)* (January 2022);
- *Fauna Handling Procedure* (Appendix C of BMP SecureEnergy 2022); and
- *Nest boxes for wildlife: A practical guide* (Franks & Franks, 2011).

# 3 Important habitat resources

## 3.1 Tree hollows

The presence of naturally occurring hollows in the environment are a critical resource for hollow-dependent fauna. Hollow-dependent fauna are species that are reliant upon hollows as a key component of their habitat either on a daily or seasonal basis for survival and long-term population viability. This can be either as part of a critical life history component (i.e., breeding events) or as an important component of their natural ecology, behaviour, and ongoing presence within associated and/or preferred habitat.

Hollows as a resource provide shelter and refuge from environmental factors such as exposure to predators and the elements. For several species, the availability of hollows that provide security and protection during periods of vulnerability (e.g., physiological adaptation such hibernation, or bouts of torpor) are crucial for survival (Goldingay, 2009). Many species of fauna require hollows for breeding (e.g., parrots, microbats, and owls) and populations are often limited by the availability of hollows in an area. It is assumed that any decrease in the number of hollows in an area creates the potential to impact on populations of hollow-dependent species. Due to large scale land clearing, loss of hollow bearing trees is listed as a key threatening process because of the threat it poses to hollow-dependent species (NSW Scientific Committee, 2007).

Hollows can be placed into two categories:

1. hollows - naturally formed hollow in a tree or shrub with a single access point as a hole, crack, or similar entrance (with only minor secondary access points if any) that leads to an internal enclosed space larger than the primary access point. The material surrounding this space is part of a standing tree either alive or dead;
2. crevices - naturally formed crevice in a tree which consists of a longitudinal space creating a gap that is enclosed on two sides (e.g., tree branch/limb split, large bark breakaway). A crevice may invariably lead to a hollow space but is delineated from true hollow definition above by its ability to provide habitat for crevice adapted species.

Hollows are a critical habitat resource for many species that are known (or likely to occur) in and/or near the project area. Hollow bearing trees will be removed for this project, which will therefore impact fauna species through:

- increased inter- and intra-specific competition for roosting and nesting sites;
- increased predation on some species due to lack of suitable shelter; and
- decreased breeding rates amongst hollow-dependent breeders such as parrots, owls, and microbats.

## 3.2 Existing nest resources

The investment of time and energy by fauna to establish resources such as nests that are maintained and available over extended timeframes (i.e., many years) are of benefit to many species. For example, whilst many species of nest building birds will construct new nests in a different location each year, others such as raptors, egrets, and herons construct large platform nests that they may either reuse each year or rotate use with two or three alternative nests site over multiple years. The Common Ringtail Possum also constructs a nest (or drey) in the absence of hollow bearing resources. In the project area, a range of nest resources may be encountered and may include:

- platform nests - typical of many raptors, ravens, magpies, herons, egrets, ibises, large honeyeaters;

- dome nests - typical of babblers, fairywrens, grass wrens, finches found in a range of woodland habitats;
- fauna utilisation is of these resources can be categorised as either:
  - primary use - used directly by the bird species that constructed the resource; or
  - secondary use - opportunistically used by other species, e.g., the Western Pygmy Possum will use a range of shelter sites in addition to tree hollows, such as old babbler and finch nests, and dense clumps of timber/leaf litter on the ground.

# 4 Fauna management

## 4.1 Habitat values

The project disturbance area is largely comprised of remnant native vegetation. Thirty (30) Plant Community Types (PCT) were identified as part of the Final BDAR to have potential for hollow bearing trees and nests to be present. A summary of PCTs within eastern disturbance area, and the threatened hollow-dependant species predicted to use them, is provided in Table 4.1.

**Table 4.1 - PCTs with potential to provide hollow resources within disturbance area**

| PCT no. | PCT description | Predicted threatened hollow-dependant species habitat |
|---|---|---|
| 5 | River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW Southwestern Slopes Bioregion and the eastern Riverina Bioregion | Gang-gang Cockatoo<br>Barking Owl<br>Powerful Owl<br>Superb Parrot<br>Southern Myotis<br>Squirrel Glider<br>Brush-tailed Phascogale<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat<br>Spotted-tailed Quoll |
| 7 | River Red Gum – Warrego Grass – herbaceous riparian tall open forest wetland mainly in the Riverina Bioregion | Major Mitchell's Cockatoo<br>Barking Owl<br>Superb Parrot<br>Masked Owl<br>Southern Myotis<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat |
| 8 | River Red Gum – Warrego Grass – Couch Grass riparian tall woodland wetland of the semi-arid (warm) climate zone (Riverina Bioregion and Murray Darling Depression Bioregion) | Major Mitchell's Cockatoo<br>Barking Owl<br>Regent Parrot<br>Southern Myotis<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat |
| 11 | River Red Gum – Lignum very tall open forest or woodland wetland on floodplains of semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | Major Mitchell's Cockatoo<br>Barking Owl<br>Regent Parrot<br>Superb Parrot<br>Masked Owl<br>Southern Myotis<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat |
| 13 | Black Box – Lignum woodland wetland of the inner floodplains in the semi-arid (warm) climate zone (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | Major Mitchell's Cockatoo<br>Barking Owl<br>Regent Parrot<br>Superb Parrot<br>Masked Owl |

| PCT no. | PCT description | Predicted threatened hollow-dependant species habitat |
|---|---|---|
| | | Yellow-bellied Sheathtail Bat<br>Inland Forest Bat<br>Little Pied Bat |
| 15 | Black Box open woodland wetland with chenopod understorey mainly on the outer floodplains in south-western NSW (mainly Riverina Bioregion and Murray Darling Depression Bioregion) | Major Mitchell's Cockatoo<br>Barking Owl<br>Regent Parrot<br>Yellow-bellied Sheathtail Bat<br>Inland Forest Bat<br>Little Pied Bat |
| 22 | Semi-arid shrubby Buloke – Slender Cypress Pine woodland, far south-western NSW | Major Mitchell's Cockatoo<br>Regent Parrot<br>Corben's Long-eared Bat<br>Inland Forest Bat<br>Little Pied Bat |
| 23 | Yarran tall open shrubland of the sandplains and plains of the semi-arid (warm) and arid climate zones | Major Mitchell's Cockatoo<br>Superb Parrot<br>Corben's Long-eared Bat<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat |
| 24 | Canegrass swamp tall grassland wetland of drainage depressions, lakes and pans of the inland plains | Barking Owl<br>Masked Owl<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat |
| 26 | Weeping Myall open woodland of the Riverina Bioregion and NSW South Western Slopes Bioregion | Major Mitchell's Cockatoo<br>Barking Owl<br>Superb Parrot<br>Masked Owl<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat |
| 28 | White Cypress Pine open woodland of sandplains, prior streams and dunes mainly of the semi-arid (warm) climate zone | Major Mitchell's Cockatoo<br>Superb Parrot<br>Corben's Long-eared Bat<br>Yellow-bellied Sheathtail Bat<br>Inland Forest Bat<br>Little Pied Bat |
| 45 | Plains Grass grassland on alluvial mainly clay soils in the Riverina Bioregion and NSW South Western Slopes Bioregion | Superb Parrot<br>Yellow-bellied Sheathtail Bat |
| 46 | Curly Windmill Grass – speargrass – wallaby grass grassland on alluvial clay and loam on the Hay plain, Riverina Bioregion | Superb Parrot |
| 53 | Shallow freshwater wetland sedgeland in depressions on floodplains on inland alluvial plains and floodplains | Barking Owl<br>Masked Owl<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat |

| PCT no. | PCT description | Predicted threatened hollow-dependant species habitat |
|---|---|---|
| 58 | Black Oak – Western Rosewood open woodland on deep sandy loams mainly in the Murray Darling Depression Bioregion | Major Mitchell's Cockatoo<br>Regent Parrot<br>Corben's Long-eared Bat<br>Yellow-bellied Sheathtail Bat<br>Inland Forest Bat<br>Western Pygmy Possum<br>Little Pied Bat |
| 74 | Yellow Box – River Red Gum tall grassy riverine woodland of NSW South Western Slopes Bioregion and Riverina Bioregion | Gang-gang Cockatoo<br>Glossy Black Cockatoo<br>Major Mitchell's Cockatoo<br>Barking Owl<br>Superb Parrot<br>Masked Owl<br>Eastern Pygmy Possum<br>Southern Myotis<br>Squirrel Glider<br>Brush-tailed Phascogale<br>Yellow-bellied Sheathtail Bat |
| 75 | Yellow Box – White Cypress Pine grassy woodland on deep sandy-loam alluvial soils of the eastern Riverina Bioregion and western NSW South Western Slopes Bioregion | Gang-gang Cockatoo<br>Glossy Black Cockatoo<br>Barking Owl<br>Superb Parrot<br>Squirrel Glider<br>Corben's Long-eared Bat<br>Yellow-bellied Sheathtail Bat |
| 76 | Western Grey Box tall grassy woodland on alluvial loam and clay soils in the NSW South Western Slopes and Riverina Bioregion | Glossy Black Cockatoo<br>Major Mitchell's Cockatoo<br>Barking Owl<br>Superb Parrot<br>Masked Owl<br>Squirrel Glider<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat |
| 80 | Western Grey Box – White Cypress Pine tall woodland on loam soil on alluvial plains of NSW South Western Slopes Bioregion and Riverina Bioregion | Gang-gang Cockatoo<br>Glossy Black Cockatoo<br>Major Mitchell's Cockatoo<br>Barking Owl<br>Superb Parrot<br>Masked Owl<br>Eastern Pygmy Possum<br>Corben's Long-eared Bat<br>Squirrel Glider<br>Brush-tailed Phascogale<br>Yellow-bellied Sheathtail Bat |
| 110 | Western-Grey Box- Cypress Pine Shrubby Woodland on Stony Footslopes in the NSW Western Slopes Bioregion and Riverina Bioregion | Gang-gang Cockatoo<br>Major Mitchell's Cockatoo<br>Barking Owl |

| PCT no. | PCT description | Predicted threatened hollow-dependant species habitat |
|---|---|---|
| | | Superb Parrot<br>Masked Owl<br>Eastern Pygmy Possum<br>Squirrel Glider<br>Corben's Long-eared Bat<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat<br>Spotted-tailed Quoll |
| 143 | Narrow-leaved Hopbush – Scrub Turpentine – Senna shrubland on semi-arid and arid sandplains and dunes | Major Mitchell's Cockatoo<br>Yellow-bellied Sheathtail Bat<br>Inland Forest Bat<br>Little Pied Bat |
| 170 | Chenopod sandplain mallee woodland/shrubland of the arid and semi-arid (warm) zones | Major Mitchell's Cockatoo<br>Regent Parrot<br>Corben's Long-eared Bat<br>Yellow-bellied Sheathtail Bat<br>Inland Forest Bat<br>Western Pygmy Possum<br>Little Pied Bat |
| 171 | Spinifex linear dune mallee mainly of the Murray Darling Depression Bioregion | Major Mitchell's Cockatoo<br>Regent Parrot<br>Corben's Long-eared Bat<br>Inland Forest Bat<br>Western Pygmy Possum<br>Little Pied Bat |
| 172 | Deep sand mallee of irregular dunefields of the semi-arid (warm) zone | Major Mitchell's Cockatoo<br>Regent Parrot<br>Corben's Long-eared Bat<br>Inland Forest Bat<br>Western Pygmy Possum<br>Little Pied Bat |
| 182 | Cumbungi rushland wetland of shallow semi-permanent water bodies and inland watercourses | Southern Myotis<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat |
| 249 | River Red Gum swampy woodland wetland on cowals (lakes) and associated flood channels in central NSW | Major Mitchell's Cockatoo<br>Barking Owl<br>Superb Parrot<br>Masked Owl<br>Southern Myotis<br>Squirrel Glider<br>Corben's Long-eared Bat<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat<br>Spotted-tailed Quoll |
| 267 | White Box – White Cypress Pine – Western Grey Box shrub/grass/forb woodland in the NSW South Western Slopes Bioregion | Barking Owl<br>Gang-gang Cockatoo |

| PCT no. | PCT description | Predicted threatened hollow-dependant species habitat |
|---|---|---|
| | | Superb Parrot<br>Masked Owl<br>Squirrel Glider<br>Brush-tailed Phascogale<br>Corben's Long-eared Bat<br>Yellow-bellied Sheathtail Bat<br>Little Pied Bat<br>Spotted-tailed Quoll |
| 277 | Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion | Barking Owl<br>Gang-gang Cockatoo<br>Superb Parrot<br>Masked Owl<br>Squirrel Glider<br>Brush-tailed Phascogale<br>Yellow-bellied Sheathtail Bat<br>Spotted-tailed Quoll<br>Eastern False Pipistrelle |
| 319 | Tumbledown Red Gum – White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion | Barking Owl |

## 4.2 Salvaging hollow and nest habitat

It may be feasible for habitat resources to be salvaged and retained for fauna use within the general area. Resources such as nests and natural hollows which remain intact during clearing may be able to be installed in adjacent habitat. Features such as rock piles and timber piles could be moved into adjacent retained habitat. Where appropriate, salvaged timber (with due consideration given to fire management requirements) will be utilised in accordance with condition C26(xi) of the Infrastructure Approval.

## 4.3 Target species

### 4.3.1 Hollow-dependant and nest-dependant fauna inventory

Development of the strategy incorporates a target species analysis to determine the potential number of hollow-dependant and nest-dependant species likely to be impacted during clearing activities.

All threatened species found to be hollow dependant were included as target species. In total there are 18 species that are listed as threatened under the *Biodiversity Conservation Act 2016* (BC Act) and/or the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Hollow use and occupation by fauna are dependent on many variables, such as size of entrance, maximum internal space, thermal properties, and distance of entrance from the internal cavity. Size of entrance can be used as an indicator of the species that may inhabit a hollow. These have been broken down into size classes and are discussed below.

Table 4.2 highlights the threatened hollow dependant target fauna group identified in the analysis of potential species.

**Table 4.2 - Identified threatened hollow dependant target fauna group**

| Fauna group | No. species |
|---|---|
| **Hollow-dependent species** | |
| Extra-large hollow-dependant species | 2 |
| Large hollow-dependant species | 2 |
| Medium hollow-dependant species | 5 |
| Small hollow-dependent species | 7 |
| Hollow-dependant microbats | 6 |
| Crevice-dependant species | 4 |
| **Nest-dependent species** | |
| Platform nests in trees | 22 |
| Platform nests over water | 4 |

It is noted that hollow dependent species of different sizes may use medium and large sized hollows (e.g. cockatoos, Regent Parrots, Superb Parrots), and so the guidance outlined in the sections below is indicative only in its categorisation of different species.

### 4.3.2 Extra-large hollow dependant species

Extra-large hollows are hollows with an entrance diameter greater than 25cm. Extra-large hollow bearing resources are limited in semi-arid woodland environments and likely only to occur in areas that support large old growth Black Box and River Red Gum woodland and riparian forest vegetation classes.

Dependent species are typically restricted to large owl species. Barking owl (*Ninox connivens*) is considered likely to occur in the project area.

### 4.3.3 Large hollow dependant species

Large hollows are considered to be hollows with an entrance diameter of 15-25 cm. Large hollow-dependant species are particularly sensitive to impacts due to loss of hollow-bearing resources given that such hollows are limited by the time required to form. In woodland and forest habitats hollows tend to take more than 80-100 years to form (*National Parks and Wildlife Service, 1999*). Large hollows occurring naturally as available habitat are considered a limited resource. Species dependant on large hollows include large parrots, owls, and large arboreal mammals. Large hollows (especially if they have complex internal cavities and smaller entrance holes) may be utilised by larger breeding/wintering microbat colonies.

Examples relevant to the project of species that utilise large hollows include threatened species such as Major Mitchell's Cockatoo (*Lophochroa leadbeateri*), Regent Parrot (eastern subspecies) (*Polytelis anthopeplus monarchoides*), and Barking owl (*Ninox connivens*). More common species may include the Galah (*Eolophus roseicapilla*), corellas (*Cacatua sp.*), Southern Boobook (*Ninox boobook*), and Common Brushtail Possum (*Trichosurus vulpecula*). Large hollows are typically associated with the larger tree species which are in turn associated of the river and river/creek and floodplain woodland communities. Dominant tree species include River Red Gum (*Eucalyptus camaldulensis)* and Black Box (*E. largiflorens*).

Occupation of tree hollows is often influenced by access preferences. To accommodate these preferences in compensatory and supplementary next boxes, design may include the following:

- large hollow – front entrance facing away from tree – bird specific; and
- large hollow – side entrance next to tree trunk/branch – arboreal mammal specific.

### 4.3.4 Medium hollow dependant species

Medium hollows are hollows with an entrance diameter of 5-15cm. In a similar manner to large hollow dependant species, this size class replicates a range of dependant hollow dependant fauna that utilise smaller hollow dimensions provided in more detail in Section 5. Whilst long timeframes are still required for these ecological assets to become established, they are likely to be more numerous compared to large hollow based on the age class of woodland PCT within the project area disturbance zone as well as increased potential to occur in additional canopy tree species.

This includes old growth 'bull' mallee dominated woodland as well as riparian/floodplain woodland and forest. Species that are dependent up on these include broad tailed parrots (e.g., Mallee Ringneck *Barnardius zonarius barnardi*, Yellow Rosella *Platycercus elegans flaveolus*, Mulga Parrot (*Psephotus varius)*, Red-rumped Parrot (*Psephotus haematonotus)*, Bluebonnet (*Northiella haematogaster*)), Regent Parrot (*Polytelis anthopeplus monarchoides*), Superb Parrot (*Polytelis swainsonii)*, Mulga Parrot (*Psephotus varius)*, Red-rumped Parrot (*Psephotus haematonotus)*, Blue Bonnet (*Northiella haematogaster)*, Sacred Kingfisher (*Todiramphus sanctus)*, and Owlet Nightjar (*Aegotheles cristatus*).

Compensatory and supplementary next boxes design may include the following:

- medium hollow – front entrance facing away from tree – bird specific; or
- medium hollow – side entrance next to tree trunk/branch – arboreal mammal specific.

### 4.3.5 Small hollow dependant species

Small hollows are considered to be hollows with an entrance diameter of less than 5cm. Small hollow-dependant species are expected to be the most impacted by the project given that small hollows are likely to be the most numerous in the project area. Small hollows are most likely to occur in mallee woodlands, but will also occur in native pine/belah, floodplain, and riparian woodlands and forests.

Small hollow dependant species are represented in the project area by several threatened species including Corben's Long-eared Bat (*Nyctophilus corbeni)*, Little Pied Bat (*Chalinolobus picatus)*, Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris)*, Scarlet Chested Parrot (*Neophema splendida)*, and Purple Crowned Lorikeet (*Glossopsitta porphryocephala)*.

Common species such as the Budgerigar (*Melopsittacus undulatus)*, Blue-winged Parrot (*Neophema chrysostoma)*, and numerous microbat species are also small hollow dependant. Compensatory and supplementary next boxes design may include the following:

- small hollow – front entrance facing away from tree – bird specific; or
- small hollow – side entrance next to tree trunk/branch – arboreal mammal specific (i.e., Western Pygmy Possum (*Cercartetus concinna*)).

### 4.3.6 Crevice (hollow) dependant species

Crevices are linear structures providing shelter that may lead to a hollow-bearing cavity or chamber or eventually may form into a hollow or chamber. This may be in the form of discrete fissures in trunks or limbs or exist as a broader timber sheet created by thick bark on a tree trunk or decaying/collapsing trunk layers.

Crevice adapted species often occupy similar structural habitats in rock piles and escarpments. With a lack of rock/stone/bedrock sourced habitat within the project area, these shelter resources are limited to timber derived habitats. Species that typically utilise crevices include skinks, geckoes, and microbats (during the summer months).

Small hollow dependant species are represented in the project area by several threatened species including Little Pied Bat (*Chalinolobus picatus)*, Eastern False Pipistrelle (*Falsistrellus tasmaniensis)* and the Spotted-tailed Quoll (*Dasyurus maculatus*).

### 4.3.7 Hollows for microbats

In Australia the vast majority of microbats are hollow dependant. Only a small number of species are obligate cave roosters. Hollows utilised by microbats are highly variable and influenced by numerous factors that include, but are not limited to, the following:

- size of access hole (filtering species access based on size);
- size and complexity of internal structure influencing internal microclimates;
- thermal mass of hollow resource - season and temperature variation (breeding, non-breeding);
- propensity for species to forms colonies or preference to roost as individuals; and/or
- proximity to water resources.

Microbats can subsequently be included in all hollow size classes discussed above. Colonies of microbats are included as a large hollow-dependant species as they may utilise large hollows (with small access holes or holes orientated that prevent use by other hollow-dependant species, i.e., vertical entrance) as larger breeding sites and overwintering roost sites where cavities provide suitable microclimates. During the summer months colonies may disperse with animals utilising smaller hollow resources throughout the landscape.

Compensatory and supplementary nest box designs for microbats may include the following:

- large microbat hollow – large box with appropriate access gap to target species. Such boxes are commonly referred to as winter microbat boxes;
- medium microbat hollow – medium box size with appropriate access gap to target species. Such boxes are commonly referred to as winter microbat boxes; or
- small microbat hollow – smaller box size with appropriate access gap to target species. Such boxes are commonly referred to as summer microbat boxes.

### 4.3.8 Threatened species prioritisation

The loss of hollow bearing trees poses a threat to hollow-dependant fauna species. However, this threat is increased for threatened species, as their abundance and/or distribution may already be restricted, so they are particularly vulnerable to further threatening processes.

Consequently, hollow dependant threatened species known to occur in the Biodiversity Study Area have been considered priority species for compensatory/supplementary hollows where they are known to occur in the Biodiversity Study Area or considered likely to occur.

It is noted that the Plains Wanderer is not included in this strategy, as it is not a hollow dependant species, however the Plains Wanderer will be managed in accordance with the *Plains Wanderer Protocol* (45860-HSE-PL-D-0135).

# 5 Pre-clearing surveys and nest box installation

## 5.1 Survey

The project ecologists will survey and document tree hollows and nests within the proposed clearing extent as outlined in the *Pre-clearing and Clearing Procedure* (45860-HSE-PR-D-0027). The survey will be used to identify and locate, where possible, all hollow bearing trees within the disturbance area.

Hollow bearing trees are defined as those trees that have at least one hollow. A tree is considered to contain a hollow if:

- the entrance can be seen;
- the hollow appears to have depth (i.e., solid wood cannot be observed beyond the entrance); and
- the hollow was at least 1m above the ground.

For each hollow bearing tree identified, the following information is proposed to be recorded:

- hollow bearing tree details, such as:
  - tree species;
  - condition (alive or dead);
  - approximate height (m);
  - approximate diameter at breast height (DBH);
- hollow details:
  - location of the hollows (limbs, trunk, or both);
  - number of each hollow class (small <5cm, medium 5-15cm, large 15-25cm and extra-large > 25cm);
  - approximate height (m) of the hollow from the ground;
  - suitability/evidence of fauna.

Each hollow bearing tree is to be mapped using a hand-held GPS unit and marked (using a tree tag and number) and/or sprayed with paint for future identification.

In addition during the pre-clearing survey potential nest resources will also be identified by the project ecologists within the disturbance area. The survey will aim to identify and locate, where possible, all potential nest resources within the disturbance area. This will assist with planning and scheduling requirements for allocation of compensatory and supplementary habitat resources.

## 5.2 Number of boxes required

The number and type of nest boxes to be installed will be determined based on the results of the surveys undertaken by the project ecologist.

Hollow data will be collected during pre-clearing surveys and will include (for example):

- location of the hollows and nests within the proposed clearing extents;
- number of each hollow class (i.e., small <5cm, medium 5-15cm, large 15-25cm and extra-large >25cm);
- approximate height (m) of the hollow from the ground; and
- suitability/evidence of fauna.

This data will be compared to species specific nest box dimensions to help determine an estimated quantity of nest boxes and specific types.

## 5.3 Target species and nest box design

Nest boxes are to be specifically designed and selected for the target fauna species/groups identified in Section 4.3. Nest box dimensions are detailed in the table below which is informed by Franks and Franks (Nest boxes for Wildlife, 2011). A nest box identification number will be placed on the nest box (stamped on the side or bottom of the nest box). Nest boxes will likely be constructed in plywood or timber.

**Table 5.1 - Nest box dimensions (based on *Nest boxes for wildlife* 2011)**

| Species | Inside measurement (mm) | Entrance diameter (mm) | Depth of chamber (mm) (from bottom of entrance hole) | Height above ground (m) | Comments |
|---|---|---|---|---|---|
| **Small birds** | 150 x 150 | 50 | 30 | 3-6 | Horizontal spout entrance |
| **Parrots** | 150 x 200 | 30-50 | 400 | 2-4 | Front entrance |
| **Cockatoo** | 300 x 400 | 200 | 1200 | 8-10 | Very heavy chewer; angled spout entrance |
| **Possums (large)** | 250 x 250 | 100 | 300 | 2-4 | Will use several den sites |
| **Microbat** | n/a | Various slot sizes | 400 or 600 | 1.8-5 | Bottom opening |

There is significant ecosystem value in the retention of habitat features suitable for common species. Other commonly occurring non-threatened fauna perform important ecosystem functions such as pollination, seed dispersal, invertebrate control and provide foraging resources for threatened species (e.g., small mammals for the Barking Owl).

The project should aim to maintain availability of habitat for these species to support ecosystem functionality. As such, nest boxes for common species identified for the project area are also recommended. If target species nest boxes in an area are saturated (i.e., at or above those removed from the disturbance are), common species can be accommodated for by using other nest box design types. This will be determined during and post clearing stages for nest box installation. Where there are fewer nest box sites, priority box type should be given to threatened species.

Nest box design considerations for target fauna species are outlined in Table 5.2. Where possible, hollow limbs and trunks of cleared trees should be re-used.

**Table 5.2 - Nest box design considerations for target fauna species/groups**

| Design theme | Component | Applicable taxa | High-level design considerations |
|---|---|---|---|
| Entrance holes | Size | All species | • The entrance hole should be no larger than that required for the target species. This will reduce the uptake by unwanted species. In particular this will be specified for microbats. |
| | Location | Selected species | • The entrance hole should generally be positioned toward the top of the nest box so the area remains dark. |
| | Location | Ducks<br>Kookaburra | • Entrance hole close to the base of the box. |

| Design theme | Component | Applicable taxa | High-level design considerations |
|---|---|---|---|
| | Location | Arboreal mammals<br>Microbats | • Rear/side entrances should be used for possums and gliders adjacent to trunk/branch to encourage targets species. |
| | Location | Microbats | • Entrance gap located at bottom of box to avoid competition with other species.<br>• Gap size applied to include/exclude target microbat species. |
| Box access | Exterior | All species | • Provision of design to provide grip for target animal access.<br>• May include grooves cut into rough sawn timber or grooves cut into the face of the box to allow animals to grip the exterior of the nest box. |
| | Interior | All species | • Provision of design to provide grip for target animal access.<br>• May include mesh or grooves cut into the walls to allow young to climb out of the box. |
| Furnishings | Internal | All species | • Where appropriate (depending on the target species), wood shavings may be added to each box.<br>• Wood chips, wood shavings or sawdust can be placed into boxes to replicate the inside of decaying hollows and to provide extra insulation. |
| | Internal | Microbats | • Shade cloth or similar material, and/or timber grooving should be installed in bat boxes to give the bats something to cling to.<br>• Ensure that material/method selected does not bind/catch toes and legs. |
| Thermoregulation | Roof/lid | All species | • To prevent temperature extremes inside the nest box, do not use metal lids or plates on the roof of the nest box. |
| | Material | All species | • All milled timber uses should be at least 25 mm thick.<br>• If plywood is used it must be minimum 15mm thick or larger (exterior grade). |
| | Microclimate | Microbats | • Internal box space should consist of at least 2 compartments (using baffles) to promote microclimate stability.<br>• Larger boxes should incorporate additional baffles/compartments. |
| General design | Roof/lid | All species | • The lid should overhang the front and sides of the nest box by at least 25 mm to prevent water damage.<br>• Consideration should be given to drip lines. |
| | Joinery | All species | • Joins should be sealed with to reduce drafts and provide structural integrity (may also require use of screws or nails dependant upon material used).<br>• Screws and/or nail should be inert and/or exterior grade (coated or similar).<br>• Galvanised fittings can be used however they can chemically react with tree fluids. |
| | Finishing | All species | • There should be no sharp edges or exposed screws or nails. |
| | Material | All species | • Timber is preferred material for construction of body of nest box due to better thermal mass properties. |

| Design theme | Component | Applicable taxa | High-level design considerations |
|---|---|---|---|
| | | | • Ideally constructed using durable hardwood that is either recycled or sustainably sourced plantation timber.<br>• If not constructed of hardwood, exterior grade plywood is recommended (preferably with FSC certification).<br>• MDF or chipboard should not be used. |
| | Weather proofing | All species | • If the boxes are to be painted on the outside then the paint should be non-toxic, neutral coloured, exterior grade water-based acrylic paint.<br>• Excessively dark colours increase nest box temperatures, so are not recommended.<br>• The inside should be left natural (i.e., not be painted or treated with oil). |
| | Drainage | All species | • Small drain holes should be placed in the box (in bottom panel) to allow water to drain. |
| Mounting | Installation | All species | • Method of installation should be one that minimises damage and/or impact to the host tree.<br>• Method of installation should be one that allows for growth of tree with only periodic adjustment/maintenance to mounting to accommodate this growth without nest box or tree failure. |
| | Maintenance | All species | • Nest box must be mounted in a way that allows for the removal of the nest box for maintenance and/or replacement as required without subsequent damage/impact to the host tree. |
| Toxicity | Weather proofing | All species | • Where possible glues, paints/finishings in nest box construction should exclude the use of products containing Volatile Organic Compounds.<br>• Oil based paints and varnishes should not be used to finish nest boxes.<br>• Do not used treated materials. |
| Pest management | Control | All species | • As required, anti-pest devices such as buffalo fly ear tags should be installed to deter European honeybee in areas where they could become a problem.<br>• Some success has been found with the use of artificial grass mounted on the internal side of the roof, and similarly using recycled plastic for lids to deter the establishment of European Honeybees. |

## 5.4 Nest box locations

The location of the nest boxes will be determined by the project ecologist following identification of hollow bearing trees and available nearby habitat. Should there be no suitable areas and trees adjacent to this site, the boxes will be installed at the nearest suitable area. Suitability will be determined by installation guidelines. Spacing of the boxes in relation to the species natural home range is important to consider as overcrowding can be counterproductive and has potential to deter animals from using it.

The project ecologist will also determine the potential for relocation of natural tree hollows for re-use, within adjacent vegetation, or by placement on the ground to create habitat for ground-dwelling fauna.

The project ecologist will provide advice on recommended installation e.g. tree attachment, suitable height, density, location, aspect and timing of nest boxes. Locations for potential installation areas will be considered in order of preference:

1. within the outer edge of the easement;
2. adjacent to the project site on private property, with landowner agreement to access installation and ongoing monitoring in biodiversity offset sites;
3. the distribution of nest boxes across the landscape will be determined with consideration of the following:
    a. installing nest boxes as close as possible to the location of the original hollow bearing tree (where feasible within 100m from point of resource removal);
    b. estimated number of hollows already occurring in the proposed installation site;
    c. placement according to landscape need, not based on land availability (i.e., to reflect the abundance of natural hollows in the vicinity and/or to utilise areas which contain other resources but are lacking hollows);
    d. placement in specific areas to facilitate wildlife connectivity across the landscape;
    e. positioning in habitat locations where sufficient cover is present to avoid exposure to the elements and predators;
    f. average carrying capacity for hollow-dependant species;
    g. the target species behaviours (e.g., spacing boxes for a territorial species greater than the home range distance to reduce inter-specific and intra-specific competition spacing of the boxes in relation to the target species natural home range - overcrowding can be counterproductive and has potential to deter animals from using a box);
    h. availability and suitability of other resources such as water and food of the target species; and
    i. relocation of natural tree hollows if applicable.

The following in-principal considerations will apply when determining trees for nest box installation:

- installation needs to be undertaken safely so placing the boxes at the minimum height for the target species is considered appropriate;
- protecting the box from hot afternoon sun and the predominant aspects of severe storms;
- ensuring that the target species can get access to the entrance e.g., birds like a perch near the box;
- microbat boxes should be near creek lines, water sources and within or adjacent to potential flyways. The Yellow-bellied Sheathtail-bat has shown a preference for trees with an incomplete crown and dead limbs (Clews, 2016);
- recipient tree's condition (should be robust and in good health);
- recipient tree's suitability for the target species and type of box to be installed; and
- minimising the impacts to the recipient tree's growth.

It should be noted that many hollow bearing trees contain multiple hollows of different sizes. As such, several boxes may be placed in suitable trees (dependant on tree species and size) where doing so is considered by the project ecologist to be of benefit to fauna. Multiple roost sites can be utilised by a species, with each roost representing different thermal properties.

## 5.5 Installation detail

The installation of nest boxes in suitable habitat outside of the disturbance area is proposed to compensate for the loss of hollow bearing trees which will be removed for the project. The project ecologist is to supervise and instruct on the installation of all nest boxes and reused hollows. Specific requirements for installation of nest boxes include:

- the preferred method of attaching nest boxes to trees is the Habisure © System illustrated in Figure 5.1. This method allows for tree growth and minimises damage to the tree. A length of plastic-coated soft fencing wire will be passed through the nest box and around the tree trunk and where the wire is in contact with the tree trunk or branch it will be threaded through a length of garden hose to protect the tree. The garden hose section is not required for trees that are not in early growth stages and where the expected increase in trunk diameter is unlikely to result in any constriction of the trunk on which the wire is installed;
- preferably, nest boxes would be installed on trees where there is an opposing branch available to support the attachments (as in Figure 5.1);
- nest boxes for birds are to be orientated between north-west and east of tree trunks to avoid hot afternoon sun and dominant direction of severe storms;
- nest boxes for bats are to be placed in a number of orientations which should comprise of some shaded boxes and some sun-exposed boxes to generate a variety of thermal conditions to allow for use as both summer and winter roosts. Nest boxes should be installed at the recommended heights for target species/nest box type. Installation of each nest box will include ensuring the box is labelled to aid monitoring, and recording the below information:
  - nest box identification number;
  - nest box type;
  - nest box height and orientation;
  - GPS location;
  - date of installation.

Subject to landowner agreement and suitable existing trees being present, nest boxes will be installed no more than two weeks prior to clearing of the tree.

A summary of this information will be included in the Nest Box Installation Report.

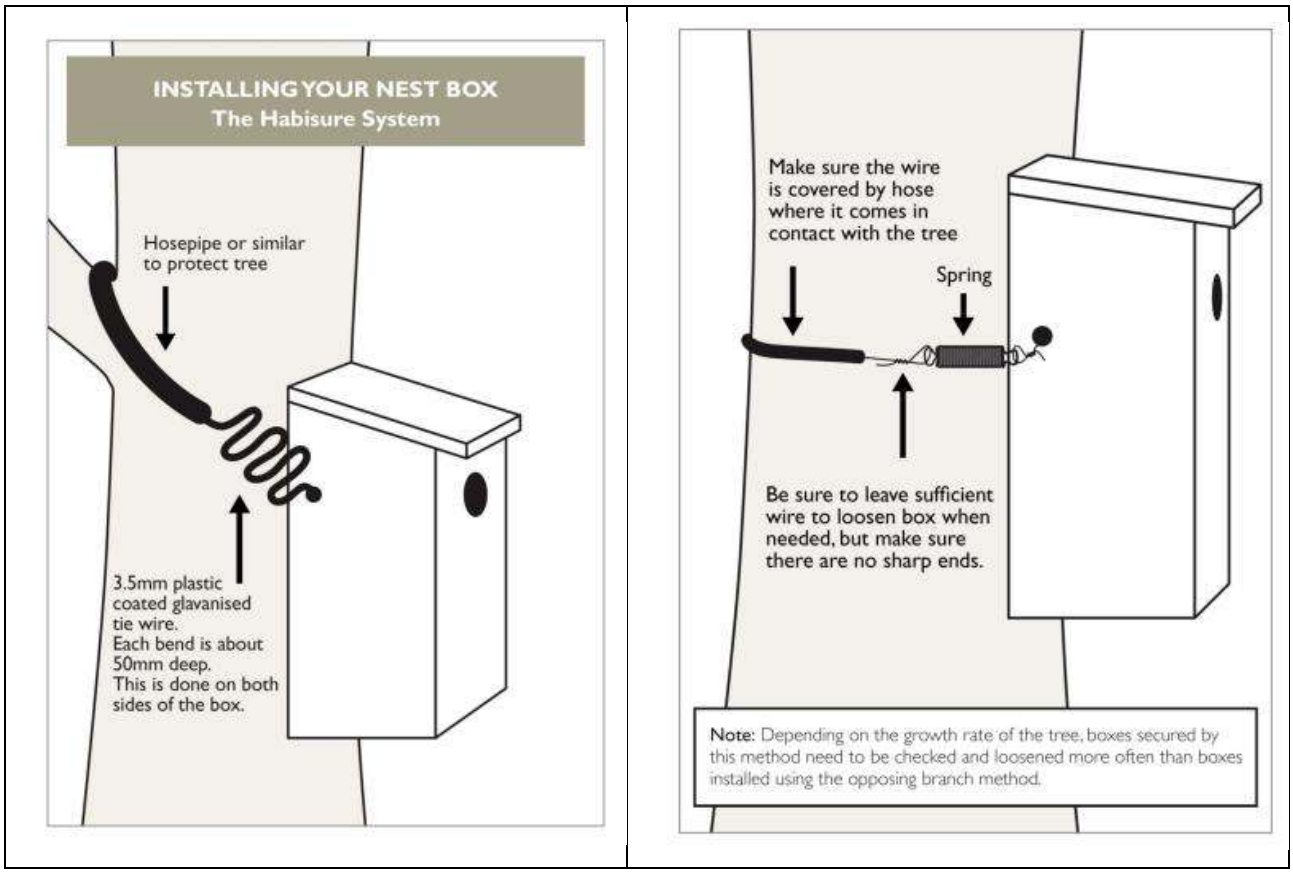



**Figure 5.1 - The Habisure © system (from Franks and Franks 2011)**

### 5.5.1 Tree hollow re-use

Advantages to re-using tree hollows include:

- closer resemblance to natural hollows (including microclimates) (Beyer et al. 2008; Griffiths et al. 2017; Ruegger 2017; Griffiths et al. 2018);
- greater longevity than nest boxes (e.g., Harley 2006; Beyer et al. 2008; Ruegger 2017);
- ability to maintain the natural hollow density and type within an area and can be installed at the same aspect and angle due to the individual features of natural hollows that cannot be replicated with a nest box;
- greater attractiveness for a larger array of hollow-dependant species (Ruegger, 2017);
- challenges to re-using tree hollows and hollow creation include:
  - labour intensive without established and efficient workflow;
  - limited to larger tree dimensions that introduce high operational risks;
  - large sizes often required use of elevated work platforms which are limited by location (floodplain presents significant site-based risks and safe operation);
  - drying out and cracking – the hollow microclimate changes when a live hollow is reused; and
  - a repurposed limb is much heavier than a nest box and the weight of a repurposed limb is a limiting factor for effective installation, cost and safety considerations.

The project ecologist will determine the potential for relocation of natural tree hollows for re-use, by placement on the ground to create habitat for ground-dwelling fauna. This technique is to only

be used following an assessment of associated environmental constraints, safety risks, and on a case-by-case basis.

### 5.5.2 Nest box installation timing

As this project will adopt a staged approach to clearing, a similar approach will be proposed for nest box installation.

Any nest boxes which are required within the relevant areas for squirrel gliders will be installed prior to clearing in that location.

Any nest boxes required for other species will be installed in accordance with the following timeframes:

- 30% to be installed prior to clearing within a particular location;
- all remaining nest boxes (100%) will be installed within three months of clearing within a particular location.

Monitoring the timing of installation of the nest boxes will occur in accordance with Table 5.3. Table 5.3 includes a Trigger Action Response Plan (TARP) which will be implemented whenever it is determined that nest box installation does not occur in a particular location prior to clearing. Details of the timing of nest box installation will be provided in the Nest Box Installation Report.

Following the completion of construction, nest boxes will remain in place and will not be removed. Nest boxes will therefore remain post-construction.

**Table 5.3 - Nest box installation monitoring and TARP**

| Objective | Target | Performance indicator | Method of monitoring (how the performance indicator will be validated) | Frequency / timing | Trigger | Action / Response Plan |
|---|---|---|---|---|---|---|
| Minimise and manage the impacts of the project on biodiversity | Nest box installation for **squirrel gliders** to commence prior to clearing in a particular location | Nest box installation for squirrel gliders will commence prior to clearing in a particular location. | Progress updates from the ecologists via meetings and Nest Box Installation Checklist | Fortnightly | Nest box installation for squirrel gliders does not occur in a particular location prior to clearing | • Determine why nest boxes cannot be installed and address barriers to installation.<br>• Reinspect to confirm this has occurred. |
| | Nest box installation for **other species** to commence prior to clearing in a particular location | 30% of nest boxes for other species will be installed prior to clearing in a particular location.<br>All remaining nest boxes (100%) to be installed within three months of clearing in a | Progress updates from the ecologists via meetings and Nest Box Installation Checklist | Fortnightly | Nest box installation for other species does not occur as follows:<br>• 30% of nest boxes to be installed prior to clearing in a particular location;<br>• all remaining nest boxes (100%) will be installed | • Determine why nest boxes cannot be installed and address barriers to installation.<br>• Reinspect to confirm this has occurred. |

| Objective | Target | Performance indicator | Method of monitoring (how the performance indicator will be validated) | Frequency / timing | Trigger | Action / Response Plan |
|---|---|---|---|---|---|---|
| | | particular location. | | | within three months of clearing within a particular location | |

### 5.5.3 Nest Box Installation Report

The Nest Box Installation Report will include the following:

- nest box identification number;
- the number of nest boxes installed on the project;
- the type of nest boxes installed;
- the location that the nest boxes were installed (GPS location);
- the nest box height and orientation;
- the vegetation community type (PCT); and
- the date of installation.

The report will be prepared by the project ecologist and will be made public on the project website.

### 5.5.4 Nest box monitoring and maintenance

Monitoring during construction will determine the use of nest boxes during the construction phase and will occur on an annual basis. Any requirement to maintain or replace nest boxes due to deterioration or invasion by pest species, will also be assessed based on the viability of the nest box to continue to be used by the target species. Where longer term use is considered unviable, consideration and assessment will be made to determine if nest box replacement is required.

An annual report will be prepared to summarise the results of the nest box monitoring.

Any longer-term maintenance and monitoring (post-construction) would be detailed within the Operational Environmental Management Plan.

## 5.6 Nest impact management

Potential nest types have been identified in Section 3 of the strategy. Methods employed in the management of nests can be summarised by the following:

- identified active nests are either to be avoided (where practical) or managed in accordance with *Fauna Handling Procedure* (Appendix C of the Biodiversity Management Plan);
- where nests can be reasonably relocated, locations are to be determined by the project ecologist; and
- relocations may employ securing existing intact nest in same or similar aspect or employ the use of nest poles where it has been identified necessary to do so. Key consideration includes a case-by-case on site assessment with the project ecologists addressing the potential for success to the relocation and additional site safety related risks.

# 6 Reporting

Reporting will be undertaken in accordance with Table 6.1.

**Table 6.1 - Reporting program**

| Item | Scope | Frequency | Responsibility | Recipient |
|---|---|---|---|---|
| Pre-clearing survey form | The pre-clearing survey will include:<br>• results of the field survey, including a description of key characteristics of existing tree hollows and/or nest resources, including known or likely inhabitants;<br>• the number of hollow bearing tree resources which will be impacted; and<br>• number and characteristics of nest boxes required. | Prior to clearing in that area | Project ecologist | Environmental Manager |
| Nest box installation report | A Nest Box Installation Report will be developed upon completion of clearing and completion of installation of all hollow compensatory/supplementation resources.<br>The report is to provide information on the following:<br>• number and type of hollow removed;<br>• number and type of nest boxes installed;<br>• GPS mapped location of nest boxes installed;<br>• plant community type (PCT);<br>• summary to available habitat resources (e.g., water, leaf litter, habitat structure); and<br>• summary to disturbances in locations (e.g., logging, fire, grazing etc.). | Following installation of all nest boxes | Project ecologist | Environmental Manager and Transgrid |

## 6.1 Limitations

Field surveys will be used to confirm the number of hollow bearing trees and other habitat resources in the transmission easement and in disturbance areas. All attempts will be made to identify every hollow within the project disturbance area but hollows in trees can be invariably difficult to identify from ground observation only. Many hollows identified from the ground may not be deep enough to support fauna following closer inspection. Conversely, many small hollows in trunks and branches may not be visible from the ground and may have been missed during surveys.

Prior to clearing activities, the potential number of hollows lost and those requiring supplementation will be estimated based on pre-clearing surveys by the project ecologists. The actual number of hollows removed will be confirmed during the clearing activities.

This strategy has been developed based upon the current knowledge and research on hollow and nest supplementation, using the current design footprint and Final BDAR.

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# Annexure A – Target species analysis

**Table A.1 - Target species analysis undertaken to determine hollow-dependant and nest-dependant species that are known or likely to occur within the disturbance area for the project.**

| Common name | Scientific name | Threatened species listing | | Nesting type | Nest dependence | | Hollow / resource / nest class | Comments | WSP excluded species | Likelihood of occurring |
|---|---|---|---|---|---|---|---|---|---|---|
| | | NSW | Cth | | Hollow dependant | Other nest dependant | | | | |
| **Birds** | | | | | | | | | | |
| Australian Masked Owl | *Tyto novaehollandiae* | V | - | Hollow | Yes | No | Extra Large | Hollows with a diameter greater than 20 cm | Excluded from candidate species | Low |
| Barking Owl | *Ninox connivens* | V | - | Hollow | Yes | No | Extra Large | Hollows with a diameter greater than 20 cm and higher than 4 m above ground | | Medium |
| Black Falcon | *Falco subniger* | V | - | Platform | No | Yes | Platform Nest - Tree | Typically nest along watercourses | | High |
| Black-breasted Buzzard | *Hamirostra melanosternon* | V | - | Platform | No | Yes | Platform Nest - Tree | | Excluded from candidate species | Low |
| Black-chinned Honeyeater (eastern subspecies) | *Melithrptus gularis gularis* | V | - | Bowl | No | Yes | Platform Nest - Tree | Nest placed in tree tops hidden by foliage | | Medium |
| Black-eared Miner | *Manorina melanotis* | CE | E | Cup | No | Yes | Platform Nest - Tree | Loose platform bowl nest as communal nest site | | Medium |
| Brown Treecreeper (eastern subspecies) | *Climacteris picumnus victoriae* | V | - | Hollow | Yes | No | Small hollow | | | Medium |
| Diamond Firetail | *Stagonopleura guttata* | V | - | Globular | No | Yes | Platform Nest – Tree | | | High |

| Common name | Scientific name | Threatened species listing | | Nesting type | Nest dependence | | Hollow / resource / nest class | Comments | WSP excluded species | Likelihood of occurring |
|---|---|---|---|---|---|---|---|---|---|---|
| | | NSW | Cth | | Hollow dependant | Other nest dependant | | | | |
| Dusky Woodswallow | *Artamus cyanopterus Artamus cyanpterus* | V | - | Cup | No | Yes | Platform Nest – Tree | | | High |
| Flame Robin | *Petroica phoenicea* | V | - | Cup | No | Yes | Platform Nest – Tree | | | Medium |
| Gang-gang Cockatoo | *Callocephalon fimbriatum* | V | E | Hollow | Yes | No | Medium | Eucalyptus species with hollows larger than 9 cm diameter | | Medium |
| Gilbert's Whistler | *Pachycephala inornata Pachycephala inornate* | V | - | Cup | No | Yes | Platform Nest – Tree | | | High |
| Glossy Black Cockatoo | *Calyptorhynchus lathami* | V | V | Hollow | Yes | No | Large | Hollows larger than 15 cm diameter and 8 m above ground or higher | | Medium |
| Grey Falcon | *Falco hypoeucos* | E | - | Platform | No | Yes | Platform Nest - Tree | | | Medium |
| Grey-crowned Babbler (eastern subspecies) | *Pomatostomus temporalis temporalis* | V | - | Dome | No | Yes | Dome Nest | | | Medium |
| Hooded Robin (south eastern form) | *Melanodryas cucullata cucullata Melanodryas cucullate cucullate* | V | - | Cup | No | Yes | Platform Nest - Tree | | | High |
| Little Eagle | *Hieraaetus morphnoides* | V | - | Platform | No | Yes | Platform Nest - Tree | | | High |
| Little Lorikeet | *Glossopsitta pusilla* | V | - | Hollow | Yes | No | Small | Hollows usually 3 cm in diameter and 215 m above ground | | Medium |

| Common name | Scientific name | Threatened species listing | | Nesting type | Nest dependence | | Hollow / resource / nest class | Comments | WSP excluded species | Likelihood of occurring |
|---|---|---|---|---|---|---|---|---|---|---|
| | | NSW | Cth | | Hollow dependant | Other nest dependant | | | | |
| Major Mitchel's Cockatoo | *Lophochroa leadbeateri* | V | - | Hollow | Yes | No | Medium | Hollows larger than 10 cm diameter | | High |
| Painted Honeyeater | *Graniella picta* | V | V | Cup | No | Yes | Platform Nest - Tree | | | Medium |
| Pied Honeyeater | *Certhionyx variegatus* | V | - | Cup | No | Yes | Platform Nest - Tree | | | Medium |
| Purple-crowned Lorikeet | *Glossopsitta porphyrocephala* | V | - | Hollow | Yes | No | Medium | | | High |
| Purple-gaped Honeyeater | *Lichenostomus cratitius* | V | - | Platform | No | Yes | Platform Nest - Tree | | | Medium |
| Redthroat | *Pyrrholaemus brunneus* | V | - | Dome | No | Yes | Dome | | | Medium |
| Red-lored Whistler | *Pachycephala rufogularis* | CE | V | Cup | No | Yes | Platform Nest - Tree | | | Medium |
| Regent Honeyeater | *Anthochaera phrygia* | CE | CE | Platform | No | Yes | Platform Nest - Tree | | | Medium |
| Regent Parrot (eastern subspecies) | *Polytelis anthopeplus monarchoides* | E | V | Hollow | Yes | No | Medium | Hollows larger than 5 cm diameter and 5 m above ground or higher | | High |
| Scarlet Robin | *Petroica boodang* | V | - | Cup | No | Yes | Platform Nest - Tree | | | Medium |
| Shy Heathwren | *Hylacola cauta* | V | - | Dome | No | Yes | Dome | | | Medium |
| Speckled Warbler | *Chthonicola sagittata* | V | - | Cup | No | Yes | Platform Nest - Tree | | | Medium |
| Spotted Harrier | *Circus assimilis* | V | - | Platform | No | Yes | Platform Nest - Tree | | | High |
| Square-tailed Kite | *Lophoictinia isura* | V | - | Platform | No | Yes | Platform Nest - Tree | | Excluded Breeding | Medium |

| Common name | Scientific name | Threatened species listing | | Nesting type | Nest dependence | | Hollow / resource / nest class | Comments | WSP excluded species | Likelihood of occurring |
|---|---|---|---|---|---|---|---|---|---|---|
| | | NSW | Cth | | Hollow dependant | Other nest dependant | | | | |
| | | | | | | | | | habitat based on survey | |
| Striated Grasswren | *Amytornis striatus* | CE | - | Dome | No | Yes | Dome | | | Medium |
| Superb Parrot | *Polytelis swainsonii* | V | V | Hollow | Yes | No | Small | Hollows larger than 5 cm diameter and 4 m above ground in trees with a DBH greater than 30cm | | High |
| Turquoise Parrot | *Neophema splendida* | V | - | Hollow | Yes | No | Small | | | Medium |
| Varied Sittella | *Daphoenositta chrysoptera* | V | - | Cup | No | Yes | Platform Nest - Tree | | | Medium |
| White-bellied Sea-Eagle | *Haliaeetus leucogaster* | V | - | Platform | No | Yes | Platform Nest - Tree | Large stick nests within 1km of rivers, creeks lakes, dams, or wetlands | Excluded from candidate species | Low |
| White-browed Treecreeper (endangered population) | *Climacteris affinis* | E | - | Hollow | Yes | No | Small | | Excluded from candidate species | Low |
| **Mammal** | | | | | | | | | | |
| Corben's Long-eared Bat | *Nyctophilus corbeni* | V | V | Hollow | Yes | No | Microbat | | | High |
| Eastern Pygmy Possum | *Cercartetus nanus* | V | - | Hollow | Yes | No | Small | | | Medium |
| Inland Forest Bat | *Vespadelus baverstocki* | V | - | Hollow | Yes | No | Microbat | | | High |
| Large-eared Pied Bat | *Chalinolobus dwyeri* | V | V | Hollow | Yes | No | Microbat | | | Medium |

| Common name | Scientific name | Threatened species listing | | Nesting type | Nest dependence | | Hollow / resource / nest class | Comments | WSP excluded species | Likelihood of occurring |
|---|---|---|---|---|---|---|---|---|---|---|
| | | NSW | Cth | | Hollow dependant | Other nest dependant | | | | |
| Southern Myotis | *Myotis macropus* | V | - | | Yes | No | Microbat | Tree hollows within 200m of riparian zones | | High |
| Squirrel Glider | *Petaurus norfolcensis* | V | - | Hollow | Yes | No | Medium | Trees are critical to movement and must be closely connected (no more than 50m apart) | | High |
| Western Pygmy Possum | *Cercartetus concinnus* | E | - | Hollow | Yes | No | Small | | | Medium |
| Little Pied Bat | *Chalinolobus picatus* | V | - | Hollow | Yes | No | Microbat | | | Medium |
| Spotted-Tailed Quoll | *Dasyurus maculatus maculatus* | V | E | Hollow | Yes | No | Large | | | Medium |
| Yellow-bellied Sheathtail Bat | *Saccolaimus flaviventris* | V | - | Hollow | Yes | No | Microbat | | | Medium |