Appendix F Ecological Assessment Report

ECOLOGICAL ASSESSMENT REPORT

BANANA RANGE WIND FARM CONNECTION PROJECT

Trend Environmental Consultants

September 2025

Prepared on behalf of **POWERLINK QUEENSLAND**

EXECUTIVE SUMMARY

Powerlink Queensland (Powerlink), the owner, developer and operator of Queensland's electricity transmission network has engaged Trend Environmental to undertake an ecological assessment for the development of a new 44 kilometre (km) 275 kilovolt (kV) double circuit transmission line. The line will extend along a new easement corridor from Powerlink's existing Calvale Substation (near Callide Power Station) to a new 275 kV substation adjacent to the Banana Range Wind Farm (BRWF Project).

The project area will consist of:

- Approximately 44 km of 275 kV double circuit transmission line, that will traverse from the existing Calvale Substation to the proposed BRWF Project (via the proposed Mount Benn Substation).
- A 275 kV substation proposed on Lot 47 on SP232217 which will contain a variety of equipment to monitor and control electricity flows, change voltage via power transformers and provide a location to physically connect new transmission lines.
- Expansion of the existing Calvale Substation on Lot 1 on CP890133.

This report has been drafted to support a Ministerial Infrastructure Designation (MID) proposal and *Environmental Protection Biodiversity Conservation Act 1999* (EPBC) Referral for the Project, and assesses the potential impacts associated with the construction and operation of the proposed transmission line on ecological values that are listed as Matters of National Environmental Significance (MNES) and Matters of State Environmental Significance (MSES), protected under Commonwealth and State legislation respectively.

Ecological values were identified through desktop and field ecological assessments. The desktop assessment involved a review of the MNES and MSES mapped within the proposed transmission line corridor, proposed BRWF substation, and Calvale substation expansion area); and a likelihood of occurrence assessment for threatened ecological communities, threatened and migratory species and their habitat. From this desktop assessment the MNES and MSES that were considered most likely to occur and had the potential to be impacted by the Project were determined.

A field ecological assessment was undertaken in accordance with applicable Commonwealth and State survey guidelines to verify the presence of MNES and MSES. Seven field surveys throughout the project area have been completed to date, during all four seasons. The field surveys involved but were not limited to regulated vegetation and regional ecosystem verification, threatened ecological community verification, a protected plant flora survey, watercourse and wetland assessments, targeted fauna surveys, meanders for threatened species, and fauna habitat assessments.

Matters of National Environmental Significance

The MNES confirmed as present or considered likely to be present based on habitat values within the disturbance footprint include those listed in the below table. The disturbance footprint is the area required for construction, operation, and maintenance of the transmission line, substation, and access tracks. It will be cleared of vegetation prior to construction and represents the defined 'impact area' for assessing significance of impacts to MNES and MSES for the project.

Type	Species	Status		Habitat Type	Impact Area (ha)
		QLD[1]	CTH[2]		
Threatened Birds	White-throated Needletail *(Hirundapus caudacutus)*	VU	VU, Mi, M	Foraging and dispersal	7.73
	Squatter Pigeon *(Geophaps scripta scripta)*	VU	VU	Breeding	2.46
				Foraging	3.84
				Dispersal	1.52
	Painted Honeyeater *(Grantiella picta)*	VU	VU	Foraging and dispersal	8.30
	Sharp-tailed Sandpiper *(Calidris acuminata)*	LC	Mi, M	Foraging and dispersal	1.47

Type	Species	Status		Habitat Type	Impact Area (ha)
		QLD[1]	CTH[2]		
Threatened Mammals	Northern Quoll *(Dasyurus maculatus)*	EN	EN	Denning and refuge	2.00
				Foraging and dispersal	4.64
	Koala *(Phascolarctos cinereus)*	EN	EN	Breeding and foraging	2.03
				Climate refugia	5.69
				Dispersal	80.77
	Greater Glider *(Petauroides volans)*	EN	EN	Likely and current denning and foraging	5.45
				Potential future denning and foraging, including dispersal	2.04
Threatened Reptiles	Collared Delma *(Delma torquata)*	VU	VU	Marginal breeding and foraging	1.96
Migratory Species	Fork-tailed Swift *(Apus pacificus)*	SLC	Mi	Foraging and dispersal	5.69
	Gull-billed Tern *(Actitis hypoleucos)*	SLC	Mi	Foraging and dispersal	1.47
	Caspian Tern *(Hydroprogne caspia)*	SLC	Mi	Foraging and dispersal	5.45

[1] *Queendland (QLD) Status (Nature Conservation Act 1992): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern; SLC = Special Least Concern.*

[2] *Commonwealth (CTH) Status (EPBC Act 1999): EX = Extinct, EW = Extinct in Wild, CE = Critically Endangered, EN = Endangered, VU = Vulnerable, M = Marine, Mi = Migratory, - not protected under the Act.*

Matters of State Environmental Significance

The MSES confirmed as present within the disturbance footprint include:

- Regulated vegetation including prescribed regional ecosystems that are endangered and of concern regional ecosystems.
- Regulated vegetation including prescribed regional ecosystems that intersect with an area shown as a wetland on the vegetation management wetlands map.
- Regulated vegetation including prescribed regional ecosystems that is within a defined distance from the defining banks of a relevant watercourse or drainage feature.
- Wetlands and watercourses, including a mapped wetland of high ecological significance (HES) on the map of referrable wetlands.
- Protected wildlife habitat that includes habitat for an endangered wildlife or vulnerable wildlife, or special least concern animal.

Potential Impacts and Mitigation

The key project impact to the MNES and MSES listed above is the direct loss of habitat from vegetation clearing. Other potential impacts include injury and mortality to fauna during clearing works or during the operation of the transmission line; edge effects such as weed invasion; hydrological modification of watercourses and wetlands; erosion and sedimentation from exposed soil; and an increase in bushfire hazard risk. These impacts are managed comprehensively through Powerlink's *Banana Range Wind Farm Connection Project Environmental Management Plan* (Powerlink Queensland, 2022).

The Project has implemented the avoid, minimise, mitigate, remediate then offset management hierarchy. The proponent has sought to avoid impacts in the first instance, then minimise impacts where full avoidance has not been possible. Avoidance and minimisation strategies that have been implemented include:

- Selection of the most feasible route for the corridor based on the Corridor Selection Report (JBS&G 2022) which considered a range of social, environmental and physical factors identified from desktop and field-based analysis, and engagement with landholders, the wider community, and other stakeholders.
- The corridor was aligned through non-remnant areas, where possible, to avoid clearing of regulated vegetation and threatened ecological communities. Where avoidance was not possible, vegetation clearing was minimised to the greatest extent practicable, taking into account landholder permission, aesthetic considerations, and proximity to houses and infrastructure.

- Locating towers outside of sensitive areas, including known habitat for threatened species, threatened ecological communities, HES wetlands and watercourses to reduce impacts from vegetation clearing.
- Tower heights have been raised to their maximum to span sensitive areas where possible.
- Co-locating the corridor with other existing infrastructure to reduce edge effects.
- Reduction in clearing riparian vegetation by placing the corridor within areas with lower habitat quality (e.g., sections with fewer large habitat trees).
- Utilisation of existing access tracks where possible to avoid unnecessary ground disturbance during construction, and maintenance.

Where impacts to ecological values could not be avoided or minimised, they will be mitigated by implementing the following measures:

- All activities undertaken by Powerlink and its contractors during the construction, operation, maintenance and decommissioning phases will be managed in strict accordance with Powerlink's Environmental Management System (EMS). In particular, implementation will be guided by the Banana Range Wind Farm Connection Project Environmental Management Plan (EMP; Powerlink Queensland, 2022) and associated Environmental Work Procedures (EWPs). These documents provide clear, enforceable measures to ensure that environmental risks are effectively managed, giving confidence that robust, established systems are in place to avoid and minimise impacts throughout the life of the project. Management measures provided in these documents include but are not limited to management of dust, noise and light impacts; management of erosion through the implementation of erosion and sediment control measures; topsoil management; chemical storage, spill containment and management requirements; traffic management including speed restrictions; weed and seed washdown requirements for machinery and vehicles; and designated construction working hours etc.
- During construction, the following mitigation measures will be employed:
    - Employing sensitive clearing techniques, including staged clearing in Koala habitat.
    - Having a Fauna Spotter Catcher undertake pre-clearance surveys and supervise clearing works.
    - Undertaking an animal breeding place survey within the disturbance footprint prior to clearing to identify breeding places potentially utilised by threatened species, special least concern species, colonial breeders or other least concern fauna. Where animal breeding places occur or are likely to occur, a Species Management Program through the Queensland Department of Environment, Tourism, Science and Innovation will be obtained to manage interactions with breeding places.
    - Undertaking pest animal and weed management during construction. A Construction Biosecurity Management Plan will be developed and implemented for the Project.
- Bushfire risk will be managed throughout the life of the Project, in accordance with Powerlink's Bushfire Mitigation Plan. This will include regular routine monitoring and maintenance to manage vegetation regrowth and bushfire hazard risks.

In consideration of impacts after avoidance and minimisation measures have been implemented, the Project is unlikely to have a significant impact on MNES based on the criteria within the *EPBC Act 1999 MNES Significant Impact Guidelines 1.1* (Department of Environment, 2013).

For MSES, the Project is unlikely to have a significant residual impact on MSES regulated vegetation (prescribed REs that intersect with a mapped wetland area), connectivity areas, waterways (waterway providing for fish passage) or wildlife habitat (a habitat for an endangered wildlife or vulnerable wildlife or special least concern animal). However for MSES regulated vegetation (prescribed REs that are endangered or of concern, and prescribed REs that are located within a defined distance from the defining banks of a watercourse or drainage feature), and wetlands (a wetland in a wetland protection area or a wetland of high ecological significance on the map of referrable wetlands), significant residual impacts are likely, based on the criteria within the *MSES Significant Residual Impact Guidelines* (SDIP, 2014). While this is the case, an offset under the *Environmental Offsets Act 2014* (Qld) would not be required for these impacts, with the Infrastructure Designation process under the *Planning Act 2016* (Qld) not considered a prescribed activity for the purpose of providing an offset for significant residual impacts to these prescribed environmental matters (recognised as MSES).

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Powerlink Queensland (Powerlink), the owner, developer and operator of Queensland's electricity transmission network has engaged Trend Environmental to undertake an ecological assessment for the development of a new 44 kilometre (km) 275 kilovolt (kV) double circuit transmission line. The line will extend along a new easement corridor from Powerlink's existing Calvale Substation (near Callide Power Station) to a new 275 kV substation adjacent to the Banana Range Wind Farm (BRWF Project).

The BRWF Project is located approximately 20 km west of Biloela in central Queensland and will be delivered in two stages. Stage 1 comprises 38 wind turbines with an output of 230 megawatts (MW) and has received all required planning approvals from the former Queensland Department of State Development, Manufacturing, Infrastructure and Planning and former Commonwealth Department of the Environment and Energy. Stage 2 comprises 37 wind turbines with an output of 222 MW, with approvals currently being sought.

EDF Renewables, the proponent of the BRWF Project, engaged Powerlink to connect the BRWF Project to the transmission network via the existing Calvale Substation, located approximately 35 km east of the BRWF Project. This connection will hereafter be referred to as the Project.

Powerlink has examined a range of connection options through preparation of a Corridor Selection Report (JBS&G 2022), which identified the most feasible solution being to construct a 44km transmission line. Expansion of the existing Calvale Substation will also be required to support the Project.

The location of the project area is shown in Map 1, Appendix G. Powerlink are seeking a Ministerial Infrastructure Designation (MID) for the Project in accordance with Chapter 2, Part 5 of the *Planning Act 2016* (Queensland; Qld).

1.2 PURPOSE OF THE ECOLOGICAL ASSESSMENT REPORT

The Corridor Selection Report identified that the project area has the potential to support ecological values protected under Commonwealth and State environmental legislation. The Project will require vegetation clearing, which has the potential to directly impact on ecological values that are considered Matters of National Environmental Significance (MNES) and Matters of State Environmental Significance (MSES).

MNES are protected under Commonwealth legislation, specifically the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act;* Commonwealth; Cth). The purpose of the *EPBC Act* is to protect and manage nationally and internationally recognised ecological values. The Act recognises nine MNES, including but not limited to listed threatened species and ecological communities, listed migratory species, RAMSAR wetlands and world heritage properties.

MSES are environmental or ecological values protected under the *Environmental Offsets Act 2014* (Qld) and various other State environmental legislation. MSES are defined in Schedule 2 of the *Environmental Offsets Regulation 2014* (Qld). The other legislation includes but are not limited to the *Nature Conservation Act 1992* (Qld), *Vegetation Management Act 1999* (Qld), *Fisheries Act 1994* (Qld), and *Environmental Protection Act 1994* (Qld). MSES can include but are not limited to regulated vegetation, connectivity, high ecological value wetlands and watercourses, and protected wildlife habitat.

The primary purpose of this Ecological Assessment Report is to document the ecological values (MNES and MSES) within the project area that are likely to be impacted by the Project, outline the potential for impacts to ecological values, and provide avoidance, minimisation and mitigation measures to reduce these impacts. This Ecological Assessment Report has been drafted to support the MID proposal and EPBC Referral for the Project.

The objectives of the ecological assessment were to:

- Undertake a desktop assessment (review of all available databases and relevant information) for the project area to identify the ecological values that are likely to occur and assess the potential for the project area to support

threatened ecological communities (TEC), and habitat for threatened and migratory species by undertaking a likelihood of occurrence assessment.

- Undertake a targeted field ecological assessment in accordance with relevant Commonwealth and State survey guidelines to verify the ecological values present within the project area.
- Prepare an Ecological Assessment Report to describe the methods implemented to complete the desktop and field assessment components, document the results of these assessments, determine the potential impacts from the Project, provide avoidance, minimisation and mitigation measures to reduce impacts, and undertake a significant impact assessment for MNES and a significant residual impact assessment for MSES.

1.3 TERMINOLOGY

The following terms have been adopted throughout this report, and shown on the various figures where relevant:

Easement: The registered easement in which Powerlink will have legal rights to access the land to carry out activities for the proposed transmission line. This easement will be 60m in width along the length of the 44 km transmission line.

Disturbance Footprint: The area within which associated works for the transmission line, substation and access tracks will be undertaken i.e., construction, operation and maintenance. This disturbance footprint will be cleared of all vegetation prior to construction of the transmission line. The width varies along the length of the transmission line to accommodate transmission tower benching and foundations, temporary assembly and erection zones, mid span additional sag and swing of conductors, and access tracks. The disturbance footprint will be the 'impact area' for the purpose of assessing significance of impacts to MNES and MSES.

Project area: The area surveyed by ecologists (either directly or indirectly), which was generally taken to be a 150 metre (m) buffer area (larger in some areas) around the disturbance footprint. The project area was used to adequately capture ecological values adjacent to the disturbance footprint to evaluate impacts upon ecological values.

Area of Interest: The broader locality within which the Project is located (i.e., Biloela), which acted as the buffer area for desktop searches. The area of interest is typically considered to be a 20 km buffer area, which provides context to the MNES and MSES within the project area.

Region: A 50 km buffer area used for defining nearby species records for the likelihood of occurrence assessment only.

1.4 ENVIRONMENTAL SETTING

The project area comprised four land parcel types: tenured land, roads, unlinked parcels, and unallocated State land (Map 2, Appendix G). The project area wraps around the town of Biloela, to the north. Biloela is located within the Banana Shire Council Local Government Area and the Brigalow Belt bioregion.

The catchment for the project area is the Fitzroy Basin. Two watercourses (defined under the *Water Act 2000;* Qld) and several ephemeral freshwater streams occur throughout the project area. The two defined watercourses are Kroombit Creek and Callide Creek (Map 3, Appendix G).

The land underlying the project area has been extensively cleared for pastoral or cropping land with scattered patches of remnant and regrowth vegetation remaining. The vegetation communities throughout the project area include Eucalypt dominant woodland to open forest, Brigalow dominant woodland to open forest, Eucalypt dominant riparian associated woodland, ephemeral wetlands, regrowth areas, farm dams, and cleared areas/ exotic grasslands.

1.5 BIOREGION AND SUBREGION

The project area is located within the Brigalow Belt bioregion (Brigalow Belt south; Map 1, Appendix G). It is located toward the eastern extent of the bioregion which is described as containing mixed landscapes including undulating to hilly areas with low ridges and deep valleys, as well as flat alluvial plains (Bastin *et. al.,* 2008).

The Brigalow Belt bioregion contains ranges that fringe or divide the three major catchments of Burdekin and Fitzroy in the north and Condamine-Warrego in the south. Away from the mountain chains and their associated gorges, the landscape is one of rolling plains (floodplains and downs) with low hills (see the digital elevation data map in Map 4, Appendix G).

The project area traverses three subregions within the Brigalow Belt bioregion, including Banana – Auburn Ranges, Callide Creek Downs and Mount Morgan Ranges. The project area primarily occurs within the Callide Creek Downs subregion, with the Banana – Auburn Ranges and Mount Morgan Ranges subregions intersecting at the very western and eastern extents.

The Callide Creek Downs subregion intersects the project area at elevations between 150 – 260 m Australian height datum, which predominantly consists of quaternary origin clay, silt, sand and gravel on flood-plain alluvium.

1.6 PROJECT DETAILS

1.6.1 Project Proponent

The owner, developer, operator and maintainer of the proposed transmission line is:

Powerlink Queensland
Address: 33 Harold St, Virginia Queensland 4014
PO Box 1193, Virginia Queensland 4014
Telephone: (07) 3860 2111, 1800 635 369
Website: www.powerlink.com.au

1.6.2 Design

The project area will consist of:

- Approximately 44 km of 275 kV double circuit transmission line, that will traverse from the existing Calvale Substation to the proposed BRWF Project (via the proposed Mount Benn Substation).
- A 275 kV substation proposed on Lot 47 on SP232217 which will contain a variety of equipment to monitor and control electricity flows, change voltage via power transformers and provide a location to physically connect new transmission lines.
- Expansion of the existing Calvale Substation on Lot 1 on CP890133.

The proposed transmission line will comprise steel lattice towers in a double circuit arrangement. Tower heights will vary depending on topography and land use features but will typically range from 40 – 60 m in height. Span distances between towers will also vary, with a typical distance on flat ground being 450 m.

The transmission line will be located within a 60m easement registered on each property title. This easement provides Powerlink with the legal right to access land and build, operate and maintain infrastructure within the easement. The disturbance footprint will be cleared to construct the transmission line and substations, and for ongoing maintenance to prevent vegetation contact with powerlines.

The proposed BRWF Substation will be approximately 300 x 500 m in size and is proposed to be constructed on Lot 47 on SP232217, within the western extent of the project area (shown on Map 2, Appendix G).

The proposed expansion to the Calvale Substation is approximately 200 x 100 m in size to allow for the construction of two additional bays (Map 2, Appendix G).

1.6.3 Construction

Typically, construction of the transmission line is undertaken in five stages, summarised below.

Stage 1 - Vegetation clearing and access tracks, including the crossing of watercourses

Vegetation is cleared along the corridor to enable the transmission line to be safely operated. Existing tracks will be used where possible and new tracks installed to provide access. Tracks are typically left in place following construction to facilitate ongoing access requirements for operation and maintenance activities.

Where the transmission line intersects watercourses, existing cleared tracks will be utilised wherever possible to minimise the need for new crossings. Where new crossings or upgrades to existing tracks are unavoidable, construction methods will be determined by the size of the watercourse and undertaken in accordance with the Queensland *Accepted Development Requirements for Operational Work that is Constructing or Raising Waterway Barrier Works* (DAF, 2018).

Standard construction of bed-level crossings typically involves excavating the channel bed to a suitable depth to establish a stable foundation. The excavated surface is lined with heavy-duty geofabric and backfilled with aggregate, incorporating a range of rock sizes (up to 150 millimetres) to ensure interlocking and stability. In cases where excavation is impractical due to unsuitable soil conditions, alternative approaches may be implemented, such as the use of bog mats or engineered geomaterials.

Stage 2 – Transmission tower benching and foundations

Bored foundations are most common and typically excavated down 8-12m depending on the underlying geology. Reinforcing steel is placed in the excavation and a jig set-up to ensure the tower leg stub is held in the correct orientation. Concrete is placed into the excavation with the foundation column finished slightly above ground level.

Stage 3 – Tower assembly and erection

Steel for lattice towers is fabricated, galvanised, sorted and bundled ready for delivery to each tower site. Tower assembly is carried out adjacent to the final site, whereby tower sections are lifted by crane into position and bolted together.

Stage 4 – Installation of conductor (powerline wires) onto the transmission tower

Conductors (or wires) are installed onto each tower in a process known as 'stringing' using either helicopter or drone stringing. Conductors are installed in sections along the line. A powerful winch is set up at one end of the section and a brake at the other. Pulleys are attached to the insulators on each tower cross arm and a small draw wire/rope is drawn through the pulleys, in some instances by a helicopter. The conductor is connected to the draw wire which is drawn through the winch. The winch pulls out the conductor under tension through each pulley on the tower. The conductor is then clamped in final position at the end of each insulator and equipment is repositioned to the next stringing section to repeat the process.

Stage 5 – Site rehabilitation and demobilisation

Reinstatement of all disturbed areas will be undertaken progressively during construction, where practicable. The short-term goal of reinstatement is the stabilisation of soils to provide a suitable matrix for vegetation establishment to aid in preventing erosion. Farm infrastructure is also replaced or reinstalled, and remediation of paddocks undertaken to allow farming activities to recommence.

REGULATORY FRAMEWORK

The environmental legislation described in Table 1 are relevant to the Project and were investigated to determine the potential constraints in terms of environmental approvals, based on potential impacts from the Project to ecological values.

Table 1 Relevant environmental legislation

	Legislation	Description	Relevance
COMMONWEALTH	*Environment Protection and Biodiversity Conservation Act 1999*	The purpose of the *EPBC Act* (Cth) is to protect and manage nationally and internationally important ecological values. These are considered MNES. The Act recognises nine MNES, including listed threatened species and communities, listed migratory species, RAMSAR wetlands and world heritage properties. The Act applies to all land tenures, where a development is likely to have a significant impact on an MNES, in which the project is to be referred to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for assessment as to whether the action is a 'controlled action' requiring Commonwealth approval. A protected matters database search can be conducted which lists all MNES that are considered known or likely to occur within a given area. This search identifies the MNES that are most relevant to the project which therefore have the potential to be impacted. Offsets under the *EPBC Act Environmental Offsets Policy* may apply to compensate for any significant impacts of a controlled action on an MNES after avoidance and mitigation measures have been employed.	A significant impact assessment is required for MNES found present or considered likely to occur within the disturbance footprint, which informs the requirement for an EPBC Referral. If impacts are deemed significant and they cannot be avoided minimised or mitigated, environmental offsets may apply under the *EPBC Act Environmental Offsets Policy.* The significant impact assessment for the Project is provided in *Section 9 Significant Impact Assessments.*
	Australian Weed Strategy	The Australian Weeds Strategy provides a framework to provide guidance and identify priorities for weed management on a national level, with the aim of minimising the impact of weeds on Australia's environmental, economic, and social assets. Under the Australian Weeds Strategy, 32 weeds of national significance (WoNS) are currently recognised. These weeds have been identified due to their invasiveness, potential for spread, and environmental and socio-economic impacts. A targeted plan for each WoNS is available.	The presence of WoNS within the disturbance footprint needs to be assessed prior to construction to ensure control strategies can be implemented to limit the spread of these invasive weeds. WoNS identified within the project area during ecological surveys are described within this report. WoNS identified during ecological surveys are described within *Section 5.7 Invasive species* of this report.
STATE	*The Planning Act 2016*	The *Planning Act 2016* (Qld) aims to establish an efficient and accountable system of land-use planning and development assessment, that balances the protection of ecological processes and economic development at local, regional, and State levels. The Act achieves this through State planning policies, planning schemes, and the development assessment system. The *Planning Regulation 2017* (Qld) sets out planning controls for proposed development under the Act, and defines prohibited, assessable, and accepted development when dealing with key ecological values (e.g., koala habitat in southeast Queensland, wetland protection areas and regulated vegetation), which are then assessed under separate legislation (e.g., the *Nature Conservation Act 1992, Vegetation Management Act 1999* or *Fisheries Act 1994).* Under the Act, infrastructure development under a designation (i.e., MID) is considered 'accepted' development, meaning no further development approvals are required under the *Planning Act 2016* (Qld). Therefore, any legislation relevant under the Act and Regulation aren't triggered.	Chapter 2, Part 5 of the *Planning Act 2016* (Qld) allows for the Minister of the Minister for State Development, Infrastructure and Planning (SDIP) to designate premises for the development of infrastructure, prescribed by Schedule 5 of the *Planning Regulation 2017* (Qld). The Project is defined as 'electricity operating works' under Schedule 5, Part 2, Item 7 of the Regulation and as such will be subject to designation. Hence, the Project will be considered 'accepted' development under the *Planning Act 2016* (Qld).

	Legislation	Description	Relevance
STATE	*Electricity Act 1994*	The *Electricity Act 1994* (Qld) sets out the requirements in which all electricity industry participants must follow to ensure a safe, efficient, and reliable supply of electricity. It also requires that the supply of electricity is undertaken in an environmentally sound manner.	Under section 31(1b) of the *Electricity Act 1994* (Qld), 'a transmission entity is required to properly consider the environmental effects of its activities under the transmission authority'. This Ecological Assesment Report has been prepared to assess the Projects impacts on environmental matters.
	Nature Conservation Act 1992	The purpose of the *Nature Conservation Act 1992* (Qld) is to protect Queensland's natural areas and biota, through the creation of national parks, reserves, conservation areas and the protection of threatened and special flora and fauna. The Act regulates development in protected areas and where protected species have been recorded by upholding a permit and licensing system for the taking and keeping of native wildlife. The Regulations *(Nature Conservation (Animals) and Nature Conservation (Plants) Regulations 2020)* provide lists of flora and fauna species that are extinct, extinct in the wild, critically endangered, vulnerable, near threatened, and special least concern. Should these species or their habitat be present in the vicinity of any project, this may result in permit requirements under the Act to interfere with them, such as Species Management Programs for interfering with animal breeding places. The Act also regulates development within koala habitat areas through the *Nature Conservation (Koala) Conservation Plan 2017,* and provides the flora survey trigger mapping, which shows 'high-risk' areas for protected plants (those protected under the Act) within non-protected areas, which is used to assist flora survey and clearing permit requirements for impacted developments.	The disturbance footprint contains high-risk mapping for protected plants on the flora survey trigger map. It is therefore a requirement that a flora survey be undertaken by a suitably qualified person prior to construction, and a clearing permit obtained, should protected plants be present. The disturbance footprint will also need to be assessed for animal breeding places prior to construction. Should these exist within the disturbance footprint and are likely to be impacted by construction, a Species Management Program will need to be obtained.
	Vegetation Management Act 1999	The purpose of the *Vegetation Management Act 1999* (Qld) is to regulate the clearing of native vegetation in Queensland, to conserve native vegetation, prevent the loss of biodiversity and maintain ecological processes. The Act applies to all vegetation, other than that in state forests, national parks and certain other tenures defined under the *Forestry Act 1959* (Qld) and the *Nature Conservation Act 1992* (Qld). The Act uses a series of maps to determine what vegetation is regulated and would require assessment should it be cleared for development. Regulated vegetation is categorised by its level of protection, including Category A (Vegetation offsets/compliance notices), Category B (Remnant), Category C (High-value regrowth), Category R (Reef regrowth watercourse), and Category X (Exempt clearing work on Freehold, Indigenous and Leasehold land). Categories containing remnant or regrowth vegetation are classified into protection types for regional ecosystems: endangered, of concern or least concern. The Act also regulates the clearing of vegetation that is considered essential habitat for species of State significance or intersects mapped wetlands and watercourses.	The Project is considered 'accepted' development under the *Planning Act 2016* (Qld) as it will be subject to a MID. Therefore, operational works within regulated vegetation areas specified within Part 3 of *Planning Regulation 2017* (Qld) do not require approvals for this Project. This is also listed under section 112A of the *Electricity Act 1994* (Qld), whereby the project is considered 'accepted development' for clearing native vegetation under the *Vegetation Management Act 1999* (Qld), on land that is designated by the Minister under the *Planning Act 2016* (Qld).
	Fisheries Act 1994	The *Fisheries Act 1994* (Qld) is responsible for ensuring Queensland fisheries resources remain economically viable and socially acceptable; and any development is ecologically sustainable. This Act regulates development which is likely to impact on marine plants (e.g., mangroves); fish passage when development is considered waterway barrier works; and declared fish habitat areas.	The Project is considered 'accepted' development under the *Planning Act 2016* (Qld) as it will be subject to a MID. Therefore, operational works within fisheries areas specified within Part 3 of *Planning Regulation 2017* (Qld) do not require approval for this Project. Any operational works within fisheries areas that are not included in the MID application, and that do not meet accepted development requirements, will require a development application.

	Legislation	Description	Relevance
STATE	*Environmental Protection Act 1994*	The *Environmental Protection Act 1994* (Qld) lists obligations and duties to prevent environmental harm, nuisances, and contamination. The Act provides the regulatory framework to help reduce and eliminate pollution into the air, land, and water. The Act provides maps under the *Environmental Protection Regulation 2019* (Qld) that identify the location of wetland protection areas (WPA), which are buffer areas that protect high ecologically significant (HES) wetlands from high impact earthworks, as defined under the *Planning Regulation 2017 (Qld).*	The Project is considered 'accepted' development under the *Planning Act 2017* (Qld) as it will be subject to a MID. Therefore, operational works that constitute high impact earthworks within WPAs specified within Part 3 of *Planning Regulation 2017* (Qld) do not require approval for this Project.
	Water Act 2000	The purpose of the *Water Act 2000 (Qld)* is to sustainably plan, manage and protect the state's water resources. Waters mapped in the watercourse identification map are protected. Activities within 'mapped' waters may require a Riverine Protection Permit, including activities such as destroying vegetation, excavating, or placing fill.	The Project is considered 'accepted' development under the *Planning Act 2016* (Qld) as it will be subject to a MID. Therefore, operational works within protected watercourses under the *Water Act 2000* (Qld) as specified within Part 3 of *Planning Regulation 2017* (Qld) do not require approvals for this Project. Also, an electrical entity under the *Electricity Act 1994* (Qld) is an approved entity considered exempt from applying for a Riverine Protection Permit under the *Water Act 2000* (Qld) where they meet the exemption conditions.
	Environmental Offsets Act 2014 (Qld)	Under the *Environmental Offsets Act 2014* (Qld), an environmental offset is defined as an activity undertaken to counterbalance a 'significant residual impact' of a prescribed activity on a prescribed environmental matter. An environmental offset may be required as a condition of an approval under various legislation, where following consideration of avoidance and mitigation measures, a prescribed activity is likely to result in a significant residual impact on a prescribed environmental matter. Significant residual impacts for prescribed activities listed in the *Planning Regulation 2017* (Qld) are determined through the application of criteria outlined in the *Significant Residual Impact Guidelines* (SDIP 2014). Prescribed activities that may require offsets are outlined in Schedule 1 of the *Environmental Offsets Regulation 2014 (Qld).* A prescribed environmental matter includes but is not limited to protected areas, endangered or vulnerable wildlife, essential habitat, prescribed regional ecosystems, connectivity areas, wetlands and watercourses, fish habitat areas, waterways for fish passage and marine plants.	Environmental offsets may be required if impacts from a prescribed activity on prescribed environmental matters under the *Environmental Offsets Act 2014 (Qld),* are deemed to be significant after avoidance and mitigation measure have been implemented. The Infrastructure Designation process under the *Planning Act 2016* (Qld) is not considered a prescribed activity for the purposes of providing an offset under the *Environmental Offset Act 2014* (Qld). Regardless, the avoid, minimise, mitigate approach to the Project should be employed. In this regard, a significant impact assessment should be completed to determine mitigation measures to reduce impacts on MSES. The significant residual impact assessment has been included within *Section 9 Significant Impact Assessments* of this Ecological Assessment Report. The Project will however be considered a prescribed activity for the following: • Impacts to protected areas as this will be conducted under an authority granted, made, issued or given under the *Nature Conservation Act 1992* (Qld), section 34 in a protected area. • The taking of a protected plant within the meaning of the *Nature Conservation Act 1992* (Qld; should these be confirmed within the clearing impact area and cannot be avoided) under a protected plant clearing permit under the *Nature Conservation (Plants) Regulation 2020* (Qld).

	Legislation	Description	Relevance
STATE	*Biosecurity Act 2014* (Qld)	The *Biosecurity Act 2014* (Qld) provides management measures to protect the environment from pests and diseases. Under the Act, invasive plants and animals are categorised as either a 'prohibited matter' or 'restricted matter'. Local governments in Queensland are required to develop a Biosecurity Plan to manage the matters that are present within the local area.	Invasive plants and animals need to be assessed in the project area to support the MID process. A Construction Biosecurity Management Plan should be developed to support construction of the Project and to achieve requirements under the *Biosecurity Act 2014* (Qld). Interfering with or moving biosecurity matters may require a biosecurity certificate or biosecurity instrument permit prior to construction.

METHODOLOGY

3.1 DESKTOP ASSESSMENT

3.1.1 Desktop Review

A desktop assessment was undertaken to characterise and identify ecological values that may be present within the project area. The desktop assessment included a review of literature, review of all relevant publicly available environmental databases, and maps to identify the ecological values that could potentially occur in the area of interest. The databases reviewed during the desktop assessment included those listed in Table 2 below.

Table 2 Information sources reviewed during the desktop assessment

Type	Source	
Database Searches	DCCEEW EPBC Act Protected Matters Search Tool (PMST; 20km buffer)	
	Queensland Wetland Environmental Values Maps (High and General Ecological Significant wetlands)	
	Queensland Waterways for Waterway Barrier Works Map	
	Fish Habitat Area Map	
	Watercourse Identification Map *(Water Act 2000;* Qld)	
	Department of Natural Resources, and Mines, Manufacturing and Regional and Rural Development Vegetation Mapping	Regulated Vegetation
		Regional Ecosystem
		Watercourse and wetland mapping
		Essential habitat and species records
	Matters of State Environmental Significance Report	
	Department of Environment, Tourism, Science and Innovation (DETSI) Protected Plants Flora Survey Trigger Map	
	DETSI WildNet Conservation Significant species record database (20 and 50 km buffers)	
	DETSI WildNet species record database (20 and 50 km buffers)	
	DETSI Biodiversity Planning Assessment (BPA) mapping to identify significant wildlife corridors and areas of State, regional and local biodiversity	
	Atlas of Living Australia Occurrence Records	
Aerial Imagery	Queensland Globe 2025	
	Google Earth Pro 2025	

3.1.2 Likelihood of Occurrence Assessment

Threatened ecological communities, and threatened and migratory species, if found present within the project area, can cause constraints to development due to the potential for impacts. From a desktop perspective, a likelihood of occurrence assessment can be undertaken to determine the likelihood these communities and species will be found within the project area, which provides an indication of potential impacts and the environmental approvals that might be required for the Project. This assessment also informs the field ecological assessment component of the Project.

The *EPBC Act* (Cth) PMST and WildNet species list were used to create a species list of potential occurrence, which were then assessed against the likelihood of occurrence criteria provided in Table 3 to determine likelihood of occurrence. The *EPBC Act* (Cth) PMST uses bio-climatic modelling to predict suitable habitat for MNES, and where MNES may be present but does not necessarily indicate the actual presence of MNES. Whilst the WildNet species list provides actual records (of both MNES and MSES threatened species) within a given search extent.

The desktop likelihood of occurrence assessment identified the species that were considered 'likely to occur', 'may occur' or 'unlikely to occur' within the area of interest, based on the criteria provided in Table 3. These criteria were used as a guide, and a species may have been given a different likelihood rating depending on behaviour (e.g., aerial or cryptic nature making it more or less likely to occur regardless of nearby records).

The results of the likelihood of occurrence assessment are provided in Appendix A. Following field surveys, the assessment was refined as the field-verified habitat differed significantly from the desktop-mapped vegetation communities. Consequently, the desktop ratings did not accurately reflect the threatened species most likely to occur within the project area. To address this, an additional category, 'recorded', was included to capture species directly observed during field surveys.

Table 3 Criteria used in the likelihood of occurrence assessment

Terms	Definition
Recorded	Species recorded within the project area during targeted field ecological surveys for the Project.
Likely to occur	The project area supports the species preferred habitat, with associated habitat attributes (e.g., microhabitats), AND recent (<10 years) and adjacent (<5km) individuals have been recorded in the area of interest.
May occur	• The project area contains suitable habitat AND historical records (>10 years) in an adjacent area OR recent records in the region (~50km radius). OR • The project area contains marginal suitable habitat AND recent records in an adjacent area.
Unlikely	• The project area does not support the species habitat and associated habitat features, regardless of species records within the adjacent area or within the region. OR • Marginal suitable habitat occurs but no records in the adjacent area or within the region.

3.2 FIELD ASSESSMENT

3.2.1 Methodology

The ecological field assessment was undertaken within the nominated project area by Trend Environmental's ecologists. To date there have been seven field surveys undertaken. These field surveys were undertaken in May, July, September, December 2023, January 2024 and August 2025.

The field surveys took place on accessible public and private land throughout the project area. All surveys were completed by persons suitably qualified and experienced in assessing terrestrial and aquatic ecosystems. The locations of the survey sites and project area are shown in Map 5, Appendix G. Some private land was not accessible for field surveys due to landholder access issues (these are also shown in Map 5, Appendix G. See the Assumptions and Limitations in *Section 3.4* for details on how ecological values on these properties have been extrapolated.

During the field surveys, the 44km project area (where land access was granted) was walked by ecologists. The following survey methods were employed:

Vegetation

- Quaternary surveys undertaken in accordance with the *Methodology of surveying and mapping regional ecosystems and vegetation communities* (Neldner et al., 2023a), within all vegetated areas, to verify the mapped REs and to characterise the floristic composition and structure of the vegetation communities.
- Vegetation categorisation surveys to characterise the vegetation into vegetation communities based on dominant canopy species and vegetation structures.
- Vegetation community delineation surveys to field validate the extent of the vegetation communities.
- Assessment of vegetation communities to confirm if they meet the key diagnostic criteria and condition thresholds of the TEC identified as likely to occur during the desktop assessment.
- Assessment of the suitability of the vegetation to provide habitat for threatened flora and fauna species listed under the *Nature Conservation Act 1992* (Qld) and/or the *EPBC Act* (Cth).

Flora and Fauna

- Meanders in accordance with the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) within areas identified as high-risk for protected plants under the *Nature Conservation Act 1992* (Qld).

- Identification of breeding places for fauna (including threatened and colonial breeding species).
- Targeted fauna surveys, undertaken in accordance with guidelines that include but are not limited to:
  - EPBC Act survey guidelines for Australia's threatened mammals (DSEWPC 2011a)
  - EPBC Act survey guidelines for Australia's threatened reptiles (DSEWPC 2011b)
  - EPBC Act survey guidelines for Australia's threatened bats (DEWHA 2010a)
  - EPBC Act survey guidelines for Australia's threatened birds (DEWHA 2010b)
  - A review of koala habitat assessment criteria and methods (Youngentob et. al., 2021)
  - Guide to Greater Glider Habitat in Queensland (Eyre et. al., 2022b)
  - Draft Referral Guidelines for the Nationally Listed Brigalow Belt Reptiles (DCCEEW 2023a)
  - Terrestrial Vertebrate Fauna Survey Guidelines for Queensland (Eyre et. al., 2022a).
- Recording of all flora and fauna species observed, as well as any restricted invasive species listed under the *Biosecurity Act 2014* (Qld), any pest species listed under the *Biosecurity Act 2014 (Qld)* or weeds considered Weeds of National Significance (WoNS).

Watercourse and Wetlands

- Watercourse determinations to delineate the defining banks.
- Wetland vegetation and condition assessments, and delineation of the defining banks.
- Aquatic ecology visual assessments and detection of aquatic threatened species habitat.

3.2.2 Survey Teams, Timing and Effort

Survey Teams and Timing

Seven surveys over four seasons were conducted for the Project. Table 4 provides the survey details and survey teams that were deployed for each survey event.

Table 4 Timing and survey team details

Season	Survey Number	Dates	Length
End of wet season (Autumn)	1	14-26 May 2023	13 days
Dry season (Winter)	2	10-11 July 2023	2 days
	3	20 -28 July 2023	9 days
Dry Season (Spring)	4	19-21 September 2023	3 days
Wet Season (Summer)	5	27-28 December 2023	2 days
	6	16-17 January 2024	2 days
Dry Season (Winter)	7	12-14 August 2025	3 days
		TOTAL	34 days

Survey Effort

To determine survey effort for the Project, the project area was delineated into assessment units (AU) which were derived from the dominant broad vegetation group (BVG) at a scale of 1:1,000,000. Table 5 lists the assessment units for the project area and their size. Note, areas of Category R regulated vegetation were removed from these area calculations as these mapped areas are associated with a defined distance of a watercourse, rather than associated with actual remnant or regrowth vegetation. Where the area of some BVGs were small or similar in type, these were grouped.

The project area contained 237.29 ha of desktop mapped remnant vegetation, and 1,659.49 ha of non-remnant areas typically associated with agricultural land or roads. While the total project area comprised 1,896.78 ha. There was 245 ha that could not be accessed through the Land Access process organised by Powerlink. The surveyable area of 1,651.78 ha was primarily derived by buffering the 60 m easement and proposed BRWF Substation by 150 m (which was deemed sufficient to account for any future alignment changes and be of an appropriate buffer size to accommodate the 'clearing impact area' under the Protected Plant Flora Survey Guidelines (Department of Environment and Science, 2020) for any mapped high-risk areas.

To meet guideline survey requirements, as per the *Methodology for surveying and mapping regional ecosystems and vegetation communities in Queensland (Neldner et al., 2023a)*, an observation density of 0.25 -1 sites/ha for map scales of 1:5000 and 1:10,000 is required. The aim was to assess any patch of remnant or regrowth vegetation within the project area, which resulted in an observation density of at more than one site/ha, above that required under the methodology. Table 6 describes the survey effort undertaken within each assessment unit. Survey effort is shown on Map 5, Appendix G.

Table 5
Assessment units defined by BVG within the desktop mapped project area

AU[1]	BVG[2]	Description	Project Area (ha)
AU01	16a	*Open forests and woodlands dominated by Eucalyptus camaldulensis (River Red Gum) (or E. tereticornis (Blue Gum)) and/or E. coolabah (Coolibah) (or E. microtheca (Coolabah)) fringing drainage lines.*	58.84
	16c	*Woodlands and open woodlands dominated by Eucalyptus coolabah or E. microtheca or E. largiflorens (Black Box) or E. tereticornis or E. chlorophylla on floodplains*	35.46
	13c	*Woodlands of Eucalyptus crebra (Narrow-leaved Red Ironbark), E. drepanophylla (Rrey Ironbark), E. fibrosa (Dusky-leaved Ironbark), E. shirleyi (Shirley's Silver-leaved ironbark) on granitic and metamorphic ranges*	0.11
AU02	17a	*Eucalyptus populnea (Poplar Box) or Eucalyptus melanophloia (Silver-leaved Ironbark) or Eucalyptus whitei (White's Ironbark) dry to open woodlands on sandplains or depositional plains*	11.87
AU03	17b	*Woodlands to open woodlands dominated by Eucalyptus melanophloia or E. shirleyi in sand plains and foot slopes of hills and ranges*	48.33
AU04	25a	*Open forests to woodlands dominated by Acacia harpophylla (Brigalow) sometimes with Casuarina cristata (Belah) on heavy clay soils. Includes areas co- dominated with A. cambagei (Gidgee) and/or emergent eucalypts*	75.01
AU05	7a	*Semi-evergreen vine thickets on wide range of substrates*	3.15
AU06	Non-remnant	*A varied mix of land types and uses including cropping, grazing land and farm dams.*	1,659.49
AU07	Water	*Watercourses. Targeted for threatened turtle assessments.*	4.52
		TOTAL	**1,896.78**

[1] *AU = Assessment Unit*
[2] *BVG = Broad Vegetation Group*

Table 6
Survey effort

Survey Type	Target Groups	Justification	Survey Effort
General vegetation assessments	All remnant and regrowth areas	Vegetation assessments were undertaken using Quaternary assessments (Neldner et al., 2023a) and identified the structural composition and species within a vegetated patch. The vegetation assessments were supplemented using desktop information, including: • Normalised difference vegetation index (NDVI) derived from Sentinel-2 band reflectance data; • Topographic Position Index (TPI) land form mapping derived from Digital Elevation Model (DEM) data on Elvis; • Geological band indexing (e.g., SWIR-2 (B12), SWIR-1 (B11), and blue (B2) composite) derived from Sentinel-2 band reflectance data; and • Years since disturbance (2020), from Queensland Spatial. Vegetation is a known predictor of fauna and flora habitat (Laidlaw & Butler, 2021), hence, these assessments informed the habitat suitability for targeted threatened flora and fauna species.	215 assessments in vegetated AUs (AU1 – AU4)
TEC verification	Any suspected TEC areas	Each patch of suspected TEC was evaluated against the key diagnostic criteria and condition thresholds within the relevant DCCEEW Conservation or Listing Advice. These data were then vetted using Geographic Information Systems (GIS) techniques (e.g., Statewide Landcover and Trees Study [SLATS] Foliage Projection Cover data) to include/exclude areas based on condition and area extent.	18 TEC assessments

Survey Type	Target Groups	Justification	Survey Effort
Flora survey	Protected plants	A flora survey for protected plants was undertaken in mapped high-risk areas for protected plants in the eastern part of the project area . The flora survey was conducted in accordance with the *Flora Survey Guidelines - Protected Plants (Department of Environment and Science, 2020).* In addition, meanders in accordance with the guideline were undertaken within areas of suitable habitat for threatened flora species identified as likely to occur within the likelihood of occurrence assessment (where no high-risk areas were mapped), to detect presence of these species.	1 Flora Survey
Fauna habitat assessments	Threatened fauna	Habitat assessments focused on micro-habitat features within each vegetation patch to determine suitability for threatened fauna species.	46 points in vegetated AUs
Scat and sign searches	All fauna	Incidental searches included looking for signs of animal activity, including tracks, scats, scratches, nests, and burrows. Searches were usually conducted during vegetation assessments, fauna habitat assessments and active searches, as well as sporadic, opportunistic searches within suitable habitat. A precise survey effort is therefore unknown.	>50 points in vegetated AUs
Active searches	Reptiles and amphibians including threatened species.	Non-destructive active searches of all micro-habitat features within an area by two personnel for 15-minute periods to detect presence of targeted fauna, especially the Collared Delma *(Delma torquata) and* Ornamental Snake *(Denisonia maculata).* To target threatened reptiles, searches focused on preferred habitats and key habitat features such as dense leaf litter and fallen woody debris, rocky areas and crevices, hollow logs and burrows.	132 active searches, 66 survey hours at all parts of the day and over multiple survey events (all AUs).
Tile grid survey	Collared Delma	Active searches failed to detect the Collared Delma in habitat that had some characteristics similar to Specimen Hill Wind Farm where the species was found 25 km to the east of the project area (EMM, 2020). Therefore, additional survey effort was employed to ensure our targeted efforts were sufficient to determine this species presence/absence. Tile grid surveys were implemented as a supplementary targeted effort. Each tile grid comprised 50 tiles in a grid format (where possible tiles were placed 5 m apart and targeted to rocky habitat areas) in accordance with the methods defined in the *Draft Referral Guidelines for Brigalow Belt Reptiles* (DCCEEW, 2023).	Six tile grids in marginal habitat for the Collared Delma in the eastern part of the project area. Deployed Sept – March. 650 survey nights.
Microhabitat assessments	Collared Delma	To overcome the conflicting advice regarding preferred habitat for the Collared Delma between Commonwealth guidelines and other studies completed on the species to date, a literature review was undertaken based on all publicly available data and reports to define known habitat for the species and define microhabitat features that have been recorded as present where the species has been confirmed to date. The results of this literature review are provided in Appendix F, with the definition of preferred microhabitat features used to refine Collared Delma habitat within the project area for this Project. The microhabitat assessment involved recording the presence of these microhabitat features throughout the eastern part of the project area to refine habitat mapping for the Collared Delma. Microhabitat features recorded included: • RE, landzone and vegetation community, including status – i.e., remnant, regrowth or non-remnant • Aspect type e.g., ridge, slope, flat, depression • Soil type • Rock type e.g., gravel, sedimentary, metamorphic • Tree and shrub canopy cover	15 Microhabitat assessments in the eastern part of the project area.

Survey Type	Target Groups	Justification	Survey Effort
		• Percentage of terrestrial habitat features e.g., thick leaf litter, surface rocks, boulder rocks, hollow logs, coarse woody debris, cracking clay soils, tussocking native grasses. • Percentage distribution of rock sizes e.g., 0-10cm, 11-30cm, 31-100cm and >100cm. • Evidence of disturbance e.g., logging, fire, grazing, weed infestation, drought, flood.	
Turtle habitat evaluation	Threatened Fitzroy River and Southern Snapping Turtles	Evaluation of the suitability of a watercourse to support threatened turtle species. These surveys were not to negate presence but simply establish habitat suitability.	Five points performed in watercourses (AU6)
Spotlighting	Nocturnal fauna, including threatened species	Spotlighting transects were performed by at least two people per spotlighting event, approximately 50 m apart in suitable habitat areas of targeted threatened nocturnal species (e.g., Northern Quoll *[Dasyurus hallucatus],* Koala *[Phascolarctos cinereus],* Greater Glider *[Petauroides volans],* and Ornamental Snake).	32 person hours, eight nights and multiple survey events (AU02, AU03 and AU04).
Anabat	Bats, including threatened bats.	An acoustic bat detection device was used to determine the potential presence of threatened bat species. One Anabat Swift device was deployed in suitable habitat throughout the surveys.	22 trap nights in AU02.
Bird surveys	Avian species	Standardised bird surveys were undertaken in accordance with the Birdlife Australia methodology, which involved two personnel undertaking 2ha / 20minute standardized surveys adjacent to each other (i.e., 4ha/20min), whereby each observer recorded the number and species of birds observed.	46 points, ~15 person hours over multiple survey events (all AUs)
Flushing surveys	Squatter Pigeon (Geophaps scripta scripta)	Two or more ecologists walked the 44km project area over four seasons conducting flushing surveys for the Squatter Pigeon (Geophaps scripta scripta).	>220 survey hours over multiple survey events
Infrared camera	All, particularly the threatened Northern Quoll	Infrared camera traps were deployed and baited with a fish-based bait (target being the threatened Northern Quoll) to capture diurnal and nocturnal fauna.	30 trap nights in AU02.
Incidental Observations	All flora and fauna	All fauna observed incidentally within the project area were recorded.	-

Targeted Survey Effort

The desktop likelihood of occurrence assessment identified six threatened flora species, one TEC, ten threatened fauna, one special least concern fauna, and three migratory species as either being recorded, likely to occur or may occur within the project area (Appendix A and Table 7). These species were the subject of targeted survey effort in accordance with relevant Commonwealth and/or State survey guidelines to determine their presence within the project area. Table 7 details the habitat descriptions used for each species to target survey effort, any known important populations or habitat critical to the survival of each species defined in approved Conservation Advice or Recovery Plans, the Commonwealth and State targeted species guidelines, and the survey effort undertaken for each species within the project area.

Table 7 Targeted survey effort for Commonwealth and State-listed conservation significant flora and fauna species and ecological communities predicted to occur

Family	Scientific Name	Common Name	Status QLD^	Status CTH*	Likelihood of Occurrence*	Critical or Important Habitat Definition	Defined Species Habitat	Targeted Survey Guidelines QLD	Targeted Survey Guidelines CTH	Effort Undertaken
PLANTS										
Acanthaceae	*Xerothamnella herbacea*	-	EN	EN	May occur	Not defined	Brigalow dominated communities in gilgai areas on soils that are heavy, grey to dark brown clays (Queensland Herbarium 2008). Within the project area this included REs 11.4.9b.	Protected Plant Flora Survey guidelines in mapped high-risk areas[1]	Not defined	Extensive surveying completed: • 44km project area walked (>220 hours) • 215 vegetation assessments • One Flora survey in high-risk areas, in accordance with Queensland Protected Plant Flora Survey Guidelines (i.e., meanders) • Incidental records
Leguminosae	*Acacia pedleyi*	Pedley's Wattle	EN	-	Likely to occur	Not defined	Alluvial flats, hill slopes and tops of ridges in open forest and woodland communities.			
Simaroubaceae	*Samadera bidwillii*	Quassia	VU	VU	Likely to occur	Not defined	Rainforest margins, open forests, woodlands near watercourses. This included REs 11.3.4 and 11.3.25 near Callide and Kroombit Creeks in the centre and eastern parts of the project area , and patches of RE11.3.1 scattered throughout the project area .			
Solanaceae	*Solanum dissectum*	-	EN	EN	Likely to occur	Not defined	Open forest and woodland habitats of Brigalow and Lapunyah *(Eucalyptus thozetiana)* on solodic clay soils. Within the project area this included REs 11.4.9b and 11.9.1.			
Solanaceae	*Solanum elachophyllum*	-	EN	-	Likely to occur	Not defined				
Solanaceae	*Solanum johnsonianum*	-	EN	EN	Likely to occur	Not defined				
THREATENED ECOLOGICAL COMMUNITIES										
Brigalow (*Acacia harpophylla* dominant or co-dominant) TEC			-	EN	Recorded	Areas **critical to the survival** of the ecological community are all patches that meet the key diagnostic criteria and conditions thresholds[2]	As per the key diagnostic criteria and condition thresholds in the Approved Conservation Advice for Brigalow (*Acacia harpophylla* dominant or co-dominant) TEC.	Not protected under Queensland legislation	Comparison to key diagnostic criteria and conditions thresholds	• 215 vegetation assessments • 18 TEC assessments in suspect Brigalow TEC patches • No corresponding REs confirmed within the project area for the other TECs.
Poplar Box Grassy Woodland on Alluvial Plains) TEC			-	EN	Likely to occur	Areas that meet the minimum condition thresholds (i.e. moderate condition class), or are within the buffer zone, are considered habitat **critical to the survival** of the community[3]	As per the key diagnostic criteria and condition thresholds in the Draft conservation advice for Poplar Box Grassy Woodlands on Alluvial Plains TEC.			
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions) TEC			-	EN	Likely to occur	Given the very restricted and fragmented distribution of Semi-evergreen Vine Thickets, all areas that meet the definition of this ecological community are considered habitat **critical for the community's long-term survival**[4]	As per the description in the Approved Conservation Advice1 for Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.			
Weeping Myall Woodlands TEC			-	EN	Likely to occur	Not defined	As per the description and condition classes in the Listing Advice for the Weeping Myall Woodlands TEC			
BIRDS										
Apodidae	*Hirundapus caudacutus*	White-throated Needletail	VU	VU	Likely to occur	**Important habitat** defined as non-breeding habitat only. Species is found across a range of habitats, more often over wooded areas, where it is almost exclusively aerial. Large tracts of native vegetation, particularly forest, may be a key habitat requirement for species. Found to roost in tree hollows in tall trees on ridge-tops, on bark or rock faces. Appears to have traditional roost sites. **Ecologically significant proportion of population** is 100 individuals (1% of population)[5]	The species does not breed in Australia. The following habitat definition has been used for the species: • **Roosting and foraging habitat:** Areas containing tall and/or hollow bearing trees at high elevations including the top of ridges, peaks and mountains. • **Foraging and dispersal habitat:** A range of habitats, although more often over wooded areas, where it is almost exclusively aerial.	Not defined	Not defined	• 44km project area walked recording incidentals (>220 hours). • 46 Bird plot surveys. 16 survey hours over multiple survey events. • 46 Fauna habitat assessments

[1] *Department of Environment, Science and Innovation. (DESI; 2020). Flora Survey Guidelines – Protected Plants. Wildlife and Threatened Species Operations, Department of Environment and Science.*
[2] *Department of the Environment. (DoE; 2013). Approved Conservation Advice for Brigalow (Acacia harpophylla dominant or co-dominant) TEC.*
[3] *Threatened Species Scientific Committee (TSSC 2013). Draft conservation advice for Poplar Box Grassy Woodlands on Alluvial Plains TEC.*
[4] *Threatened Species Scientific Committee (TSSC 2023). Approved Conservation Advice for Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions In effect as the Approved Conservation Advice under the Environment Protection and Biodiversity Conservation Act 1999 from 31 August 2023.*
[5] *Department of Environment. (DoE; 2015). Referral Guidelines for 14 birds listed as migratory species under the EPBC Act.*

Family	Scientific Name	Common Name	Status QLD^	Status CTH*	Likelihood of Occurrence*	Critical or Important Habitat Definition	Defined Species Habitat	Targeted Survey Guidelines QLD	Targeted Survey Guidelines CTH	Effort Undertaken
Columbidae	*Geophaps scripta scripta*	Squatter Pigeon (southern)	VU	VU	Recorded	No critical habitat for the survival of the species has been defined. And no important habitat has been defined. An **important population** is defined as the southern boundary of its known distribution (southern Queensland). Therefore, all of the relatively small, isolated and sparsely distributed sub-populations occurring south of the Carnarvon Ranges in Central Queensland are considered to be important sub-populations of the subspecies (Squatter Pigeon Workshop, 2011). This includes, but is not limited to: • Populations occurring in the Condamine River catchment and Darling Downs of southern Queensland; • The populations known to occur in the Warwick-Inglewood-Texas region of southern Queensland; and • Any populations potentially occurring in northern NSW.	The following habitat definition has been used for the species: • **Breeding habitat:** Any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by Eucalyptus, Corymbia, Acacia or Callitris species, on sandy or gravelly soils with patchy perennial tussock grasses or a mix of perennial tussock grasses and low shrubs and forbs (including but not limited to areas mapped as Queensland land zones 3, 5 or 7). • **Foraging habitat:** Any remnant or regrowth open-forest to sparse, open-woodland or scrub dominated by Eucalyptus, Corymbia, Acacia or Callitris species, on sandy or gravelly soils with patchy perennial tussock grasses or a mix of perennial tussock grasses and low shrubs and forbs within 1 – 3 km from permanent and seasonal water (including but not limited to areas mapped as Queensland land zones 3, 5 or 7). • **Dispersal habitat:** Any forest or woodland occurring between patches of foraging or breeding habitat that facilitates movement between patches of foraging habitat, breeding habitat and/or waterbodies, and areas of cleared land.	Not defined.	• Area searches and transect surveys (15 hours over 3 days) in areas <50ha • Flushing surveys (10 hours over 3 days) in areas <50ha[6]	• 46 Bird plot surveys. 16 survey hours over multiple survey events. • Flushing surveys – 44km project area walked (>220 hours) • 46 Fauna habitat assessments • Incidental records
Meliphagidae	*Grantiella picta*	Painted Honeyeater	VU	VU	Recorded	**Habitat critical for survival** includes breeding habitat, foraging habitat where mistletoes are present[7] No important populations have been defined for the species.	The following habitat definition has been used for the species: • **Breeding habitat** Breeding occurs south of 26°S, on inland slopes of the Great Dividing Range between the Grampians, Victoria and Roma, Queensland (Higgins et. al., 2001). Breeding habitat includes woodland ecosystems, as well as riparian woodlands and Acacia scrubs. The species relies heavily on grey mistletoe *(Amyema quandang)* and needle-leaf mistletoe *(Amyema cambagei)* for breeding and foraging. • **Foraging and dispersal habitat** Connected eucalypt, Acacia and Casuarina forest and woodlands where an abundance of mistletoe resources present	Area searches during breeding season (4 hours over 4 days).[8]	Not defined, but surveys for other honeyeater (Helmeted Honeyeater) include: • Area searches and transects (8hrs over 2 days) in <50ha	• 44km project area walked recording incidentals (>220 hours) • 46 Bird plot surveys. 16 survey hours over multiple survey events. • 46 Fauna habitat assessments • Incidental records
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	SLC	VU, M, Mi	May occur	No Critical Habitat as defined under section 207A of the EPBC Act has been identified or included in the Register of Critical Habitat. Wetland habitat is considered internationally important if it regularly supports: • 1% of the individuals in a population (850 individuals for the Sharp-tailed Sandpiper); or • A total abundance of at least 20,000 waterbirds. Wetland habitat is considered Nationally important habitat if it regularly supports: • 0.1% of the flyway population of a single species of migratory shorebird (85 individuals for the Sharp-tailed Sandpiper); or • 2,000 migratory shorebirds; or • 15 migratory shorebird species. All internationally or nationally important habitat that exceeds the above thresholds is considered habitat critical to the survival of the species.	Habitat for this species has been defined as permanent or semi-permanent inland and coastal freshwater or saline habitats.	Not defined.	• Observation using telescope from vantage points overlooking suitable foraging or roosting habitat at appropriate periods of the tidal cycle. • Transect surveys by boat around offshore islands, lake shores, coastlines and rivers. • Aerial surveys of foraging habitat in large or remote study areas at the appropriate period of the tidal cycle.[6]	Suitable freshwater habitat (e.g., Lake Callide) occurred adjacent to the project area. Limited to no habitat for the species within the project area to warrant targeted surveys as defined in the guidelines. Instead the following generic methods were utilised: • 44km project area walked recording incidentals (>220 hours) • 46 Bird plot surveys. 16 survey hours over multiple survey events. • 46 Fauna habitat assessments • Incidental records

[6] *Department of Environment, Water, Heritage and the Arts. (DEWHA; 2010). Survey Guidelines for Australia's Threatened Birds.*
[7] *Department of Agriculture, Water and the Environment (DAWE; 2021). National Recovery Plan for the Painted Honeyeater*
[8] *Rowland, J. (2012). Painted honeyeater, Grantiella picta. Targeted species survey guidelines. Queensland Herbarium, Department of Environment and Science, Brisbane.*

Family	Scientific Name	Common Name	Status QLD^	Status CTH^	Likelihood of Occurrence*	Critical or Important Habitat Definition	Defined Species Habitat	Targeted Survey Guidelines QLD	Targeted Survey Guidelines CTH	Effort Undertaken
MAMMALS										
Dasyuridae	*Dasyurus hallucatus*	Northern Quoll	LC	EN	May occur	Critical habitat is where they are least exposed to threats or least likely to be in the future (e.g., rocky areas and offshore islands)[9] Important populations include: • Remnant populations that persist alongside threats. • Populations that may be exposed to threats in the future but have the potential to persist (based on habitat). • Offshore island populations in the NT and WA that aren't subject to threats. • Populations in the Pilbara, WA, as these are outside the predicted range of Cane Toads.[9]	The following habitat definition has been used for the species: • **Denning and refuge:** Rocky habitats (such as major drainage lines or treed creek lines) and structurally diverse woodlands with moderate to high density of denning opportunities (i.e. large diameter trees, termite mounds, large hollow logs). Also includes vine thicket. • **Foraging and dispersal** Any land comprising predominantly native vegetation within 1 km of denning and refuge habitat.	Not defined	• Cage trapping in extensive habitat areas • Daytime searches of areas with extensive rock outcrops and boulders • Daytime searches for latrines (scat) • Remote cameras • Spotlight surveys (survey at least 2 x 200m transects per 5 ha)14	• A lack of rocky habitat in the project area. Focus for targeted efforts was eastern project area where vegetation was intact and connected to the Kroombit Tops Quoll population: • Cage trapping deemed not suitable due lack of rock outcrops. • 44km project area walked recording incidentals (>220hrs) • >50 scat and sign searches for latrines • 32 spotlight survey hours (covering ~34.8km) over multiple survey events • 30 remote camera trap nights • Incidental records
Phascolarctidae	*Phascolarctos cinereus*	Koala	EN	EN	Recorded	**Habitat critical for survival** includes coastal and inland areas that are typically characterised by *Eucalypt* forests and woodlands. It is defined as areas that the species relies on to avoid or halt decline and promote recovery of the species. **Important population** defined as those that are valued for cultural, social and economic reasons. In Qld, priority areas are identified as SEQ[10]	The following habitat definition has been used for the species: • **Breeding and foraging habitat**: All remnant and high-value regrowth forest or woodland containing species that are locally important koala food and habitat trees (trees of the genus Eucalyptus, Corymbia and Angophora). • **Climate refugia:** Forests or woodlands on drainage lines or riparian zones that are resilient to drying conditions, likely to provide a cooler refuge during periods of bushfire and heatwaves, including but not limited to regional ecosystems on land zone 3. Some areas of climate refugia may also be breeding and foraging depending on position in landscape. From an impact calculation perspective breeding and foraging habitat, and climate refugia will only be counted for one utilisation type. • **Dispersal habitat:** Vegetation that provides a safe intervening ground for the species to move across the landscape (i.e. free from impediments), particularly to and from areas of climate refugia and breeding and foraging habitat. This includes non-remnant shrublands and grasslands, which may support sporadic small stands of trees and/or individual paddock trees.	Not defined	Koala occurrence and presence of locally important food trees and ancillary habitat trees is a strong indicator of koala habitat[11]	• 46 Fauna habitat assessments to determine presence of food and habitat trees • 44km project area walked recording incidentals (>220 hr) • 32 spotlighting survey hours (covering ~34.8km) over multiple survey events • >50 scat and sign searches • Incidental records

[9] *Department of the Environment. (DoE; 2016). National Recovery Plan for the Northern Quoll, Dasyurus hallucatus*
[10] *Department of Agriculture, Water and Environment. (DAWE; 2022). Conservation Advice for the Koala*
[11] *Youngentob, K.N, Marsh, K.F., Skewes, J., (2021). A Review of koala habitat assessment criteria and methods. Report prepared for the Department of Agriculture, Water and the Environment, Canberra, November. CC BY 4.0.*

Family	Scientific Name	Common Name	Status		Likelihood of Occurrence*	Critical or Important Habitat Definition	Defined Species Habitat	Targeted Survey Guidelines		Effort Undertaken
			QLD^	CTH^				QLD	CTH	
Pseudocheiridae	*Petauroides volans*	Greater Glider (southern/central)	EN	EN	May occur	**Habitat critical for survival** includes: • Large contiguous areas of eucalypt forest, which contain mature hollow-bearing trees and a diverse range of the species' preferred food species in a particular region; and • Smaller or fragmented habitat patches connected to larger patches of habitat, that can facilitate dispersal of the species and/or that enable recolonization; and • Cool microclimate forest/woodland areas (e.g. protected gullies, sheltered high elevation areas, coastal lowland areas, southern slopes); and • Areas identified as refuges under future climate changes scenarios; and • Short-term or long-term post-fire refuges (i.e. unburnt habitat within or adjacent to recently burnt landscapes) that allow the species to persist, recover and recolonise burnt areas. **All populations are important.** Important habitat not defined for the species [12]	The following habitat definition has been used for the species: • **Likely and current denning and foraging habitat:** Eucalypt forests and woodlands in Qld REs considered habitat or potential habitat as per the Species Specific Guidance – Greater Glider habitats in Qld containing trees with a DBH greater than 30 cm (used as a proxy for hollow-bearing trees). (Note literature states >30cm DBH preferentially selected for foraging (Eyre et al 2022) and >50cm DBH for denning, as more likely to contain suitable hollows for sheltering). • **Potential future denning and foraging, including dispersal habitat:** Eucalypt forest and woodland where known important tree species for foraging are dominant/co-dominant AND in Qld REs considered habitat or potential habitat as per the Species Specific Guidance - Greater Glider habitats in Qld AND where the trees present do not have a DBH greater than 30 cm.	Not defined	• Define habitat as denning and foraging habitat that supports suitable Eucalypt species with a DBH >50cm or >30cm respectively[13] • To detect the species - Spotlight surveys (At least 2 x 200m transects per 5 ha) [14]	• 46 Fauna habitat assessments that determine presence of suitable denning and foraging habitat • 32 spotlighting survey hours (covering ~34.8km) over multiple survey events. • Incidental records
Tachyglossidae	*Tachyglossus aculeatus*	Short-beaked Echidna	SLC	-	Likely to occur	Not defined	A diverse range of habitat including forests and woodlands, heath, grasslands and arid environments.	Not defined	Not defined	• 44km project area walked recording incidentals (>220 hr) • 46 Fauna habitat assessments that determine presence of suitable denning and foraging habitat • 32 spotlighting survey hours (covering ~34.8km) over multiple survey events • >50 scat and sign searches • Incidental records
REPTILES										
Chelidae	*Elseya albagula*	Southern Snapping Turtle	CR	CE	May occur	**Important populations** are all populations within Mary, Burnett and Fitzroy River Catchments.[15]. Important habitat is all in stream and adjacent banks to within 50m[15]. **Habitat critical for the survival** of the species includes: • Parts of riverine systems with permanent water that contains shelter and refuges (e.g., bank overhangs, submerged boulders). • All currently known and new aggregated nesting sites[16].	Semi-permanent and permanent watercourses within the Mary, Burnett or Fitzroy River Basins that contain deep pools and an abundance of submerged microhabitat, and suitable nesting sites such as sandy banks.	Not defined	Snorkelling, dip netting, seine netting, trapping and muddling (hand searching)[16]	Survey guidelines not met as: • Direct detection considered unnecessary due to project not directly impacting watercourses. • Watercourses present in the project area were ephemeral with no deep pools or sandy banks present. Instead, five Aquatic Turtle habitat evaluation points were undertaken in Kroombit and Callide Creeks to determine habitat suitability and likelihood of occurrence.

[12] *Department of Climate Change, Energy , the Environment and Water. (DCCEEW; 2022). Conservation Advice for the Greater Glider*
[13] *Eyre, T.J., Smith, G.C., Venz, M.F., Mathieson, M.T., Hogan, L.D., Starr, C., Winter, J. and McDonald, K. (2022). Guide to greater glider habitat in Queensland, report prepared for the Department of Agriculture, Water and the Environment, Canberra. Department of Environment and Science, Queensland Government, Brisbane. CC BY 4.0.*
[14] *Department of Sustainability, Environment, Water, Population and Communities. (DSEWPC; 2011). Survey Guidelines for Australia's Threatened Mammals*
[15] *Department of the Environment. (DoE; 2014). Conservation Advice for the White-throated Snapping Turtle, Elseya albagula.*
[16] *Department of Agriculture, Water and the Environment (DAWE; 2020). National Recovery Plan for the White-throated Snapping turtle (Elseya albagula)*

Family	Scientific Name	Common Name	Status QLD^	Status CTH*	Likelihood of Occurrence+	Critical or Important Habitat Definition	Defined Species Habitat	Targeted Survey Guidelines QLD	Targeted Survey Guidelines CTH	Effort Undertaken
Elapidae	*Denisonia maculata*	Ornamental Snake	VU	VU	May occur	No critical habitat for the survival of the species has been defined. **Important habitat** identified as gilgai depressions and mounds (DCCEEW, 2023). Habitat connectivity between gilgais and other suitable habitats is also important.[17] As the Ornamental Snake is difficult to detect and population information is limited, the Department regards **important habitat as a surrogate for important populations** in the assessment of whether an action is likely to have a significant impact on this species. Suitable habitat for this species is considered important if it is: • Habitat where the species has been identified during a survey; • Near the limit of the species' known range; • Large patches of contiguous, suitable habitat and viable landscape corridors (necessary for the purposes of breeding, dispersal or maintaining the genetic diversity of the species over successive generations); or • A habitat type where the species is identified during a survey but was previously thought not to support the species (DCCEEW, 2023).[17]	Habitat for the Ornamental Snake has been broadly defined as Open-forests to woodlands associated with gilgai formations and wetlands. These are commonly mapped as QLD REs 11.3.3, 11.4.3, 11.4.6, 11.4.8, 11.4.9, 11.5.16 or mapped as cleared but where these REs formerly occurred (DCCEEW, 2023).[17]	Not defined.	• One-off diurnal searches (1.5 person hours per ha over 3 days). • Spotlighting (1.5 person hours per ha over 3 days). • Opportunistic surveys of roads • Pitfall and funnel trapping (over 4 nights; 2 replicates per habitat type).[17]	• 44km project area walked recording incidentals (>220 hours) • 172 active searches throughout the project area (6,600 rocks turned). • 32 spotlighting survey hours (covering ~34.8km) over multiple survey events. • 46 Fauna habitat assessments • Incidental records
Pygopodidae	*Delma torquata*	Collared Delma	VU	VU	May occur	**Important habitat is a surrogate for an important population** - Open-forests, woodlands and adjacent exposed rocky areas in QLD E land zones 3, 9 and 10 [17] **Important habitat** defined as suitable habitat within the known/likely to occur distribution of the species and the Toowoomba Range, and suitable habitat between grazed or cropped areas, along road reserves and travelling stock routes	The following habitat definition has been used for the species: • **Breeding and foraging habitat:** Open eucalypt forest to woodland with exposed rocky areas on well-drained slopes. Must be associated with suitable microhabitat (rocks, logs, coarse woody debris and leaf litter) where ground cover is predominantly native grasses. . Habitat includes open-forests, woodlands and adjacent exposed rocky areas in QLD RE Land Zones 3, 4, 5, 7, 8 9, 10, 11 and 12.	Not defined	• Hand searching under rocks (1 Delma/150-200 rocks) • Pitfall trapping • Late spring, early summer • Diurnal active searches (1.5 person hours per ha, survey over a min 3 nights) • Supplementary technique – tile grids (50 tiles@5m apart, 1 grid per 2 ha up to 40 ha) [17]	• 44km project area walked recording incidentals (>220 hours) • 40 Active searches within marginal habitat, 132 active searches throughout the project area (33hours,@~50 rocks per 15mins = 6,600 rocks turned) • 46 Fauna habitat assessments • 16 Microhabitat assessments • Additional survey effort – 6 x Tile grids (1,010 survey nights) • Incidental records
MIGRATORY SPECIES										
Apodidae	*Apus pacificus*	Fork-tailed Swift	SLC	M, Mi	Likely to occur	**Important habitat** is non-breeding habitat which is all habitats where it is found. **Ecologically significant proportion of population** is 1,000 individuals (1% of population) [18]	The species does not breed in Australia, so foraging and dispersal habitat for the species was defined, which includes a range of habitats, from inland open plains to wooded areas.	Not defined	Not defined	Extensive surveying completed: • 44km project area walked recording incidentals (>220 hours) • 48 Bird area surveys (Birdlife Australia method – 2ha/20min) across all remnant vegetation areas over multiple survey events (16 survey hours) • 46 Fauna habitat assessments • Incidental records
Laridae	*Gelochelidon nilotica*	Gull-billed Tern	SLC	M, Mi	May occur	Not defined	Freshwater swamps, brackish and salt lakes, beaches and estuarine mudflats, floodwaters, sewage farms, irrigated croplands and grasslands	Not defined	Not defined	
Laridae	*Hydroprogne caspia*	Caspian Tern	SLC	M, Mi	May occur	Not defined	Sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks.	Not defined	Not defined	

^Qld Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern; SLC = Special Least Concern.
** Commonwealth Status (EPBC Act): EX = Extinct, EW = Extinct in Wild, CE = Critically Endangered, EN = Endangered, VU = Vulnerable, M = Marine, Mi = Migratory, - not protected under the Act.*
+ Data in the 'Likelihood of Occurrence' column corresponds to information provided in Appendix A – categories used include likely to occur, may occur or unlikely to occur.
Notes: - = no common name exists for these species

[17] *Department of Climate Change, Energy , the Environment and Water. (DCCEEW; 2023b). Draft Referral Guidelines for the Nationally listed Brigalow Belt Reptiles*
[18] *Department of Environment. (DoE; 2015). Referral Guidelines for 14 birds listed as migratory species under the EPBC Act*

Targeted Surveys for the Collared Delma (Delma torquata)

In order to target preferred habitat for the Collared Delma, a literature review of previous studies into the species habitat requirements was undertaken. Literature that is publicly available on this species is inconsistent. A primary example of inconsistencies is regarding the associated land zone for the specie's habitat. Within the *Habitat descriptions for twelve threatened species specific to central Queensland* (Kerswell et al., 2020, commissioned by BHP) and the DCCEEW Species Profile and Threats (SPRAT) database, the habitat definition for Collared Delma states the appropriate land zones for the species are 3, 9 and 10. However, extensive surveys and vegetation clearing along the Toowoomba Range identified them on land zone 8 (Toowoomba Range Crossing Clearance Reports, per comms), and extensive surveys for the Specimen Hill Wind Farm project identified them on land zone 11 and 12 (EMM, 2020). There are further inconsistencies within the essential habitat database where all land zones excluding 6 are considered associated REs.

Therefore, in order to target the most appropriate habitat for the species, we incorporated all land zones in which the species had previously been recorded from literature, and further refined habitat by the presence of suitable microhabitat features that have been recorded, in literature, where the species has previously been found (e.g., presence of suitable sized loose surface rocks) and lack of threats to the species (e.g., fragmented habitat or extensive cattle grazing).

Habitat suitability assessments within the project area, based on the above attributes, determined presence of potentially suitable habitat within the eastern part of the project area, where Eucalypt woodland on landzone 11 occurs. All other vegetated patches throughout the project area were excluded due to extensive fragmentation, modification and ongoing cattle grazing, which a known deterrents to the species.

In order to target the species during our field surveys a number of methods were considered and utilised where appropriate, in accordance with survey guidelines. Some targeted survey methods however were deemed unsuitable within the project area. For example, the *EPBC Act survey guidelines for Australia's threatened reptiles* (DSEWPC 2011b) primarily focusses on active searching and pitfall trapping for the species. The habitat available within the eastern part of the project area however was not suitable for these two survey methods, for the following reasons:

- Active searching (rock flipping) was difficult due to the rocks either being too large or well embedded within the soil (the guidelines suggest between 150-200 rock flips are required to find an individual). This method is also highly destructive to habitat, with the species known to be sensitive to disturbance. Active searches were nevertheless undertaken in accordance with the guideline's survey effort requirements; however not all rocks could be flipped within a given area.
- Pitfall trapping was not possible due to the soil substrate being predominantly metamorphic rock and very difficult to dig.

Therefore, to supplement the active search survey effort and ensure sufficient surveying was undertaken to detect this species should it be present, we:

- Implemented a tile grid survey, in accordance with the methods defined in the *Draft referral guidelines for the nationally listed Brigalow Belt reptiles species* (DCCEEW, 2023).
- Undertook microhabitat assessments using information gained from the literature review (available in Appendix F) to refine suitable habitat for the species within the project area. This was due to the patchiness of rock and leaf litter within the mapped habitat area in the eastern part of the project area, hence a microhabitat assessment was considered appropriate to identify and refine the habitat for the species based on the presence of preferred microhabitat features for the species (e.g., rock presence and size, leaf litter presence, canopy cover estimates, level of embeddedness of rocks).

3.2.3 Survey Conditions

A summary of the weather conditions during the field survey events is provided in Table 8. There were seven survey events over the four seasons (autumn, winter, spring and summer) from 14-26 May, 10-11 July, 20-28 July, 19-21 September, 27-28 December 2023, 16-17 January 2024 and 12-14 August 2025.

Weather data during these periods were sourced from the Bureau of Meteorology (BoM), at the Thangool Airport weather station (ID 039089), which is located approximately 12 km south of the centre of the project area (BoM 2024).

Conditions were mostly dry from May 2023 to November 2023 with variable rain experienced from 18 November 2023 till January 2024 (Figure 1 and Table 8).

Wind speed was variable during the survey periods, from 6-22km/hour (h). Minimum temperatures ranged from 0.9 – 21.5°C. The maximum temperature range was 16.4 – 34.6°C. Relative humidity was variable, ranging from 14-94% during the survey periods (Table 8).

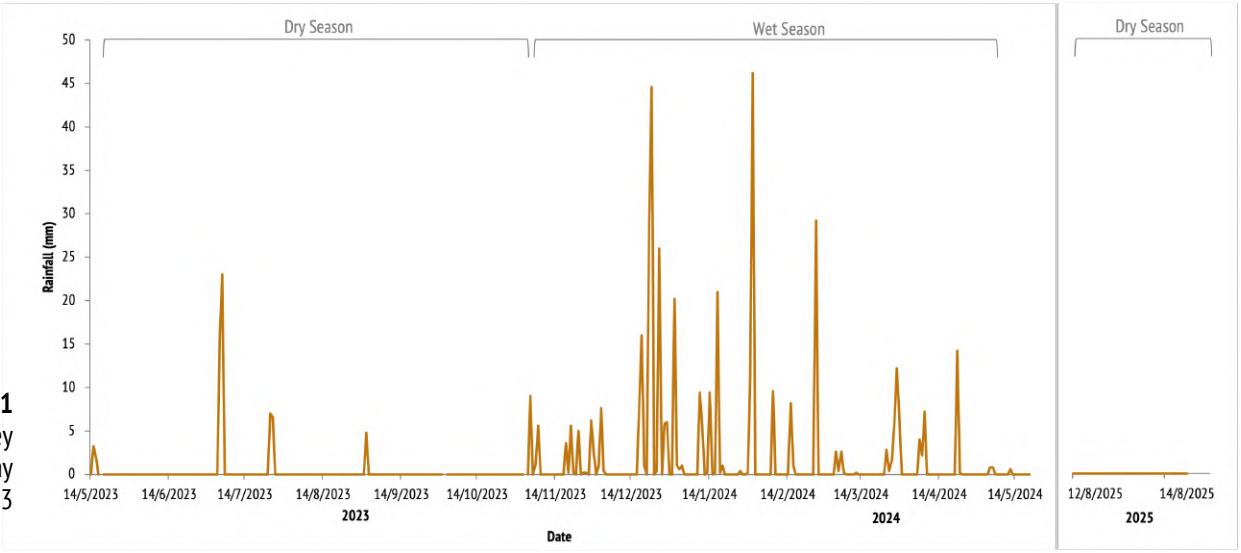


Figure 1
Rainfall during survey periods since May 2023

Table 8
Weather Conditions during the field surveys

Season	Survey Event	Month	Date	Temperature (°C) Min	Temperature (°C) Max	Rainfall (mm)	3pm Relative Humidity (%)	3pm Wind Speed (km/h)
End of wet season (Autumn)	1	May 2023	14 May	15.5	21.8	0	94	11
			15 May	15.1	24.7	3.2	86	13
			16 May	7.4	24.5	2.0	51	19
			17 May	4.0	25.8	0	28	15
			18 May	2.4	25.2	0	25	11
			19 May	1.6	23.7	0	20	13
			20 May	1.6	24.6	0	19	11
			21 May	2.1	22.8	0	22	13
			22 May	0.9	24.0	0	24	13
			23 May	3.3	26.0	0	29	11
			24 May	4.0	26.8	0	25	11
			25 May	4.0	27.7	0	26	7
			26 May	5.5	27.3	0	26	15
Dry season (Winter)	2	July 2023	10 July	3.8	25.2	0	25	6
			11 July	3.5	25.4	0	25	6
	3	July 2023	20 July	3.3	24.7	0	34	11
			21 July	6.3	25.6	0	35	9
			22 July	4.9	25.7	0	21	13
			23 July	1.3	24.1	0	20	6
			24 July	9.0	16.4	7	94	11
			25 July	9.7	23.2	6.6	52	19
			26 July	6.1	24.0	0	38	22
			27 July	6.1	24.8	0	36	11
			28 July	6.7	25.1	0	37	6
	4		19 Sept	6.0	29.1	0	26	13

Season	Survey Event	Month	Date	Temperature (°C) Min	Max	Rainfall (mm)	3pm Relative Humidity (%)	3pm Wind Speed (km/h)
Dry Season (Spring)		September 2023	20 Sept	8.5	31.7	0	19	11
			21 Sept	9.0	34.6	0	14	13
Wet Season (Summer)	5	December 2023	27 Dec	20.9	33.9	5.8	46	17
			28 Dec	24.4	35	6.0	40	13
	6	January 2024	16 Jan	21.4	33.7	0.2	52	15
			17 Jan	21.5	34.1	21.0	52	11
Dry Season (Winter	7	August 2025	12 Aug	7.5	23.8	0	34	13
			13 Aug	9.7	23.1	0	41	11
			14 Aug	4.9	23.5	0	28	13

3.3 REPORTING

3.3.1 Desktop and Field Assessment Results

Results from the desktop and field surveys have been provided throughout this report. Survey results directly relate to verified MNES and MSES within the project area.

3.3.2 Significant Impact Assessment

A significant impact assessment was completed for both MNES and MSES, as defined under the *EPBC Environmental Offsets Policy,* and *Environmental Offsets Act 2014* (Qld) respectively. The significant impact assessment for MNES was completed in accordance with the *Significant Impact Guidelines 1.1* (Department of the Environment, 2013), while the significant residual impact (SRI) assessment for MSES was completed in accordance with the *Significant Residual Impact Guideline* (SDIP, 2014).

These guidelines outline how to assess whether a prescribed activity will, or is likely to have, a significant impact on an MNES or MSES. To undertake a significant impact assessment for MSES connectivity, the Landscape Fragmentation Tool was applied.. This spatial analysis tool assesses the degree of habitat fragmentation and landscape connectivity by modelling how vegetation clearing may alter ecological linkages across the project area. The tool allows identification of potential barriers to species movement, changes in patch size and configuration, and the extent to which remnant and regrowth vegetation remain connected. By using the tool, the assessment provides an evidence-based measure of how the proposed development may affect ecological connectivity values, in line with State assessment benchmarks.

For the purpose of the significant impact assessments, the disturbance footprint was used as the 'impact area'. Most of the disturbance footprint where conductor sag is likely to interact with vegetation is 24 m wide, while tower locations are 40 m wide to accommodate a tower size of 40 x 40m. Some midspan sections are up to 50 m wide to accommodate maximum conductor sag and swing, while access tracks within the disturbance footprint will be cleared to a maximum width of 10 m.

3.3.3 Nomenclature

Taxonomic nomenclature used for the description of flora species was according to the Census of Queensland Flora and Fungi 2023 (Bean, 2024). Where relevant, species have been listed by family name in alphabetical order.

3.4 ASSUMPTIONS AND LIMITATIONS

3.4.1 Third Party Data

The content in this report, including the assessment of project impacts, is based on information available at the time the report was prepared. Information has been obtained from third party sources (refer to *Section 3.1.1 Desktop Review)* and, while due diligence has been taken to ensure the accuracy of these data, Trend Environmental makes no statements regarding the reliability or completeness of these data.

3.4.2 Determining Ecological Values

There is variability in vegetation communities and species distributions which results in inherent limitations in all field surveys. The limitations in undertaking ecological field surveys have been mitigated by applying a field sampling program to target the presence of any habitat that may be suitable for threatened species; however, not all threatened species are likely to have been detected or identified. The ability to detect plants and accurately identify them to species level varies greatly depending on season, climate conditions and the presence of reproductive material (i.e., flower, fruit and seed capsules). The ability to detect fauna can be difficult due to mobility or cryptic nature, sensitivity to humans, migration periods, and diurnal and nocturnal movements. Where the field assessment identified a high likelihood of occurrence but no detection, additional field survey efforts were employed where practical (i.e., for Collared Delma).

The field assessment was limited to public spaces, Powerlink owned and leasehold lots, council managed areas, and private land negotiated via Powerlink's landholder access team. Not all areas within the nominated project area were able to be surveyed due to constraints as a result of landholder access issues. The assessment of these areas has been based on available desktop information, extrapolated field data and visual observations from property boundaries, and satellite imagery. There are limitations to this however, and extrapolated values may not accurately reflect the on-ground ecological values present. It is expected that the areas that have yet to be field verified will be assessed prior to construction, during the pre-construction weed survey, animal breeding place survey and pre-clearance ecological surveys to be undertaken by Fauna Spotter Catchers which will ensure any sensitive ecological values will be identified and appropriately managed to reduce impacts.

3.4.3 Defining Banks

To delineate the defining banks of the watercourses and wetlands, field data, Digital Elevation Model (DEM) data and the centrelines of the Vegetation Management watercourses were evaluated to determine the most accurate approach for the given project area.

DEM data of appropriate resolution for the project area was obtained from Elvis in the form of a 1m DEM. Field points representing the defining bank locations within the project area were collected using standard field survey techniques. The acquired field points were used to validate and refine the DEM data. This process involved visually comparing the captured points to the DEM-produced defining bank line. The defining bank was identified using semi-automated methods, similar to the methodologies presented in Rosa et. al., (2019). While watercourse centreline data was obtained from the vegetation management dataset.

During the vetting process, a significant distance discrepancy between the DEM-derived defining bank points and the field points was observed. To address the observed distance discrepancy, the field points were subjected to correction using locational data captured by Android apps, which incorporated satellite data and cellular network information. A basic linear regression analysis was performed on the corrected data, revealing a mean distance discrepancy of 1.5m. This value closely aligns with the approximately 1.8m shift from Geodetic Datum of Australia (GDA94) to Geocentric Datum of Australia 2020 (GDA2020), which was determined to be the cause of the distance discrepancy.

Given the significance of vegetation intersecting watercourses and their protection as an MSES, a precautionary approach was taken. Therefore, due to the distance discrepancy, utilisation of both field data and DEM data was avoided. Instead, the centrelines of the watercourses were buffered accordingly. This method was adopted due to the impracticality and cost constraints associated with overcoming this limitation.

3.5 PERMITS

Trend Environmental holds a Scientific Purposes Permit (SUR001598) and ethics approval (CA 2023/01/1680) to conduct ecological surveys within non-protected land tenures. Trend Environmental's team includes 'suitably qualified' ecologists under the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) to conduct flora surveys. The ecological assessments for this Project were undertaken in accordance with the conditions of these permits, and in accordance with relevant Commonwealth and State ecological assessment guidelines where relevant.

DESKTOP RESULTS

4.1 MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

The *EPBC Act* (Cth) PMST report (updated 1 September 2025) identified MNES that were known to occur or may occur within the area of interest (20km buffer; EPBC Protected Matters Search results provided in Appendix E). This report identified:

- Six TECs
- 48 threatened species (17 flora and 31 fauna)
- Ten Migratory species.

A determination of the likelihood of presence of TECs was undertaken by reviewing whether any of the corresponding REs listed within the relevant DCCEEW Conservation or Listing Advice were mapped within the project area (likelihood of occurrence assessment for TECs provided in Appendix A). Based on these, four of the TECs were considered likely to occur within the project area due to the mapped presence of corresponding REs (Table 9).

A likelihood of occurrence assessment was completed for MNES threatened flora and fauna species, and migratory species (Appendix A). This likelihood of occurrence assessment identified four Commonwealth listed threatened flora species and ten Commonwealth listed threatened fauna species (four birds, three mammals, and three reptiles) as likely to occur, or may occur within the project area (Table 10 and Table 11). This assessment also identified three migratory species that are likely to occur or may occur within the project area.

Table 9 Threatened Ecological Communities

TEC Community	Status[1]	Presence	Corresponding REs[2]
Brigalow *(Acacia harpophylla* dominant and co-dominant)	EN	Likely to occur	RE11.3.1, RE11.9.5 and RE11.11.14 mapped in the project area
Coolabah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	EN	Unlikely to occur	No corresponding REs mapped in the project area
Lowland Rainforest of Subtropical Australia	CE	Unlikely to occur	No corresponding REs mapped in the project area
Poplar Box Grassy Woodland on Alluvial Plains	EN	Likely to occur	RE11.3.2 mapped in the project area
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	EN	Likely to occur	RE 11.8.3 mapped in the project area
Weeping Myall Woodlands	EN	Likely to occur	RE11.3.2 mapped in the project area

[1] EPBC Act (Cth): CE = Critically Endangered, EN = Endangered, VU = Vulnerable

[2] These REs are considered to be the TEC if they meet the descriptions, diagnostic criteria and condition thresholds within the relevant Conservation or Listing Advice for each TEC.

Notes: TECs that are unlikely to be present in the project area, due to lack of suitable REs, have been greyed out.

Table 10 Commonwealth listed threatened flora species predicted to occur

Family	Scientific Name	Common Name	Status QLD[1]	Status CTH[2]	Likelihood of Occurrence[3]
PLANTS					
Acanthaceae	*Xerothamnella herbacea*	-	EN	EN	May occur
Simaroubaceae	*Samadera bidwillii*	Quassia	VU	VU	Likely to occur
Solanaceae	*Solanum dissectum*	-	EN	EN	Likely to occur
Solanaceae	*Solanum johnsonianum*	-	EN	EN	Likely to occur

[1] Qld Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern;

[2] Commonwealth Status (EPBC Act): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, - not protected under the Act

[3] Data in the 'Likelihood of Occurrence' column corresponds to information provided in Appendix A – categories used include likely, may occur or unlikely to occur.

Notes: - = no common name exists for these species.

Table 11 Commonwealth-listed threatened fauna and migratory species predicted to occur

Family	Scientific Name	Common Name	Status		Likelihood of Occurrence[3]
			QLD[1]	CTH[2]	
BIRDS					
Apodidae	*Hirundapus caudacutus*	White-throated Needletail	VU	VU, Mi, M	Likely to occur
Columbidae	*Geophaps scripta scripta*	Squatter Pigeon (southern)	VU	VU	Recorded
Meliphagidae	*Grantiella picta*	Painted Honeyeater	VU	VU	Recorded
Scolopacidae	Calidris acuminata	Sharp-tailed Sandpiper	SLC	VU, M, Mi	May occur
MAMMALS					
Dasyuridae	*Dasyurus hallucatus*	Northern Quoll	LC	EN	May occur
Phascolarctidae	*Phascolarctos cinereus*	Koala	EN	EN	Recorded
Pseudocheiridae	*Petauroides volans*	Greater Glider (southern/central)	EN	EN	May occur
REPTILES					
Chelidae	*Elseya albagula*	Southern Snapping Turtle	CR	CE	May occur
Elapidae	*Denisonia maculata*	Ornamental Snake	VU	VU	May occur
Pygopodidae	*Delma torquata*	Collared Delma	VU	VU	May occur
MIGRATORY SPECIES					
Apodidae	*Apus pacificus*	Fork-tailed Swift	SLC	M, Mi	May occur
Laridae	*Gelochelidon nilotica*	Gull-billed Tern	SLC	M, Mi	May occur
Laridae	*Hydroprogne caspia*	Caspian Tern	SLC	M, Mi	May occur

[1] *Qld Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern; SLC = Special Least Concern*

[2] *Commonwealth Status (EPBC Act): EX = Extinct, EW = Extinct in Wild, CE = Critically Endangered, EN = Endangered, VU = Vulnerable, M = Marine, Mi = Migratory, - not protected under the Act*

[3] *Data in the 'Likelihood of Occurrence' column corresponds to information provided in Appendix A – categories used include likely, may occur or unlikely to occur.*

4.2 MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE

4.2.1 Regulated Native Vegetation

In Queensland, vegetation is described and mapped by the Queensland Herbarium as regional ecosystems (REs). REs are vegetation communities within a bioregion that consistently associate with a particular combination of geology, landform and soil (Neldner et al., 2023a). REs mapped within the project area have been provided in Table 12, along with a calculation of their mapped extent within the project area. The total project area is 1,896.78 ha, containing 1,659.49 ha of desktop mapped Category X (non-remnant) areas, and 237.29 ha of desktop mapped Category B (remnant), Category C (high-value regrowth), Category R (GBR reef watercourse) vegetation and water (Table 12).

Most of the project area was mapped as non-remnant vegetation. These areas have previously been cleared to support pastoral and cropping land. There are however some mapped scattered small patches of Category B (remnant), Category C (high-value regrowth) and Category R (Reef regrowth watercourse vegetation) vegetation throughout the project area (Map 6, Appendix G). These areas are mapped as least concern, of concern or endangered REs (Map 7, Appendix G). The mapped REs are present as both homogenous polygons as well as heterogenous/mixed polygon REs. Table 12 describes the dominant REs only.

Table 12 Dominant REs mapped within the project area (desktop mapping)

RE	Category[1]	Description	VMA Class[2]	Project Area Extent (ha)[3]
11.3.1	C	*A. harpophylla and/or Casuarina cristata (Belah) open forest on alluvial plains.*	EN	2.44
11.3.2	C	*Eucalyptus populnea (Poplar Box) woodland on alluvial plains*	OC	11.87
11.3.4	B	*Eucalyptus tereticornis (Blue Gum) and/or Eucalyptus spp. Woodland on alluvial plains.*	OC	35.46
	C			
11.3.25	B	*E. tereticornis or Eucalyptus camaldulensis (River Red Gum) woodland fringing drainage lines.*	LC	58.84
11.8.3	B	*Semi-evergreen vine thicket on Cainozoic igneous rocks*	OC	1.43
11.9.1	C	*A. harpophylla - Eucalyptus cambageana (Dawsons Gum) woodland to open forest on fine-grained sedimentary rocks*	EN	16.78
11.9.4a	B	*Semi-evergreen vine thicket or A. harpophylla with a semi-evergreen vine thicket understorey on fine-grained sedimentary rocks*	OC	1.72
11.9.5	C	*A. harpophylla and/or C. cristata open forest to woodland on fine-grained sedimentary rocks.*	EN	50.60
11.11.10	C	*Eucalyptus melanophloia (Silver-leaved Ironbark) woodland on deformed and metamorphosed sediments and interbedded volcanics.*	OC	48.33
11.11.14	B	*A. harpophylla open forest on deformed and metamorphosed sediments and interbedded volcanics*	EN	3.18
11.12.1	B	*Eucalyptus crebra (Narrow-leaved Ironbark) woodland on igneous rocks*	LC	0.12
11.12.21	B	*A. harpophylla open forest on igneous rocks. Colluvial lower slopes*	EN	2.0
Non-remnant	X	-	-	1,659.49
water	-	-	-	4.52
			TOTAL	**1,896.78**

[1] *Regulated vegetation category: Category B (remnant vegetation), Category C (high-value regrowth), Category R (reef regrowth watercourse vegetation).*
[2] *Vegetation Management Act (VMA) 1999 (Qld) Status: EN = Endangered, OC= Of Concern, LC = Least Concern.*
[3] *Area calculated based on State-mapped regional ecosystem mapping*

4.2.2 Wetlands and Watercourses

Catchment Context

The project area is located within the Fitzroy Basin catchment and the Dawson River sub-basin. The Fitzroy catchment is the largest region in the Great Barrier Reef catchment area at 15,549,409 ha. The catchment predominantly contains land uses of grazing (78%), conservation and natural environments (8%), forestry (6%), and dryland cropping (5%).

A review of the Fitzroy Basin Ecosystem Health Index Report Card for 2023-2024 (Fitzroy Partnership for River Health, 2024) indicated the system was 'good' across all 11 freshwater catchments, nutrient indicators however were a mix of 'good' and 'fair', and ecological values decreased across the catchment except for the Upper Isaac, Callide and Upper Dawson - This is mainly due to lower macroinvertebrate scores which are influenced by medium to long term accumulation of reduced water quality and habitat pressures, as well as flooding and dry spells.

Water Act 2000 (Qld)

A review of the watercourse identification map under the *Water Act 2000* (Qld) identified two mapped watercourses (Kroombit Creek and Callide Creek) intersecting the project area (Map 3, Appendix G). All other watercourses that lie within the project area were unmapped watercourses under the Act.

Vegetation Management Act Watercourses and Wetlands

A review of the Vegetation Management Supporting Map (Map 7, Appendix G) identified one wetland area mapped within the central section of the project area, and a number of mapped watercourses, including:

- 18 stream order 1 watercourses.
- Five stream order 2 watercourses.
- Three stream order 3 watercourses.
- One stream order 4 watercourse.
- One stream order 5 watercourse – Callide Creek.
- One stream order 6 watercourse – Kroombit Creek.

High Ecological Significant Wetlands and Watercourse and Great Barrier Reef Wetlands

A review of the high ecological value wetlands or watercourses, and Great Barrier Reef (GBR) wetland protection areas (WPA) defined under the *Environmental Protection Regulation 2019* (Qld), which are considered an MSES, was undertaken using Queensland Globe.

This review identified one HES wetland (containing a GBR WPA) within the central portion of the project area (Map 8, Appendix G).

Fish Passage (Waterway Barrier Works) Watercourses

Numerous waterways considered 'waterways for barrier works' (fish passage), protected under the *Fisheries Act 1994* (Qld; Map 9, Appendix G) were mapped within the project area, including:

- 16 green (low risk of impact) waterways.
- 10 amber (moderate risk of impact) waterways.
- Three red (high risk of impact) waterways.
- Three purple (major risk of impact) waterways.

Fish Habitat Areas

No fish habitat areas, protected under the *Fisheries Act 1994* (Qld) were mapped within the project area or area of interest.

4.2.3 State-listed Threatened Species

Protected Flora Survey Trigger Mapping

The eastern extent of the project area contains 'high-risk' areas for protected plants recognised on the Flora Survey Trigger Map, under the *Nature Conservation Act 1992* (Qld) (Map 9, Appendix G). Due to this high-risk mapping, there is a requirement for a protected plant flora survey to be conducted prior to construction of the transmission line. This survey targets those protected plants considered known or most likely to occur within the area of interest. Should protected plants be identified during the field surveys, and these cannot be avoided by design, a protected plant clearing permit will be required.

Essential Habitat

Essential habitat is defined under the *Vegetation Management Act 1999* (Qld) as habitat for endangered, vulnerable or near-threatened wildlife (protected wildlife; EVNT) prescribed under the *Nature Conservation Act 1992* (Qld). The project area intersects some areas of essential habitat mapping (Map 7, Appendix G).

This essential habitat mapping corresponds to habitat for the endangered *Cycas megacarpa,* and the Southern Snapping Turtle *(Elseya albagula).* These essential habitat areas intersect Category C (high-value regrowth areas) and have a total area of 0.87 ha within the project area.

WildNet Conservation Significant Species Records

The WildNet conservation significant species database provides important wildlife information including threatened species records for an area. Three State-listed threatened flora and fauna species records were revealed within area of

interest by the WildNet database, including one bird (Squatter Pigeon), one mammal (Koala) and one reptile (Southern Snapping Turtle; WildNet Conservation Significant Species database results provided within Appendix E).

State-listed Threatened Wildlife Habitat

Modelled habitat mapping for threatened species provides an indication of where State-listed threatened species habitat is likely to occur which could potentially cause constraints to the Project. The MSES modelled habitat suitability mapping based on current vegetation community mapping identified minimal areas of wildlife habitat for State-listed endangered or vulnerable wildlife, or special least concern species throughout the project area (Map 10, Appendix G). The extent that wildlife habitat was mapped is the far eastern extent of the project area, south of the CS Energy Power Station (Map 10, Appendix G). The extent of wildlife habitat mapped within the project area is 0.91 ha.

Results of the Likelihood of Occurrence Assessment

The likelihood of occurrence assessment for the project area revealed six State-listed threatened flora species as likely to occur or may occur and ten State-listed threatened fauna species (four birds, three mammals and three reptiles), and one special least concern species (Likelihood of occurrence assessment provided in Appendix A). The State-listed threatened species that were not already recognised as Commonwealth-listed species in Table 10 have been provided in Table 13 and Table 14 below.

Table 13 State-listed threatened flora species predicted to occur

Family	Scientific Name	Common Name	Status		Likelihood of Occurrence[3]
			QLD[1]	CTH[2]	
PLANTS					
Leguminosae	*Acacia pedleyi*	Pedley's Wattle	EN	-	Likely to occur
Solanaceae	*Solanum elachophyllum*	-	EN	-	Likely to occur

[1] Qld Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern;
[2] Commonwealth Status (EPBC Act): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, - not protected under the Act
[3] Data in the 'Likelihood of Occurrence' column corresponds to information provided in Appendix A – categories used include likely, may occur or unlikely to occur.
Notes: - = no common name exists for these species

Table 14 State-listed threatened fauna and conservation significant fauna predicted to occur

Family	Scientific Name	Common Name	Status		Likelihood of Occurrence[3]
			QLD[1]	CTH[2]	
MAMMALS					
Tachyglossidae	*Tachyglossus aculeatus*	Short-beaked Echidna	SLC	-	Recorded

[1] Qld Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern; SLC = Special Least Concern
[2] Commonwealth Status (EPBC Act): EX = Extinct, EW = Extinct in Wild, CE = Critically Endangered, EN = Endangered, VU = Vulnerable, M = Marine, Mi = Migratory, - not protected under the Act
[3] Data in the 'Likelihood of Occurrence' column corresponds to information provided in Appendix A – categories used include likely, may occur or unlikely to occur.

4.2.4 Corridors and Connectivity

Connectivity areas are considered an MSES under the *Environmental Offsets Act 2014* (Qld). A review of the Terrestrial Biodiversity and Aquatic Conservation Values Report identified riparian corridors, and State and regional corridor buffers intersecting the central section of the project area associated with Kroombit Creek and Callide Creek (Map 11, Appendix G).

These connectivity corridors provide critical functions for threatened species persistence in otherwise fragmented landscapes. They represent the remaining linkages, as adjacent land has been extensively cleared for agriculture. In this context, the identified corridors function as refuges and movement pathways that allow threatened species to disperse, access resources, and maintain genetic exchange between isolated populations. Without these linear features, opportunities for movement would be severely constrained, heightening the risk of localised population decline and reducing resilience to environmental pressures such as fire, drought, and climate change.

4.2.5 Biosecurity Zones

A review of the Department of Agriculture and Fisheries biosecurity zones identified the following within the area of interest:

- *Cattle tick infested zone* - This zone regulates livestock movement into cattle tick free areas.

- *Sugarcane biosecurity zone 4* - This zone regulates the movement of Sugarcane plant material between zones and requires Sugarcane machinery to be cleaned and inspected if being moved between zones.
- *State Grape Phylloxera exclusion zone* - This zone regulates movement from Grape Phylloxera risk zones into exclusion zones.

4.2.6 Terrestrial Weeds

The search of the Queensland WildNet species records database identified 41 flora species records within the area of interest that are introduced to Queensland (WildNet Species List provided in Appendix E). Some of these species are listed as Restricted Invasive Plants Category 3[19] under the *Biosecurity Act 2014* (Qld) and/or WoNS. These include:

- *Cryptostegia grandiflora* (Rubber Vine), listed as Category 3 Restricted Invasive Plant under the Act.
- *Dolichandrea unguis-cati* (Cat's Claw Creeper), listed as Category 3 Restricted Invasive Plant under the Act, and a WoNS.
- *Lantana camara* (Lantana), listed as Category 3 Restricted Invasive Plant under the Act, and a WoNS.
- *Lantana mointevidensis* (Creeping Lantana), listed as Category 3 Restricted Invasive Plant under the Act, and a WoNS.
- *Opuntis stricta* (Opuntiod Cactus), listed as Category 3 Restricted Invasive Plant under the Act, and a WoNS.

4.2.7 Pest Animals

The search of the Queensland WildNet species records database identified seven fauna species that are introduced to Queensland (WildNet Species List provided in Appendix E), including:

- Cane Toad *(Rhinella marina)*
- Common Starling *(Sturnus vulgaris)*
- European Cattle *(Bos taurus)*
- European Rabbit *(Oryctolagus cuniculus)*
- House Sparrow *(Passer domesticus)*
- Northern Mallard (*Anas platyrhynchos)*
- Rock Dove *(Columba livia)*

The European Rabbit is the only species from the database, listed as a restricted invasive terrestrial animal under the *Biosecurity Act 2014* (Qld).

4.3 SUMMARY OF RELEVANT MNES AND MSES

Table 15 outlines the MNES and MSES that are applicable to the Project, based on the desktop review of ecological values identified above.

Table 15 Applicable MNES and MSES for the Project (matters considered not applicable have been greyed out)

Ecological Values/Prescribed Matters	Relevance
Matters of National Environmental Significance	
World Heritage Properties	**Not applicable** None present in the area of interest.
Commonwealth Lands	**Not applicable** The Defence - BILOELA TRAINING DEPOT was identified within the buffer area of the Project. These lands were>5km from the project area and hence were considered unlikely to be impacted by the Project.
TECs	**Applicable** TECs potentially present that require field verification
Listed Threatened and Migratory Species	**Applicable** Listed threatened and migratory species and their habitat potentially present. These require field verification.

[19] *Restricted Invasive Plants that are category 3 cannot be released into the environment, given away or sold as a plant or something infested with its seeds.*

Ecological Values/Prescribed Matters		Relevance
Matters of State Environmental Significance		
Regulated Vegetation	Prescribed REs that are endangered and of concern REs	**Applicable** Endangered and of concern REs mapped that require field verification
	Prescribed REs that intersect with an area shown as a wetland on the vegetation management wetlands map	**Applicable** Mapped wetlands that require field verification.
	Prescribed REs that are areas of essential habitat on the essential habitat map for an EVNT plant or animal	**Applicable** Mapped essential habitat that requires field verification.
	Prescribed RE located within a defined distance from the defining banks of a relevant watercourse or drainage feature	**Applicable** Prescribed REs located within riparian areas for mapped watercourses and drainage features in the project area.
Connectivity Areas	Prescribed REs that contain an area of land that is remnant vegetation required for ecosystem functioning (a connectivity area)	**Applicable** There are mapped State and regional biodiversity corridors within the project area.
Wetlands and Watercourses	A wetland in a wetland protection area or a HES wetland on map of referrable wetlands	**Applicable** One mapped HES wetland within the project area. Requires field verification
	A wetland or watercourse in high ecological value waters	**Not applicable** None present in the project area.
Designated precinct	Designated precinct in a strategic environmental area	**Not applicable** None present in the area of interest.
Protected Wildlife Habitat	An area that is shown as a high-risk area on the flora survey trigger map, that contains plants that are endangered or vulnerable	**Applicable** High-risk mapping present in the project area. A flora survey is required in accordance with the Flora Survey Guidelines prior to construction.
	An area not shown as high risk on the flora trigger map, but contains plants that are endangered or vulnerable	**Applicable** Potential for threatened species or their habitat to be present. Field verification required.
	A koala habitat area	**Not applicable** No designated koala habitat area present in project area
	A habitat for an endangered or vulnerable wildlife or special least concern animal	**Applicable** Potential habitat present. Field verification required
Protected Areas	A protected area	**Not applicable** None present in the project area.
Highly Protected Zones	Highly protected zones of State marine parks	**Not applicable** None present in the area of interest.
Fish Habitat Areas	An area declared under the Fisheries Act 1994 (Qld) to be a fish habitat area	**Not applicable** None present in the area of interest.
Waterway Providing for Fish Passage	Any part of a waterway providing for passage of fish, only if the construction, installation, or modification of waterway barrier works will limit passage of fish	**Applicable** Waterways for waterway barrier works identified. Field verification required.
Marine Plants	A marine plant within the meaning of the *Fisheries Act 1994*	**Not applicable** None present in the area of interest.
Legally Secured Offset Areas	A legally secured offset area	**Not applicable** None present in the project area.

FIELD SURVEY RESULTS

5.1 VEGETATION COMMUNITIES

5.1.1 Field-verified Regulated Native Vegetation

The project area consisted predominantly of cleared grazing and cropping land, which coincides with mapped non-remnant vegetation areas on Map 7, Appendix G. The field survey assessed the Category B (remnant), C (high-value regrowth) and R (reef regrowth watercourse) regulated vegetation within the project area using the Quaternary survey methodology, as per the *Methodology for surveying and mapping regional ecosystems and vegetation communities* (Neldner et al., 2023b). A total of 215 Quaternary surveys were undertaken throughout the project area (Map 5, Appendix G).

The Quaternary surveys identified deviations from the mapped vegetation communities within the Category B (remnant) and C (high-value regrowth) areas of the project area which were provided in Map 7, Appendix G.

Table 16 and Map 12 (Appendix G) details the REs that were verified throughout both the project area and the disturbance footprint. The total project area is 1896.78 ha, containing 1,711.41 ha of Category X (non-remnant) areas and 185.37 ha of Category B (remnant), Category C (high-value regrowth) vegetation and water. This represents 90.23% of the project area being Category X (non-remnant), and the remaining 9.77% being remnant and regrowth vegetation or water.

The disturbance footprint is 105.49 ha, containing 97.76 ha of Category X (non-remnant) areas, and 7.73 ha of Category B (remnant) and Category C (high-value regrowth) vegetation. This represents 92.67% of the project area being Category X (non-remnant), and the remaining 7.33% being remnant and regrowth vegetation.

Table 16 Field-verified REs within the project area and disturbance footprint

RE	Category[1]	Description	VMA Class[2]	Extent (ha)[3]	
				Project Area	Disturbance Footprint
11.3.1	B and C	*A. harpophylla* and/or *C. cristata* open forest on alluvial plains.	EN	14.37	0.24
11.3.2	B	*E. populnea* woodland on alluvial plains.	OC	10.97	0.33
11.3.4	B	*E. tereticornis* and/or Eucalypt woodland on alluvial.	OC	20.06	0.99
11.3.6	B	*Eucalyptus melanophloia* woodland on alluvial plains	LC	11.02	2.38
11.3.25	B	*E. tereticornis* or *E. camaldulensis* woodland fringing drainage lines.	LC	47.89	0.28
11.3.27	B and C	Freshwater wetlands. Vegetation is variable.	LC	28.43	1.47
11.4.9b	B	*A. harpophylla, E. thozetiana* (sometimes *E. cambageana)* open forest to woodland	EN	3.77	0
11.9.1	B	*A. harpophylla - E. cambageana* woodland to open forest on fine-grained sedimentary rocks	EN	8.08	0
11.9.5	B	*A. harpophylla* and/or *C. cristata* open forest to woodland on fine-grained sedimentary rocks	EN	5.13	0
11.11.10	B	*E. melanophloia* woodland on deformed and metamorphosed sediments and interbedded volcanics.	OC	32.08	2.04
11.11.14	B	*A. harpophylla* open forest on deformed and metamorphosed sediments and interbedded volcanics.	EN	2.31	0
Non-remnant	X	-	-	1711.41	97.76
Water				1.26	0
			TOTAL	**1896.78**	**105.49**

[1] *Regulated vegetation category: Category B (remnant), Category C (high-value regrowth), Category R (reef regrowth watercourse) vegetation.*
[2] *Vegetation Management Act (VMA) 1999 (Qld) Status: EN = Endangered, OC= Of Concern, LC = Least Concern.*
[3] *Areas calculated from field-verified vegetation assessment data.*

5.1.2 Field-verified Vegetation Communities

Vegetation within the project area has been categorised into vegetation communities, including cleared areas/exotic grasslands, Eucalypt dominant woodland to open forest, Brigalow dominant woodland to open woodland, Eucalypt dominant riparian associated woodland, ephemeral wetlands, regrowth areas and farm dams (Map 13, Appendix G). The description of the field-verified vegetation communities, corresponding REs, suitable habitat for threatened flora and fauna species, and the potential to conform to a listed TEC are described in Table 17.

Table 17 Vegetation communities within project area

Vegetation Community	Descriptions		Representative Photograph
Cleared areas/ exotic grasslands	**Description of vegetation communities**	Present in non-remnant areas and road verges. The community was characterised by a high density of weeds including *Megathyrsus maximus* (Guinea Grass), *Chloris gayana* (Rhodes Grass) and *Melinis repens* (Red Natal Grass). This vegetation community generally lacked a tree layer; however, supported a low density of native and introduced paddock trees (e.g., *Leucaena leucocephala*; Leucaena) and/or shrubs of varying heights in some areas.	
	Corresponding REs	None	
	Area (ha)	97.19 ha in disturbance footprint, and 1,695.52 ha in project area	
	Threatened flora suitable habitat	Limited potential to provide suitable habitat for threatened flora species.	
	Threatened fauna suitable habitat	Where old growth Eucalypt paddock trees were present containing mistletoe, these may provide foraging habitat for the Painted Honeyeater *(Grantiella picta).* Where an abundance of native grasses occur near remnant or regrowth woodland, these could provide foraging or dispersal habitat for the Squatter Pigeon.	
	Potential to conform to a TEC	None	
Eucalypt dominant woodland to open forest	**Description of vegetation communities**	This vegetation community was characterised by a dominance of Myrtaceous species in the canopy including *Eucalyptus crebra* (Narrow-leaved Ironbark), *E. tereticornis, E. melanophloia, Corymbia tessellaris* (Moreton Bay Ash) and *E. cambageana*, as well as some isolated stands of *Brachychiton populneus* (Kurrajong). The canopy height ranged between 16-26 m, with an average canopy cover between 40-60%. The understorey comprised rejuvenating canopy species of *Eucalyptus, Acacia* and *Corymbia.* The groundcover was typically dominated by native species including *Themeda triandra* (Kangaroo Grass), *Bothriochloa ewartiana* (Desert Bluegrass) and *Heteropogon contortus* (Black Spear Grass). Weed species were present, including *L. camara* and *M. maximus.*	
	Corresponding REs	RE11.11.10, RE11.3.6, RE11.3.2	
	Area (ha)	2.04 ha in disturbance footprint, and 32.08 ha in project area	
	Threatened flora suitable habitat	Open woodlands and forests providing suitable habitat for *Samadera bidwillii.*	
	Threatened fauna suitable habitat	Where old growth hollow-bearing trees are present, these may provide denning habitat for hollow dependent mammals, such as the Greater Glider *(Petauroides volans).* Open canopy and mid-canopy perches may be used by arboreal mammals, such as the Koala. Where an abundance of mistletoe occurs, this provides foraging habitat for the Painted Honeyeater. Squatter Pigeon may occur where predominantly native groundcover is present. Areas with rocky outcrops have the potential to host small reptiles, such as Collared Delma.	
	Potential to conform to a TEC	None	

Vegetation Community	Descriptions		Representative Photograph
Brigalow dominant open forest to woodland	**Description of vegetation communities**	There were scattered patches of Brigalow throughout the project area. This vegetation community was dominated by a canopy of *A. harpophylla* with a mix of *E. cambageana*, or *C. cristata* ranging from 7-20 m with a shrubby midstorey containing *Acacia* spp. The groundcover consisted of encroaching weedy grass species from the adjacent pastoral land and an abundance of leaf litter.	
	Corresponding REs	RE11.3.1, RE11.4.9b, RE11.9.1, RE11.9.5, RE11.11.14	
	Area (ha)	0.24 ha in disturbance footprint, and 33.65 ha in project area	
	Threatened flora suitable habitat	Canopy structure and dense leaf litter provides shaded areas suitable for *Xerothamnella herbacea, Solanum dissectum* and *Solanum johnsonianum.*	
	Threatened fauna suitable habitat	Squatter Pigeon may occur where predominantly native groundcover is present. Where an abundance of mistletoe occurs, this provides foraging habitat for the Painted Honeyeater.	
	Potential to conform to a TEC	Brigalow TEC	
Eucalypt dominant riparian associated woodland	**Description of vegetation communities**	Predominantly had a canopy of *E. tereticornis, E. populnea,* and *E. camaldulensis*, with a midstorey of *Melaleuca bracteata* (Black tea-tree) and *Acacia* spp. Groundcover predominantly natives including *Dichanthium sericeum* (Silky Bluegrass) and *Cymbopogon refractus* (Barbed Wire Grass). Weeds present including *Dolichandrea unguis-cati.*	
	Corresponding REs	RE11.3.25, RE11.3.4, RE11.3.2	
	Area	3.98 ha in disturbance footprint, and 89.94 ha in project area	
	Threatened flora suitable habitat	Alluvial woodlands provide habitat for *Samadera bidwillii.*	
	Threatened fauna suitable habitat	Where old growth hollow-bearing trees are present, these may provide denning habitat for hollow dependent mammals, such as the Greater Glider. Open canopy and mid-canopy perches may be used the Koala. Where an abundance of mistletoe occurs, this provides foraging habitat for the Painted Honeyeater. Squatter Pigeon may occur where predominantly native groundcover is present. Waterways provide foraging habitat for aquatic species, as well as foraging and roosting habitat for migratory and marine birds.	
	Potential to conform to a TEC	None	

Vegetation Community	Descriptions		Representative Photograph
Ephemeral Wetlands	**Description of vegetation communities**	This vegetation community appeared ephemeral due to the lack of water during survey events, however contained common species for wetland areas including *Fimbristylis ferruginea* (Rusty Sedge), *Cyperus* sp. and *Marsilea mutica* (Nardoo). There was a lack of sub-canopy with the dominant canopy species being *E. tereticornis.*	
	Corresponding REs	RE11.3.27	
	Area	1.47 ha in disturbance footprint, and 28.43 ha in project area	
	Threatened flora suitable habitat	Nil	
	Threatened fauna suitable habitat	Where old growth hollow-bearing trees are present, these may provide denning habitat for hollow dependent mammals, such as the Greater Glider. Open canopy and mid-canopy perches may be used the Koala. Where an abundance of mistletoe occurs, this provides foraging habitat for the Painted Honeyeater. Squatter Pigeon may occur where predominantly native groundcover is present. Foraging and roosting habitat for migratory and marine birds	
	Potential to conform to a TEC	None	
Regrowth vegetation	**Description of vegetation communities**	This vegetation community is Category X (non-remnant) however native vegetation is regrowing, tracking toward Category C (high-value regrowth) vegetation. Typically occurred along road verges.	
	Corresponding REs	None	
	Area	0.57 ha in the disturbance footprint, and 10.93 ha in the project area	
	Threatened flora suitable habitat	Marginal suitable habitat for threatened flora due to previous disturbance and edge effects.	
	Threatened fauna suitable habitat	Habitat forms part of foraging mosaic for threatened species, especially if connected to suitable habitat for them.	
	Potential to conform to a TEC	None	

Vegetation Community	Descriptions		Representative Photograph
Farm Dam	**Description of vegetation communities**	Aquatic habitat associated with agricultural farm dams. Typically associated with a lack of riparian habitat and cover.	
	Corresponding REs	None	
	Area	Nil in the disturbance footprint, and 4.97 ha in the project area	
	Threatened flora suitable habitat	None	
	Threatened fauna suitable habitat	Marginally suitable habitat for migratory shorebirds and waders.	
	Potential to conform to a TEC	None	

5.1.3 Threatened Ecological Communities

Brigalow (Acacia harpophylla dominant and co-dominant) TEC

Patches of field verified Brigalow open woodland vegetation within the project area was identified as having potential to conform to the EPBC listed endangered Brigalow *(A. harpophylla* dominant and co-dominant) TEC (hereon referred to as Brigalow TEC).

An assessment has been undertaken in Table 18 and Table 19 to confirm if the Brigalow open woodland vegetation communities conformed to the key diagnostic characteristics and the condition thresholds contained in the Approved Conservation advice for the Brigalow *(A. harpophylla* dominant and co-dominant) TEC. This assessment identified that sections of the ground-truthed Brigalow open woodland vegetation community conformed to both the key diagnostic criteria and the condition thresholds to be considered Brigalow TEC. The REs that conformed to the TEC included RE11.3.1, RE11.4.9b, RE11.9.5, and RE11.11.14 (Map 12, Appendix G).

The disturbance footprint avoids all patches of TEC through design mitigations. As such, there will be no direct impacts to Brigalow TEC as a result of the Project.

Table 18 Assessment of the Brigalow open woodland vegetation community against the key diagnostic characteristics

Key Diagnostic Criteria	Assessment Outcomes
1) The presence of Acacia harpophylla as one of the most abundant tree species in the patch. A. harpophylla is either dominant in the tree layer, or co-dominant with other species (notably Casuarina cristata, other species of Acacia, or species of Eucalyptus). AND	**Yes** *A. harpophylla* was present as the most abundant canopy/subcanopy layer in patches that conformed
2a) In Queensland - the patch is in one of the following Qld bioregions (including outliers and it meets the description of one of 16 Qld REs determined at the time of the national listing of the Brigalow ecological community under the EPBC Act (Cth). The 16 REs are, a described by the Queensland Herbarium (2013): In the Qld Brigalow Belt Bioregion – REs 11.3.1, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.5.16, 11.9.1, 11.9.5, 11.9.6, 11.11.14 and 11.12.21. In the Qld Southeast Queensland Bioregion – REs 12.8.23, 12.9-10.6 and 12.12.26; or, In the Qld Mulga Lands Bioregion – RE 6.4.2. OR	**Yes** The project is located within the Qld Brigalow Belt bioregion, with the vegetation community consistent with RE11.3.1, 11.4.9b, 11.9.5 and 11.11.14 within all patches that confirmed to the TEC.
2b) In New South Wales (NSW) - the patch meets one of the following NSW Vegetation Classification and Assessment (VCA) community descriptions. The NSW VCA communities are: VCA IDs 29, 31 and 35; as described in Benson et al. (2006) AND/OR	**N/A** The project is not located in NSW
2c) The vegetation in the patch is Brigalow regrowth with species composition and structural elements broadly typical of one of the identified Qld REs or NSW vegetation communities. (Although species density may be reduced). This can be assumed to be the case where it has been at least 15 years since it was last comprehensively cleared (not just thinned); unless direct evidence proves otherwise.	**N/A** No regrowth vegetation was recorded within the project area. All mapped vegetation areas were considered remnant.

Table 19 Assessment of the Brigalow open woodland vegetation community against the condition characteristics

Key Diagnostic Criteria	Assessment Outcomes
A patch must meet the following condition thresholds to be considered the Brigalow ecological community: 3) The patch is 0.5 ha or more in size. AND	**Yes** All patches mapped as TEC were >0.5ha
4) Exotic perennial plants comprise less than 50% of the total vegetation cover of the patch, as assessed over a minimum sample area of 0.5ha (100m by 50m), that is representative of the patch.	**Yes** Exotic perennial plants were <50% cover all patches mapped as TEC.

Other Threatened Ecological Communities

Poplar Box Grassy Woodland on Alluvial Plains TEC, Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions TEC and Weeping Myall Woodlands TEC were identified as part of the desktop assessment as likely to occur within the project area due to the mapped presence of corresponding REs. Field-verification however, confirmed that

no REs in the project area conformed to the description, key diagnostic criteria or condition thresholds for these TECs. Hence, none occurred within the project area or disturbance footprint.

5.2 FLORA

5.2.1 Threatened Flora Species

Both native and introduced flora species were incidentally recorded throughout the project area. A full list of flora species recorded has been listed in Appendix C. There was a total of 162 flora species identified, consisting of 80 native species, and 82 introduced species. There were no threatened flora species recorded during the field assessment.

5.2.2 Suitable Habitat for Threatened Flora Species

While there were no threatened flora species identified during the field surveys, some threatened flora species, identified as likely to occur, or may occur within the likelihood of occurrence assessment have suitable habitat available within the project area. These species, and the vegetation communities within the project area that may provide suitable habitat have been described in Table 20.

The suitable habitat areas within the disturbance footprint were meandered to confirm presence/absence of these six threatened flora species. Meanders were conducted in accordance with the *Flora Survey Guidelines – Protected Plants* (DES, 2020). None of the threatened plant species listed in Table 20 were verified during these meanders. Hence, it was considered unlikely they occur within the disturbance footprint.

Table 20 Threatened flora species that have suitable habitat verified within the project area

			Status		
Family	**Scientific Name**	**Common Name**	**QLD[1]**	**CTH[2]**	**Suitable Vegetation Community**
PLANTS					
Acanthaceae	*Xerothamnella herbacea*	-	EN	EN	Brigalow dominant open forest to woodland
Leguminosae	*Acacia pedleyi*	Pedley's Wattle	EN	-	Eucalypt dominant woodland to open forest
Simaroubaceae	*Samadera bidwillii*	Quassia	VU	VU	Eucalypt dominant riparian associated woodland
Solanaceae	*Solanum dissectum*	-	EN	EN	Brigalow dominant open forest to woodland
Solanaceae	*Solanum elachophyllum*	-	EN	-	Brigalow dominant open forest to woodland
Solanaceae	*Solanum johnsonianum*	-	EN	EN	Brigalow dominant open forest to woodland

[1] *Queensland Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern, SLC = Special Least Concern*

[2] *Commonwealth Status (EPBC Act; Cth): EX = Extinct, EW = Extinct in the Wild, CE = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened,*

5.3 FAUNA

5.3.1 Threatened Fauna Species

A total of 99 fauna species were recorded during the field surveys, comprising the following: one amphibian, 72 bird species, 22 mammal species and four reptile species (refer to Appendix B for a full list of all fauna species recorded; Appendix D contains the Bat Analysis report for the project).

A flying-fox camp was identified as occurring within Callide Creek, in the vicinity of Lake Callide. This flying-fox camp is not recognised as a nationally important camp and no threatened flying-fox species were identified within the camp during field-surveys. Hence, this camp or the species within it would not be considered an MNES or MSES. This camp also occurs outside the disturbance footprint. For these reasons, it has not been identified on Maps in Appendix G.

From the recorded fauna species, Table 21 lists the threatened and conservation significant species that were recorded during the field assessment. These records are shown on Map 12, Appendix G. Despite the targeted survey efforts for other threatened and migratory species considered likely to or may occur within the project area, no evidence of these species were recorded during field surveys.

Table 21 Recorded threatened and migratory species within the project area

Common Name	Scientific Name	Status		Suitable Vegetation Communities	Observation Description
		QLD[1]	CTH[2]		
Squatter Pigeon	*Geophaps scripta scripta*	VU	VU	• Eucalypt dominant woodland to open forest • Eucalypt dominant riparian associated woodland • Ephemeral wetlands	Observed approximately 800m south of the project area in the eastern section, on two occasions.
Painted Honeyeater	*Grantiella picta*	VU	VU	• Eucalypt dominant woodland to open forest • Eucalypt dominant riparian associated woodland • Brigalow dominant open forest to woodland • Ephemeral wetlands	Two records; feeding on mistletoe near Brigalow open woodland, and in *E. camaldulensis* community associated with HES wetland
Koala	*Phascolarctos cinereus*	EN	EN	• Eucalypt dominant woodland to open forest • Eucalypt dominant riparian associated woodland • Ephemeral wetlands	Signs observed on *E. tereticornis* in Kroombit Creek. Scat recorded in eastern part of project area.
Echidna	*Tachyglossus aculeatus*	SLC	-	• Eucalypt dominant woodland to open forest • Eucalypt dominant riparian associated woodland • Brigalow dominant open forest to woodland • Regrowth areas	Species recorded within riparian habitat of Callide Creek.

[1] *Queensland Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern, SLC = Special Least Concern*

[2] *Commonwealth Status (EPBC Act; Cth): EX = Extinct, EW = Extinct in the Wild, CE = Critically Endangered, EN = Endangered, VU = Vulnerable.*

5.3.2 Suitable Habitat for Threatened and Migratory Fauna Species

Some threatened and migratory fauna species that were considered likely to occur or may occur during the likelihood of occurrence assessment, whilst not detected during the targeted field surveys, have suitable habitat verified within the project area (Map series 14, Appendix G). These threatened species that were not detected during field surveys but had habitat verified withing the project area are described in Table 22. The vegetation communities within the project area that provide suitable habitat for these species has also been provided in Table 22.

Table 22 Threatened and migratory species habitat within the project area

Type		Common Name	Scientific Name	Status		Suitable Vegetation Communities
				QLD[1]	CTH[2]	
Threatened Species	Birds	White-throated Needletail	*Hirundapus caudacutus*	VU	VU	Eucalypt dominant woodland to open forest Alluvial woodlands Ephemeral wetlands
		Sharp-tailed Sandpiper	*Calidris acuminata*	SLC	VU, Mi, M	Ephemeral wetlands
	Mammals	Northern Quoll	*Dasyurus hallucatus*	LC	EN	Eucalypt dominant woodland to open forest Eucalypt dominant riparian associated woodland
		Greater Glider (southern/ central)	*Petauroides volans*	EN	EN	Eucalypt dominant woodland to open forest Eucalypt dominant riparian associated woodland Ephemeral wetlands
	Reptiles	Southern Snapping Turtle	*Elseya albagula*	CR	CE	None, aquatic species associated with instream habitat only.
		Ornamental Snake	*Denisonia maculata*	VU	VU	Brigalow dominant woodland to open forest
		Collared Delma	*Delma torquata*	VU	VU	Eucalypt dominant woodland to open forest Eucalypt dominant riparian associated woodland
Migratory Species	Birds	Fork-tailed Swift	*Apus pacificus*	SLC	M, Mi	Eucalypt dominant woodland to open forest Alluvial woodlands and Ephemeral wetlands
		Gull-billed Tern	*Gelochelidon nilotica*	SLC	M, Mi	Ephemeral wetlands
		Caspian Tern	*Hydroprogne caspia*	SLC	M, Mi	Eucalypt dominant riparian associated woodland Ephemeral wetlands

[1] *Queensland Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern, SLC = Special Least Concern*

[2] *Commonwealth Status (EPBC Act; Cth): EX = Extinct, EW = Extinct in the Wild, CE = Critically Endangered, EN = Endangered, VU = Vulnerable, - not protected.*

5.4 WATERCOURSES

Watercourses throughout the project area are ephemeral, and during the May and July survey periods were in a seasonally dry state. It is expected that high flows however would occur during the wet season. Figure 2 shows the dry condition of Callide and Kroombit Creeks, an unnamed tributary of Callide Creek, and an unnamed tributary of Kroombit Creek. These creeks are mapped as purple (major risk of impacts) for waterway barrier works and would provide for fish passage when flowing during wet season months.

All waterways mapped as waterways providing fish passage (waterway barrier works) in Map 9, Appendix G were verified during the field surveys.

Kroombit Creek

Callide Creek

Unnamed tributary of Kroombit Creek

Unnamed tributary of Callide Creek

Figure 2
State of watercourses observed within the project area

5.5 WETLANDS

The mapped HES wetland within the central section of the project area was verified as being consistent with its mapped status as a HES wetland; satisfying the definition of a wetland through periodic/intermittent inundation, containing identified wetlands plants that require periodical inundation, and having a substratum that was not soil, that was saturated with water, or covered by water at some point in time (Map 8, Appendix G).

There was also a smaller wetland to the west of the mapped HES wetland that potentially meets the definition for a HES wetland (Map 8, Appendix G). This wetland was observed in a dry state during the field surveys, but contained plants that require periodic inundation including *Cyperus* sp. and *Marsilea mutica*. The canopy was dominated by *E. tereticornis*. It was confirmed by the landholder that the wetland is generally inundated with water to a depth of 0.2-1 m during wet season months and is host to a range of aquatic bird and amphibian species. Figure 3 shows the dry conditions of the mapped HES wetland, and the additional unmapped wetland within the project area during the survey period.

Mapped wetland of high ecological significance

Potential wetland of high ecological significance

Figure 3 State of wetlands observed within the project area

5.6 CORRIDORS AND CONNECTIVITY

Much of the vegetation through which the project area traverses is fragmented and isolated, surrounded by pastoral and cropping land, and defined further by major roads. These roads and pastoral/cropping land greatly impact the fauna habitat connectivity values of the project area. While this is the case, the fragmented and isolated remnant patches of vegetation form part of the limited remaining stands of vegetation within the Banana Range area, traversing between Overdeen State Forest and Kroombit Tops National Park. In this regard, whilst isolated and fragmented, the vegetation is likely to provide an important passage for fauna, providing dispersal opportunities within the project area. Additionally, the fragmented and isolated vegetation strands within the project area are anticipated to provide important stepping-stone habitat for a range of birds and bat species, which are likely to contribute towards the mosaic of foraging resources throughout the region.

The project area traverses through vegetation associated with two major watercourses, Callide and Kroombit Creeks, and a large tract of vegetation to the north of Lake Callide in the eastern part of the project area. These vegetated areas would provide important fauna movement opportunities for the region, connecting isolated remnant patches with larger intact areas of habitat. The watercourses within the project area would also provide important aquatic fauna movement to upstream and downstream reaches of these streams.

5.7 INVASIVE SPECIES

5.7.1 Restricted Weeds

Terrestrial weeds were present within the project area in variable densities and were most prevalent in cleared areas, road verges, and along the edges of native vegetation communities. Most of the vegetation communities throughout the project area were observed to have high densities of weed cover. Table 23 lists the introduced species that were recorded within the project area that are considered restricted invasive plants under the *Biosecurity Act 2014* (Qld) and WoNs. There were eleven introduced species that are restricted under the Act , eight of which were also WoNs.

Table 23 Terrestrial weeds observed within the project area

Scientific Name	Common Name	*Biosecurity Act 2014* Category	WONs Listing
Asparagus aethiopicus	Ground Asparagus	Restricted - Category 3	Listed
Asparagus africanus	Ornamental Asparagus	Restricted - Category 3	Listed
Bryophyllum delagoense	Mother of Millions	Restricted - Category 3	-
Celtis sinensis	Chinese Elm	Restricted - Category 3	-
Dolichandra unguis-cati	Cat's Claw Creeper	Restricted - Category 3	Listed
Lantana camara	Lantana	Restricted - Category 3	Listed
Lantana montevidensis	Creeping Lantana	Restricted - Category 3	-
Opuntia stricta	Prickly Pear	Restricted - Category 3	Listed
Opuntia tomentosa	Velvety Tree Pear	Restricted - Category 3	Listed
Parthenium hysterophorus	Parthenium Weed	Restricted – Category 3	Listed
Vachellia farnesiana	Prickly Acacia	Restricted – Category 3	Listed

5.7.2 Pest Species

Five introduced terrestrial fauna species were recorded during the field assessment, including Cane Toad *(Rhinella marina),* Cow *(Bos* sp.), Domestic Dog *(Canis familiaris),* European Rabbit *(Oryctolagus cuniculus),* and Feral Pig *(Sus scrofa).* Of these, the European Rabbit and Feral Pig are classed as restricted invasive terrestrial animals listed under the *Biosecurity Act 2014 (Qld).* There were no aquatic invasive animal species observed during the field surveys.

MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE

6.1 OVERVIEW

Based on the desktop and field assessment, there were MNES present within the disturbance footprint that have the potential to be impacted by the Project.

There was one TEC, 17 threatened species and three migratory species listed under the *EPBC Act* (Cth), that were either confirmed as present, or were considered likely to or may occur within the project area based on confirmed records or habitat suitability. A description of each of these species' habitat requirements, key threats, recorded presence within the project area and disturbance footprint, and our compliance with targeted survey requirements have been provided below.

Section 9 Significant Impact Assessments provides the assessment of significance of project impacts on MNES confirmed within the project area or considered to have a high likelihood of occurrence.

6.2 THREATENED ECOLOGICAL COMMUNITIES

6.2.1 Brigalow *(Acacia harpophylla* dominant or co-dominant) Threatened Ecological Community

The Brigalow TEC is characterised by the presence of *A. harpophylla* as one of the dominant canopy or subcanopy species. In Queensland, this community usually occurs on flat or undulating clay plains but can be associated with river and creek flats on old loamy sandy plains. Throughout the Brigalow Belt bioregion, the community has been extensively cleared and is highly fragmented. Due to this, regrowth Brigalow is considered to be part of the TEC if it has not been comprehensively cleared in the last 15 years and meets the condition thresholds for the TEC.

Each patch of suspected Brigalow TEC was evaluated against the key diagnostic criteria and condition thresholds within the relevant DCCEEW Conservation or Listing Advice. These data were then vetted using GIS techniques (e.g., SLATS Foliage Projection Cover data) to include/exclude areas based on condition and area extent.

Eleven out of 28 patches of Brigalow intersecting the project area satisfied the requirements for the TEC based on key diagnostic criteria, condition thresholds and patch size (Map 12, Appendix G). All eleven patches of Brigalow TEC have been avoided by design of the disturbance footprint.

As the Brigalow TEC occurs in close proximity to the disturbance footprint, indirect impacts from the Project are possible. In this respect, an MNES significant impact assesment for this TEC was considered necessary. This has been undertaken in *Section 9 Significant Impact Assessments.*

6.3 LISTED THREATENED SPECIES

6.3.1 Flora

Xerothamnella herbacea

Xerothamnella herbacea is listed as endangered under both the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld). This species is a herbaceous groundcover species which inhabits Brigalow dominated communities in gilgai areas, mostly in shaded sites, where it can be found growing in leaf litter. Soils where the species is found are typically heavy, grey to dark brown clays (Queensland Herbarium, 2008).

Table 24 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, the project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 24 *Xerothamnella herbacea* occurrence details

Xerothamnella herbacea		
Targeted Survey Guidelines met		**Yes** No Commonwealth survey guidelines are defined for this flora species, while the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) defines survey requirements within mapped high-risk trigger areas for protected plants. A flora survey in accordance with the *Flora Survey Guidelines – Protected Plants* was undertaken within the high-risk trigger areas mapped within the eastern part of the project area (Map 9, Appendix G). In addition to this, the 44km long project area was walked by ecologists, whereby 215 general vegetation assessments and incidental recordings of all flora species were undertaken (survey effort shown in Map 5, Appendix G). Survey effort was undertaken during all four seasons; autumn, winter, spring and summer to cover all flowering and fruiting periods for each of the threatened flora species identified in the likelihood of occurrence assessment.
Occurrence	**Disturbance Footprint**	No individuals or populations confirmed within the disturbance footprint during field surveys.
	Project Area	No individuals or populations confirmed within the project area during field surveys.
	Area of Interest	Three recent records from the area of interest (20km buffer) in 2014 and 2018 have occurred, with more records within the region, near Moura to the west. The two closest records to the project area occurred within Mount Murchison Nature Refuge (approximately 2km to the northeast of the project area) and near the Callide Timber Reserve (approximately 5km northeast of the project area)..
Habitat Availability		This species prefers Brigalow within gilgai habitat. The only RE within the project area to satisfy this habitat description was RE11.4.9a, where one patch occurs in the central part of the project area. This patch has been avoided by design of the disturbance footprint and as such no suitable habitat for *X. herbacea* was confirmed present within the disturbance footprint for the Project.
Likelihood of Occurrence after targeted survey		**Unlikely to occur** No individuals or population confirmed within the disturbance footprint or project area during targeted field surveys. Only a small number of scattered records occur from the area of interest. Suitable habitat areas have been avoided by design of the disturbance footprint; therefore, it was considered the species is unlikely to occur within the disturbance footprint.
Threats		No Recovery Plan for the species occurs, but threats to the species include: • Competition with invasive plants - *M. maximus* and *Pennisetum ciliare* (Buffel Grass). • Habitat loss through road widening and maintenance activities. • Surface erosion • Cattle and native macropod grazing and trampling.
Significant Impact Assessment Required		**No**, *X. herbacea* was not confirmed present within the disturbance footprint or project area during targeted surveys. Suitable habitat for the species has also been avoided by design, therefore an MNES significant impact assesment was considered unnecessary for the species.

Samadera bidwilli, Quassia

Samadera bidwillii is listed as vulnerable under the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld). It is a small shrub that generally inhabits rainforest margins as well as open forests and woodlands, often adjacent to watercourses. In open forests and woodlands, *Samadera bidwillii* is commonly associated with Eucalypt species, including *Corymbia citriodora, Eucalyptus propinqua, Eucalyptus acmenoides, E. tereticornis, Eucalyptus intermedia, Eucalyptus siderophloia, Eucalyptus moluccana, Eucalyptus cloeziana* and *Eucalyptus fibrosa* (QDNR, 2001).

The species distribution overlaps with two listed TECs including the Semi-evergreen Vine Thickets of the Brigalow Belt (North and South) and Nandewar Bioregions, and the Brigalow TEC. Table 25 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, the project area and area of interest, and our compliance with targeted survey requirements.

Table 25 *Samadera bidwillii* occurrence details

Samadera bidwillii		
Targeted Survey Guidelines met		**Yes.** No Commonwealth survey guidelines are defined for this flora species, while the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) defines survey requirements within mapped high-risk trigger areas for protected plants. A flora survey in accordance with the *Flora Survey Guidelines – Protected Plants* was undertaken within the high-risk trigger areas mapped within the eastern part of the project area (Map 9, Appendix A). Timed meanders in accordance with these guidelines were also undertaken in all areas of the project area considered suitability habitat for this species, to detect presence/absence. This timed meanders are shown in Map 5, Appendix G. In addition, the 44km project area was walked by ecologists, whereby 215 general vegetation assessments and incidental recordings of all flora species were undertaken (survey effort shown in Map 5, Appendix G). Survey effort was undertaken during all four seasons; autumn, winter, spring and summer to cover all flowering and fruiting periods for each of the threatened flora species identified in the likelihood of occurrence assessment.
Occurrence	**Disturbance Footprint**	No individuals or population confirmed within the disturbance footprint during field surveys.
	Project Area	No individuals or population confirmed within the project area during field surveys.
	Area of Interest	Eight records occurred within the area of interest with the most recent being in 2021, primarily located near the Batchfire's Callide Mine and Callide Timber Reserve, approximately 5km to the northeast of the project area. One record from 1992 was recorded 1km to the east of the project area near Lake Callide.
Habitat		No rainforest margin habitat was recorded within the project area. Some marginal habitat was present within Eucalypt dominant riparian associated woodlands (REs 11.3.4 and 11.3.25) associated with Callide and Kroombit Creeks in the centre and eastern parts of the project area, and patches of RE11.3.1 scattered throughout the project area.
Likelihood of Occurrence after targeted survey		**Unlikely to occur** No individuals or population confirmed within the disturbance footprint or project area during field surveys despite timed meanders in accordance with the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) in all suitable habitat areas within the project footprint.
Threats		No Recovery Plan for the species occurs, but threats to the species include: • Altered fire regimes. • Weeds smothering preferred habitat and increasing fuel loads from invasive weeds.
Significant Impact Assessment Required		**No**, *S. bidwillii* was not confirmed present within the disturbance footprint or project area during targeted surveys. Suitable habitat was sufficiently targeted during the field surveys with no detection of the species. Hence, it was considered unlikely to occur within the disturbance footprint, and therefore an MNES significant impact assesment was considered unnecessary for the species.

Solanum dissectum

Solanum dissectum is listed as endangered under both the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld). This species is a small shrub that occurs in isolated areas between Blackwater to Dululu in central Queensland. It is found in open forest and woodland habitats of Brigalow and *E. thozetiana* (Lapunyah) on solodic clay soils (Bean, 2004). Table 26 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 26
Solanum dissectum occurrence details

Solanum dissectum		
Targeted Survey Guidelines met		**Yes.** Commonwealth survey guidelines are not defined for this flora species, while the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) defines survey requirements within mapped high-risk trigger areas for protected plants. A flora survey in accordance with the *Flora Survey Guidelines – Protected Plants* was undertaken within the high-risk trigger areas mapped within the eastern part of the project area (Map 9, Appendix G). In addition, the 44km project area was walked by ecologists, whereby 215 general vegetation assessments and incidental recordings of all flora species were undertaken (survey effort shown in Map 5, Appendix G). Survey effort was undertaken during all four seasons; autumn, winter, spring and summer to cover all flowering and fruiting periods for each of the threatened flora species identified in the likelihood of occurrence assessment.
Occurrence	**Disturbance Footprint**	No individuals or population confirmed within the disturbance footprint during field surveys.
	Project Area	No individuals or population confirmed within the project area during field surveys.
	Area of Interest	Two historical records (1959 and 1966) occur within the area of interest and one recent record (2024). The historical records occurred in the vicinity of the now Biloela township, and the recent record occurred near Argoon Kilburnie Road, approximately 17.5km to the north of the project area.
Habitat		Marginal habitat for the species is present within Brigalow patches on landzone 4 and 9 within the project area (REs 11.4.9b and 11.9.1). These RE patches have been avoided by design of the disturbance footprint and as such no suitable habitat for *S. dissectum* was confirmed present within the disturbance footprint for the Project.
Likelihood of Occurrence after targeted survey		**Unlikely to occur** No individuals or population confirmed within the disturbance footprint or project area during field surveys. Only a small number of scattered records occur from the area of interest. Suitable habitat areas have been avoided by design of the disturbance footprint; therefore, it was considered the species is unlikely to occur within the disturbance footprint.
Threats		No Recovery Plan for the species occurs, but threats to the species include: • Vegetation clearing for agriculture. • Invasion of habitats by exotic grasses. • Abnormal intensive grazing by macropods.
Significant Impact Assessment Required		**No**, *S. dissectum* was not confirmed present within the disturbance footprint or project area during targeted surveys. Suitable habitat for the species has also been avoided by design, therefore an MNES significant impact assesment was considered unnecessary for the species.

Solanum johnsonianum

Solanum johnsonianum is listed as endangered under both the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld). This species is a small shrub that occurs in isolated areas between Theodore to Biloela in central Queensland. It is found in open forest and woodland habitats where Brigalow dominates or co-dominates on heavy cracking clay soils (Bean, 2004).

Table 27 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 27 *Solanum johnsonianum* occurrence details

Solanum johnsonianum		
Targeted Survey Guidelines met		**Yes** Commonwealth survey guidelines are not defined for this flora species, while the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) defines survey requirements within mapped high-risk trigger areas for protected plants. A flora survey in accordance with the *Flora Survey Guidelines – Protected Plants* was undertaken within the high-risk trigger areas mapped within the eastern part of the project area (Map 9, Appendix G). In addition, the 44km project area was walked by ecologists, whereby 215 general vegetation assessments and incidental recordings of all flora species were undertaken (survey effort shown in Map 5, Appendix G). Survey effort was undertaken during all four seasons; autumn, winter, spring and summer to cover all flowering and fruiting periods for each of the threatened flora species identified in the likelihood of occurrence assessment.
Occurrence	**Disturbance Footprint**	No individuals or population confirmed within the disturbance footprint during field surveys.
	Project Area	No individuals or population confirmed within the project area during field surveys.
	Area of Interest	There was one recent (2014) and historical (1959) record >8km to the northwest of the project area. More recent records occur near Moura to the west and to the north along the Leichhardt Highway.
Habitat		Marginal habitat for the species is present within Brigalow patches on landzone 4 and 9 within the project area (REs 11.4.9b and 11.9.1). These RE patches have been avoided by design of the disturbance footprint and as such no suitable habitat for *S. johnsonianum* was confirmed present within the disturbance footprint for the Project.
Likelihood of Occurrence after targeted survey		**Unlikely to occur** No individuals or population confirmed within the project area or project area during field surveys. However, it is possible this species occurs within suitable habitats and was just not detected during field surveys.
Threats		No Recovery Plan for the species occurs, but threats to the species include: • Vegetation clearing for agriculture. • Invasion of habitats by exotic grasses. • Abnormal intensive grazing by macropods.
Significant Impact Assessment Required		**No**, *S. johnsonianum* was not confirmed present within the disturbance footprint or project area during targeted surveys. Suitable habitat for the species has also been avoided by design, therefore an MNES significant impact assesment was considered unnecessary for the species.

6.3.2 Birds

White-throated Needletail, Hirundapus caudacutus

The White-throated Needletail is listed vulnerable under both the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld) and is also listed as migratory and marine under the *EPBC Act* (Cth). This migratory species does not breed within Australia. In Australia, the species is almost exclusively aerial, with habitat that includes closed forests to open habitats, such as farmland. They roost in trees amongst dense foliage in the canopy (Tarburton, 1993).

Table 28 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 28 White-throated Needletail occurrence details

White-throated Needletail		
Targeted Survey Guidelines met		No State or Commonwealth Survey Guidelines have been defined for this species. Regardless, a total of 46 standardised bird surveys (Birdlife Australia) representing 16 survey hours, >220 hours of ecologists walking the project area, 46 habitat assessments to determine suitability of the habitat for the species and incidental recordings have been completed throughout the project area (survey effort shown in Map 5, Appendix G).
Occurrence	**Disturbance Footprint**	No White-throated Needletails were recorded within the disturbance footprint during the field surveys
	Project Area	No White-throated Needletails were recorded within the project area during the field surveys.
	Area of Interest	Two recent records (2020 and 2021) of the species occurs within the area of interest (Map series 14 – *White-throated Needletail).*
Habitat		No breeding habitat occurs in Australia. No roosting and foraging habitat was verified in the project area, however foraging and dispersal habitat was verified, namely surrounding the Callide and Kroombit Creek vegetation areas in the centre part of the project area, and the vegetation areas in the eastern part of the project area (shown in Map series 14 – *White-throated Needletail).*
Connectivity of Habitat		For White-throated Needletails, connected habitats are essential to provide continuous aerial foraging opportunities, access to shelter sites, and reliable resources across their migratory pathways. Fragmentation disrupts these requirements, reducing foraging efficiency and increasing energetic costs. Connectivity pathways in the region for the White-throated Needletail are highly fragmented, due to historical clearing for agriculture. The connectivity pathways that remain include riparian habitat along Callide and Kroombit Creek, which connects to larger habitat areas in the east of the area of interest, surrounding Lake Callide (<1km to the southeast of the project area) and the Callide Timber Reserve (approximately 5km to the northeast of the project area; Map series 14 – White-throated Needletail).
Likelihood of Occurrence after targeted survey		**May occur** No individuals or population confirmed within the disturbance footprint or project area during field surveys, however there are recent records within the area of interest suggesting that the species does occur in the vicinity and may occasionally fly over the project area. Hence, given the species aerial nature and extensive distribution throughout Australia, it was considered that the species may occur at least on occasion flying over the project area.
Availability of areas critical to the species survival, important habitat or important populations		Important habitat, as described in Table 7, would occur for this species, particularly where foraging habitat remains intact (e.g., the eastern part of the project area). While this is the case, it is unlikely an ecologically significant proportion of a population (100 individuals) occurs within the disturbance footprint or project area.
Threats		No Recovery Plan for the species occurs. There are few threats to this species within Australia other than collision with overhead wires (threats to individuals only, not the population).
Significant Impact Assessment Required		**Yes,** the White-throated Needletail, while not confirmed present within the disturbance footprint or project area during targeted surveys, has suitable and important habitat verified within the disturbance footprint, which will be directly impacted by the Project. Therefore, an MNES significant impact assesment was considered necessary for the species.

Squatter Pigeon, Geophaps scripta scripta

The Squatter Pigeon is listed vulnerable under both the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld). Squatter Pigeon habitat is generally defined as remnant, regrowth or partly modified eucalypt open forest to sparse, open woodland and scrub within 3km of water bodies or watercourses, including artificial dams (Higgins & Davies, 1996). Habitat for this species is generally differentiated by breeding, foraging and dispersal habitat.

In Queensland, foraging and breeding habitat is known to occur on well-draining, sandy or loamy soils on low, gently sloping, flat to undulating plains and foothills (land zone 5) and lateritic (duplex) soils on low 'jump-ups' and escarpments (land zone 7; Squatter Pigeon Workshop, 2011) within 1 km of a reliable water body (typically alluvial systems on land zone 3). This species roosts in trees and nests in shallow depressions in the ground and is thought to move through general wooded habitats to access reliable water sources on land zones 3, 4, 5, 7 or 10 (Squatter Pigeon Workshop, 2011). Table 29 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 29
Squatter Pigeon occurrence details

Squatter Pigeon		
Targeted Survey Guidelines met		**Yes** Commonwealth *Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)* defines area searches (15 hours over three days) or flushing surveys (10 hours over three days) in areas <50ha. No Queensland targeted survey guidelines for this species have been defined. Over the six field surveys totalling 22 field days, a total of 46 standardised bird surveys, representing 16 survey hours) have been completed throughout the project area, and >220 hours of flushing surveys completed by ecologists walking the project area. In addition, 46 habitat assessment to determine suitability of the habitat for the species and incidental recordings have been completed throughout the project area (survey effort shown in Map 5, Appendix G).
Occurrence	**Disturbance Footprint**	No Squatter Pigeons were recorded within the disturbance footprint during the field surveys.
	Project Area	No Squatter Pigeons were recorded within the project area during the field surveys; however, one individual was recorded during two separate field surveys (May and December 2023) and adjacent to the project area in the eastern part of the project area (Map 12, Appendix G).
	Area of Interest	There have been a number of records of this species throughout the area of interest, both recently and historically, with the most recent being in 2024 (Map series 14 – Squatter Pigeon),.
Habitat		Breeding, foraging and dispersal habitat occurs in the disturbance footprint and project area, within riparian areas of Callide and Kroombit Creeks, the wetlands, and in the eastern part of the project area, not of Lake Callide (Map series 14 – Squatter Pigeon). While habitat for the species has been verified in the disturbance footprint, the habitat is in poor condition due to a lack of native groundcover species, which the Squatter Pigeon requires to forage on.
Connectivity of Habitat		The Squatter Pigeon relies on the daily availability of water resources for drinking, alongside sufficient areas of native grassland for foraging. Connectivity of habitat for this species is critical, as it enables movement between water sources and feeding grounds, supporting the species' survival in fragmented landscapes. Connectivity pathways for the Squatter Pigeon in the region are highly fragmented, due to historical clearing for agriculture. The connectivity pathways that remain include riparian habitat along Callide and Kroombit Creek, which connects to larger habitat areas surrounding Lake Callide in the east of the area of interest (Map series 14 – Squatter Pigeon).
Likelihood of Occurrence after targeted survey		**Recorded** The species was recorded during field surveys adjacent to the eastern part of the project area. It is likely this species occurs within the disturbance footprint on occasion to breed forage or disperse.
Availability of areas critical to the species survival, important habitat or important populations		While the species was recorded, and suitable breeding, foraging and dispersal habitat occurs, the population would not be considered an important population due to it being outside of the species southern limit (as described in Table 7). There is currently no critical habitat recognised for this species. Where 'habitat critical to the survival of a species' is not formally defined, habitat is to be assessed against the below criteria to determine whether it meets the relevant thresholds to be considered critical habitat for a species. Critical habitat is defined as areas that are necessary:

Squatter Pigeon	
	• For activities such as foraging, breeding, roosting, or dispersal. • For the long-term maintenance of the species or ecological community (including the maintenance of species essential to the survival of the species or ecological community, such as pollinators). • To maintain genetic diversity and long term evolutionary development, or • For the reintroduction of populations or recovery of the species or ecological community. Habitat mapped in the disturbance footprint is considered suitable for breeding, foraging and dispersal for the species. While there remains extensive habitat for this species within the region large tracts have been cleared for agriculture. With ongoing vegetation clearance and fragmentation an identified key threat to the species (TSSC, 2015), the breeding and foraging habitat areas in the project area could be considered necessary for these key life stages and as such could potentially be considered critical for the species survival.
Threats	No Recovery Plan for the species occurs, but threats to the species include: • Vegetation clearing and fragmentation of habitat for agriculture. • Overgrazing of pastures by cattle during times of drought which increases weed invasion and reduces native groundcovers required for foraging. • Trampling of nests by domestic stock. • Inappropriate fire regimes. • Predation by feral cats and foxes.
Significant Impact Assessment Required	**Yes,** the Squatter Pigeon was confirmed present adjacent to the project area during targeted surveys. Suitable breeding, foraging and dispersal habitat was verified within the disturbance footprint, and intact areas constituting breeding and foraging habitat could be considered habitat that is critical for the species survival. Therefore, an MNES significant impact assesment was considered necessary for the species.

Painted Honeyeater, Grantiella picta

The Painted Honeyeater is listed as vulnerable under both the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld). This species is sparsely distributed from south-eastern Australia to north-western Queensland and eastern Northern Territory. The greatest concentrations and almost all records of breeding occurs from south of 26°S, on inland slopes of the Great Dividing Range between the Grampians in Victoria to Roma in Queensland (Higgins et al., 2001). The species exhibits seasonal north-south movements governed principally by the fruiting of mistletoe, with which its breeding season is closely matched (Barea & Watson, 2007). Following breeding in the lower latitudes, the species move to semi-arid regions such as central and western Queensland.

The species forages on mistletoes in eucalypt forests and woodlands, and riparian woodlands, where it prefers woodlands which contain a higher number of mature trees, as these host more mistletoes for foraging (Garnett et al., 2011). Breeding habitat for these species is old growth eucalyptus paddock trees containing mistletoe within known breeding areas, as defined in the *Draft Guide to Nationally Protected Species Significantly Impacted by Paddock Tree Removal (DoEE, 2020)*. All other old growth Eucalypt paddock trees containing mistletoe within the species distribution would be considered foraging habitat for the species. Table 30 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 30 Painted Honeyeater occurrence details

Painted Honeyeater		
Targeted Survey Guidelines met		**Yes.** No Commonwealth targeted survey guidelines for this species have been defined. The Commonwealth *Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)* however defines area searches and transects (8 hours over 2 days) in areas <50ha for other honeyeater species. The Queensland Targeted species survey guidelines for the Painted Honeyeater (Rowland, 2012) defines area searches during breeding season (4 hours over 4 days). Over the seven field surveys totalling 34 field days, 46 standardised bird surveys, representing 16 survey hours were completed, and >220 hours of transects completed by ecologists walking the 44km project area. In addition, 46 habitat assessment to determine suitability of the habitat for the species and incidental recordings were completed (survey effort in Map 5, Appendix G).
Occurrence	**Disturbance Footprint**	The Painted Honeyeater was not recorded within the disturbance footprint during field surveys.
	Project Area	Two records of the Painted Honeyeater were made within the project area during the field surveys in May 2023, within ephemeral wetland habitat and Brigalow habitat in the centre part of the project area (Map 12, Appendix G). An abundance of mistletoes was also notable throughout the centre part of the project area during the survey period when the species was recorded.
	Area of Interest	There was one recent recorded within the area of interest, in the Biloela township in 2017 (Map series 14 – Painted Honeyeater). No further regional records for this species have occurred.
Habitat		No breeding habitat is present in the project area due to the species not known to breed within the region. Some vegetation throughout the centre part of the project area contains 'old growth eucalyptus paddock trees containing mistletoe' and as such would be considered foraging and dispersal habitat for the species (Map series 14 – Painted Honeyeater).
Connectivity of Habitat		The Painted Honeyeater relies heavily on fruiting mistletoes as its primary food source, making the presence of mistletoe-bearing trees essential for foraging and breeding. Connectivity of habitat is particularly important, as it allows the species to move across the region in search of mistletoe resources, which can be patchily distributed and fluctuate seasonally. Connectivity pathways for the Painted Honeyeater are highly fragmented, due to historical clearing for agriculture within the region. The connectivity pathways that remain include riparian habitat along Callide and Kroombit Creek, which connects to larger habitat areas in the east of the area of interest, surrounding Lake Callide (<1km to the southeast of the project area) and the Callide Timber Reserve (approximately 5km to the northeast of the project area; Map series 14 – Painted Honeyeater).
Likelihood of Occurrence after targeted survey		**Recorded** The species was recorded during field surveys within the project area; hence it is likely to occur within the disturbance footprint on occasion.
Availability of areas critical to the species survival, important		Habitat critical for survival of the species includes breeding habitat, foraging habitat where mistletoes are present. With the species recorded within the project area, and an abundance of

Painted Honeyeater	
habitat or important populations	mistletoes also recorded, the habitat within the disturbance footprint would be considered habitat that is critical to the species survival. No important populations have been defined for the species.
Threats	The National Recovery Plan (DAWE, 2021a) list the threats to the species as: • Habitat loss and degradation. • Competition by the aggressive Noisy Miner *(Manorina melanocephala)* and Yellow-throated Miner *(M. flavigula)*.
Significant Impact Assessment Required	**Yes,** the Painted Honeyeater was confirmed present within the project area during targeted surveys. Suitable foraging and dispersal habitat was verified within the disturbance footprint, and this habitat would be considered habitat that is critical for the species survival. Therefore, an MNES significant impact assesment was considered necessary for the species.

Sharp-tailed Sandpiper, Calidris acuminata

The Sharp-tailed Sandpiper is listed as vulnerable, migratory and marine under both the *EPBC Act* (Cth). Habitat for this species has been defined as permanent or semi-permanent inland and coastal freshwater or saline habitats.

Table 31 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 31 Sharp-tailed Sandpiper occurrence details

Sharp-tailed Sandpiper		
Targeted Survey Guidelines met		**Yes** No stet targeted survey guidelines for this species have been defined. The Commonwealth *Survey Guidelines for Australia's Threatened Birds (DEWHA, 2010)* however defines the following methods for the species: • Observation using telescope from vantage points overlooking suitable foraging or roosting habitat at appropriate periods of the tidal cycle. • Transect surveys by boat around offshore islands, lake shores, coastlines and rivers. • Aerial surveys of foraging habitat in large or remote study areas at the appropriate period of the tidal cycle. Suitable freshwater habitat (e.g., Lake Callide) occurred adjacent to the project area. Limited habitat for the species occurred within the project area, with ephemeral wetlands dry at the time of the field surveys, to implement the above survey methods. Instead, the following was undertaken: 46 standardised bird surveys, representing 16 survey hours were completed, and >220 hours of transects completed by ecologists walking the 44km project area. In addition, 46 habitat assessment to determine suitability of the habitat for the species and incidental recordings were completed (survey effort in Map 5, Appendix G).
Occurrence	**Disturbance Footprint**	The Sharp-tailed Sandpiper was not recorded within the disturbance footprint during field surveys.
	Project Area	The Sharp-tailed Sandpiper was not recorded within the project area during field surveys.
	Area of Interest	There was one recent recorded within the area of interest, near Lake Callide in 2023 (Map series 14 – Sharp-tailed Sandpiper). No further regional records for this species have occurred.
Habitat		Habitat for this species has been defined as permanent or semi-permanent inland and coastal freshwater or saline habitats. Suitable freshwater habitat (e.g., Lake Callide) occurred adjacent to the project area. Limited habitat for the species occurred within the project area, with the ephemeral wetlands providing marginal habitat during wet season months (Map series 14 – Sharp-tailed Sandpiper).
Connectivity of Habitat		The Sharp-tailed Sandpiper relies on wetland habitats for foraging and roosting, with connectivity between wetlands essential to support seasonal movements and ensure access to suitable feeding grounds as water levels and resource availability fluctuate. Connectivity pathways for the Sharp-tailed Sandpiper are highly fragmented, due to historical clearing for agriculture within the region. The connectivity pathways that remain include a network of small ephemeral wetlands and farm dams within the project area, linking habitat within Lake Callide to other larger wetland systems likely to occur within the region (Map series 14 – Sharp-tailed Sandpiper).
Likelihood of Occurrence after targeted survey		**May occur** No individuals or population confirmed within the disturbance footprint or project area during field surveys, however a record occurs within the area of interest. Hence, it was considered that the species may occur at least on occasion within the project area.
Availability of areas critical to the species survival, important habitat or important populations		No Critical Habitat as defined under section 207A of the EPBC Act has been identified or included in the Register of Critical Habitat. All internationally or nationally important habitat that exceeds the internationally and nationally important thresholds however would be considered habitat critical to the survival of the species. There are no wetlands in the area of interest that exceed the thresholds, and as such no habitat critical to the survival of the species occurs. No internationally or nationally important habitat would occur within the disturbance footprint as the marginal habitat available for the species would not support the required threshold numbers (850 and 85 individuals respectively).
Threats		No Recovery Plan for the species occurs, but threats in Australia include direct and indirect habitat loss, habitat degradation and direct mortality.
Significant Impact Assessment Required		**Yes,** the Sharp-tailed Sandpiper, while not confirmed present within the disturbance footprint or project area during targeted surveys, has foraging and dispersal habitat verified within the disturbance footprint, which will be directly impacted by the Project. Therefore, an MNES significant impact assesment was considered necessary for the species.

6.3.3 Mammals

Northern Quoll, Dasyurus cinereus

The Northern Quoll is listed as endangered under the *EPBC Act* (Cth). This species occupies a range of habitats that include rocky areas, such as eucalypt forest, rainforests, sandy lowlands and beaches, grasslands, and desert (TSSC, 2005).

Table 32 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 32 Northern Quoll occurrence details

Northern Quoll		
Targeted Survey Guidelines met		**Yes.** No State targeted survey guidelines for this species have been defined. The Commonwealth *EPBC Act referral guideline for the endangered northern quoll (Commonwealth of Australia, 2016)* defines cage trapping in extensive habitat areas, daytime searches of areas with extensive rock outcrops and boulders, daytime searches for latrines (scat), remote cameras and spotlight surveys (survey at least 2 x 200m transects per 5 ha). There was a lack of suitable rocky habitat in the project area for this species. Hence, the focus for targeted efforts was in eastern part of the project area where vegetation was more intact. Cage trapping was deemed unsuitable due to the limited rocky outcrops, limited structural diverse woodland and the linear nature of the disturbance footprint. Instead the 44km project area was walked recording incidentals and signs (>220hrs), >50 scat and sign searches for latrines, 32 spotlight survey hours (covering ~34.8km) over multiple survey events, 30 remote camera trap nights and Incidental records were undertaken (survey effort in Map 5, Appendix G).
Occurrence	**Disturbance Footprint**	No evidence of the Northern Quoll was recorded in the disturbance footprint during field surveys.
	Project Area	No evidence of the Northern Quoll was recorded in the disturbance footprint during field surveys.
	Area of Interest	There have been no records within the area of interest for this species.
Habitat		Denning and refuge habitat for the species was verified within the riparian habitat areas of Callide and Kroombit Creeks in the centre part of the project area, and within the eastern part of the project areas. These areas however were considered to be marginally suitable due to limited rocky outcrops and limited structural diverse woodland to sustain a population.
Connectivity of Habitat		Connectivity pathways for the Northern Quoll are highly fragmented, due to historical clearing for agriculture within the region. The connectivity pathways that remain include riparian habitat along Callide and Kroombit Creek, which connects to larger habitat areas in the east of the area of interest, surrounding Lake Callide (<1km to the southeast of the project area) and the Callide Timber Reserve (approximately 5km to the northeast of the project area; Map series 14 – Greater Glider). While a Northern Quoll has not previously been recorded in these locations, further connection is available to Kroombit Tops National Park approximately 25 km to the east where Quoll records are dense.
Likelihood of Occurrence after targeted survey		**May occur** The species was not recorded during field surveys within the project area; hence it was considered unlikely to occur within the disturbance footprint. Marginally suitable and connected habitat for the species however does occur within the eastern part of the project area.
Availability of areas critical to the species survival, important habitat or important populations		Critical habitat is where they are least exposed to threats or least likely to be in the future (e.g., rocky areas and offshore islands). The project area has high fragmentation and disturbance, hence the marginally suitable habitat available for the Northern Quoll in the project area is unlikely to be considered critical habitat for the species. With no population detected in the project area and marginally suitable habitat available for the species, it is unlikely an important population occurs.
Threats		The National Recovery Plan (DNREAS, 2010) list the threats to the species, which include Cane Toads, feral predators, inappropriate fire regimes, habitat degradation, weeds, disease, hunting and persecution and population isolation.
Significant Impact Assessment Required		**Yes,** the Northern Quoll while not confirmed present within the disturbance footprint or project area during targeted surveys, has denning and refuge habitat verified within the disturbance footprint, which will be directly impacted by the Project. Therefore, an MNES significant impact assesment was considered necessary for the species.

Koala, Phascolarctos cinereus

The Koala is listed as endangered under both the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld). The Koala is a leaf-eating specialist that feeds primarily during dawn, dusk or night. Its diet is restricted mainly to foliage of Eucalyptus spp.; however, it may also consume foliage of related genera, including *Corymbia* spp., *Angophora* spp. and *Lophostemon* spp. The Koala may, at times, supplement its diet with other species, including *Leptospermum* spp. and *Melaleuca* spp. (Youngentob et al., 2021).

Koala habitat can be broadly defined as any forest or woodland containing tree species that are known Koala food trees, or shrubland with emergent food trees. The distribution of this habitat is largely influenced by land elevation, annual temperature and rainfall patterns, soil types and the resultant soil moisture availability and fertility. Preferred food and shelter trees are naturally abundant on fertile clay soils (Youngentob et al., 2021).

Youngentob and colleagues (2021) allocated the koala's distribution into management bioregions and listed locally important Koala trees for each of these management bioregions. Locally important Koala trees are species that are regularly browsed by Koalas in a particular area, such that they may be considered a substantial portion of the Koala's diet. The combination of Koala occurrence and locally important koala trees provides a strong indication that an area is Koala habitat. However, the absence of Koalas from an area with locally important Koala trees does not mean it is not potential Koala habitat, particularly as the Koala is often a cryptic species for which it is difficult to establish true absence. Ancillary habitat trees have also been identified, which provide important ancillary habitat elements for the Koala when they co-occur with locally important koala trees.

Table 33 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 33
Koala occurrence details

Koala		
Targeted Survey Guidelines met		**Yes** The Commonwealth recognises the *Review of Koala Habitat Assessment Criteria and Methods* (Youngentob et al., 2021) as the most current guiding document for determining whether an area is likely to be Koala habitat. Other supporting targeted methods such as spotlighting and infrared drone surveys can assist with determining whether a koala population occurs. Targeted survey effort employed for the Project included 46 habitat assessments to determine habitat suitability based on presence of locally important food trees in accordance with the *Review of Koala Habitat Assessment Criteria and Methods (Youngentob et al., 2021),* 32 hours spotlighting within suitable habitat areas, walking the 44km project area recording incidental sightings and signs, and 50 scat and sign searches (survey effort shown in Map 5, Appendix G). These targeted efforts confirmed both the presence of breeding and foraging habitat, climate refugia and dispersal habitat for the Koala within the project area, as defined in Table 7 (Map series 14 – Koala), and evidence of a koala population (records of signs shown in Map 12, Appendix G).
Occurrence	**Disturbance Footprint**	No direct or indirect observations of the Koala were recorded in the disturbance footprint during field surveys (Map 12, Appendix G)
	Project Area	No direct observation of the Koala was recorded in the project area; however, signs (scratches) and scats were recorded in riparian vegetation of Kroombit Creek in May 2023, and in the eastern part of the project area in July 2023 (Map 12, Appendix G)
	Area of Interest	There were historic records (1980s) within the area of interest (Map series 14 – Koala). The next closest record was 47km south of the project area in 2019 (ALA, 2013). Based on the lack of records, a population within the project area is likely to be in low densities.
Habitat		The disturbance footprint contains breeding and foraging habitat, climate refugia and dispersal habitat for the Koala. This habitat supports locally important food and habitat trees. The habitat identified for breeding and foraging was in the eastern part of the disturbance footprint, climate refugia was identified along watercourses and wetlands in the central part of the project area (i.e., Kroombit and Callide Creeks, and the two wetland areas), while dispersal habitat was identified scattered throughout isolated habitat patches through the disturbance footprint (Map series 14 – Koala).
Connectivity of Habitat		Connectivity pathways for the Koala are highly fragmented, due to historical clearing for agriculture within the region. The connectivity pathways that remain include riparian habitat along Callide and Kroombit Creek, which connects to larger habitat areas in the east of the area of interest, surrounding Lake Callide (<1km to the southeast of the project area) and the Callide Timber Reserve (approximately 5km to the northeast of the project area; Map series 14 – Koala). Koalas rely on

Koala	
	well-connected habitats to access food, shelter, and breeding opportunities, with habitat linkages essential for maintaining gene flow and population resilience.
Likelihood of Occurrence after targeted survey	**Recorded** Evidence of the species was recorded during field surveys within the project area; hence it is likely to occur within the disturbance footprint on occasion.
Availability of areas critical to the species survival, important habitat or important populations	Habitat critical for survival includes coastal and inland areas that are typically characterised by Eucalypt forests and woodlands. It is defined as areas that the species relies on to avoid or halt decline and promote recovery of the species. In this respect, all habitat areas identified for the Koala would be considered habitat that is critical to the species survival. The species would not be considered an important population, being outside of the South-east Queensland priority area.
Threats	The *National Recovery Plan for the Koala* (DAWE, 2022a) lists the threats to the species as: • Heavy fragmentation and degradation of suitable koala habitat and locally important Koala trees and habitat loss to grazing land. • Lack of suitable permanent water sources. • Potential disease (e.g., Chlamydia). • Fire and drought. • Wild dog predation.
Significant Impact Assessment Required	**Yes,** the Koala was confirmed present within the project area during targeted surveys. Suitable breeding, foraging, dispersal and climate refugia habitat was verified within the disturbance footprint, and this habitat would be considered habitat that is critical for the species survival. Therefore, an MNES significant impact assesment was considered necessary for the species.

Greater Glider (southern/central), Petauroides volans

The Greater Glider is listed endangered under both the *EPBC Act* (Cth) and the *Nature Conservation Act 1992* (Qld). The species is an arboreal, nocturnal marsupial that inhabits Eucalypt woodlands and forests, with relatively old trees, and an abundance of suitable large hollows. During the day, they shelter in tree hollows. At night, they forage. They are folivorous, feeding on Eucalypt leaves, and occasionally on buds and flowers (van der Ree et al., 2004).

Table 34 provides a summary of the habitat requirements, key threats, recorded presence within the project area or greater area of interest, and our compliance with targeted survey requirements for the species.

Table 34 Greater Glider occurrence details

Greater Glider		
Targeted Survey Guidelines met		**Yes.** The Commonwealth recognises the *Guide to Greater Glider Habitat in Queensland* (T. J. Eyre et al., 2022) as the most current guiding document for determining whether an area is likely to be Greater Glider habitat. Other supporting targeted methods such as spotlighting in accordance with the *Survey Guidelines for Australia's Threatened Mammals* (DSEWPC, 2011c) can assist with determining whether a Greater Glider population occurs. Targeted survey effort included 46 habitat assessments to determine habitat suitability based on presence of suitable denning and foraging trees in accordance with the *Guide to Greater Glider Habitat in Queensland,* 32 hours spotlighting, and 50 scat and sign searches within the project area (survey effort shown in Map 5, Appendix G). These targeted efforts confirmed the presence of both denning and foraging habitat within the project area (Map series 14 – Greater Glider), however no evidence of a population of Greater Gliders was recorded within the project area.
Occurrence	**Disturbance Footprint**	No population identified within the disturbance footprint during field surveys.
	Project Area	No population identified within the project area during field surveys.
	Area of Interest	One record occurs in the area of interest near Biloela. This record is from 1997 (Map series 14 – Greater Glider). The next closest record is within Kroombit Tops National Park, to the southeast, outside of the area of interest (~25km from the project area). Targeted surveys for the Theodore Wind Farm Project, located approximately 20km west of Biloela, also recorded 14 individuals in June 2023 (ERM, 2024).
Habitat		Likely and current denning habitat, as defined in Table 7, was verified within the eastern part of the disturbance footprint, and within riparian habitat associated with Callide and Kroombit Creeks, and the ephemeral wetlands in the centre of the project areas (Map series 14 – Greater Glider). Potential and future denning habitat, as defined in Table 7, was verified in the eastern part of the disturbance footprint (Map series 14 – Greater Glider).
Connectivity of Habitat		Connectivity pathways for the Greater Glider are highly fragmented, due to historical clearing for agriculture within the region. The connectivity pathways that remain include riparian habitat along Callide and Kroombit Creek, which connects to larger habitat areas in the east of the area of interest, surrounding Lake Callide (<1km to the southeast of the project area) and the Callide Timber Reserve (approximately 5km to the northeast of the project area; Map series 14 – Greater Glider). Greater Gliders rely on continuous, well-connected tree cover, as their ability to disperse is limited by a maximum gliding distance of around 100 metres (Kehl & Borsboom, 1984), making breaks in canopy a significant barrier to movement and gene flow.
Likelihood of Occurrence after targeted survey		**May occur** No individuals or population confirmed within the disturbance footprint or project area during field surveys, however there is suitable habitat for the species.
Availability of areas critical to the species survival, important habitat or important populations		Habitat critical for the survival of the species includes large tracts of contiguous eucalypt forests with mature hollow-bearing trees, cool microclimate forests and short-term post fire refugees. Most of the habitat within the project area is fragmented and not connected to larger patches of vegetation. For this reason, the habitat present within the project areas is not considered to be habitat critical for the survival of the species. Based on the lack of evidence of a population within the project area, there is unlikely to be an important population present.
Threats		No Recovery Plan for the species occurs, but threats to the species include inappropriate fire regimes, habitat clearing and fragmentation, timber harvesting, barbed wire fencing in agricultural areas, climate change, predation by Feral Cats and European Red Foxes.
Significant Impact Assessment Required		**Yes,** while the Greater Glider was not confirmed present within the project area during targeted surveys, habitat for the species was verified within the disturbance footprint which is likely to be directly impacted. Therefore, an MNES significant impact assesment was considered necessary for the species.

6.3.4 Reptiles

Southern Snapping Turtle, Elseya albagula

The Southern Snapping Turtle is listed as critically endangered under both the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld). This species is one of the largest short-necked freshwater turtles in Australia, with females having a shell up to 38 cm in length. Hatchlings and small juveniles have strongly serrated shell margins. Females have a face and neck that is white, and males are significantly smaller than females (TSSC, 2014). This species is found only in Queensland in the Fitzroy, Mary and Burnett Rivers and associated smaller drainages in south-eastern Queensland.

Breeding habitat for this species includes sandy banks within permanent river systems. While other habitat includes riverine systems within the species distribution that contain permanent pools providing shelter and refuge (DAWE, 2020). Table 35 a summary of the habitat requirements, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 35 Southern Snapping Turtle occurrence details

Southern Snapping Turtle		
Targeted Survey Guidelines met		**No.** The Commonwealth's *Survey Guidelines for Australia's Threatened Reptiles* (DSEWPaC, 2011) defines snorkelling and/or baited traps to detect presence of the species. Two major streams within the project area occur; Kroombit and Callide Creeks. Both systems flow into the Fitzroy River Catchment. Both systems are ephemeral creek systems that within the project area dry up during the mid to late dry season. For this reason, and the fact that the Project will not impact instream aquatic habitats within these creek systems, targeted searches in the form of snorkelling and traps were not implemented for this survey. Instead, we undertook the following to verify species habitat: • Five aquatic habitat suitability assessments within these creeks were undertaken to identify presence of suitable habitat for the species (e.g., potential sandy bank breeding habitat, or deep pools with rocky, gravelly or sandy substrates connected to shallow riffles; survey effort shown in Map 5, Appendix G). • A review of available records in the region from the Atlas of Living Australia database. • Contact with the Fitzroy Basin Association (FBA), who have been monitoring and managing habitats for the Southern Snapping Turtle since 2018, to gain evidence of presence within the Callide and Kroombit Creek systems.
Occurrence	**Disturbance Footprint**	There were no records within the disturbance footprint.
	Project Area	There were no records within the project area. No evidence of sandy banks for breeding or deep pools with rocky, gravelly or sandy substrates connected to shallow riffles were present in the project area.
	Area of Interest	There was one historical record within Callide Creek adjacent to Lake Callide and the project area from 1998 (Map series 14 – Southern Snapping Turtle). This record is approximately 450m south of the project area where deep pools occur below the dam wall of Lake Callide. There were no other records of the species from Callide and Kroombit Creeks however, and no further records of the species from the region (50km buffer). The FBA also confirmed there were no records within their database for the Biloela region (Shannon van Nunen [FBA], pers comms 2024).
Likelihood of Occurrence after targeted survey		**Unlikely to occur** While some permanent pools may occur within Callide Creek, there are not permanent pools within the project area. As the FBA confirmed there are no records within the region, the species was considered unlikely to occur.
Significant Impact Assessment Required		**No**, the Southern Snapping Turtle was considered unlikely to occur within the disturbance footprint based on a lack of permanent pools in the project area and a lack of records for the species within the region (Shannon van Nunen [FBA], pers comms 2024). Therefore an MNES significant impact assesment was considered unnecessary for the species.

Ornamental Snake, Denisonia maculata

The Ornamental Snake is listed as vulnerable under the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld). The Ornamental Snake occurs in open-forests to woodlands associated with gilgai formations and wetlands. These are commonly mapped as QLD REs 11.3.3, 11.4.3, 11.4.6, 11.4.8, 11.4.9, 11.5.16 or mapped as cleared but where these REs formerly occurred (DCCEEW, 2023).

Table 37 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance area, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 36 Ornamental Snake occurrence details

Ornamental Snake		
Targeted Survey Guidelines met		**Yes** The Commonwealth's *Draft referral guidelines for the nationally listed Brigalow Belt reptiles (DCCEEW, 2023)* defines one-off diurnal searches (1.5 person hours per ha over 3 days)., spotlighting (1.5 person hours per ha over 3 days), opportunistic surveys of roads, and pitfall and funnel trapping (over 4 nights; 2 replicates per habitat type). Only one suitable RE for this species occurred within the project area, RE11.4.9a, with only one ~ 3 ha patch of this RE present within the project area (in the centre part of the project area). Targeted survey effort within this ~ 3 ha patch was implemented which included two active searches and incidental recordings (survey effort shown in Map 5, Appendix G). In addition, 130 active searches throughout the rest of the project area were undertaken which represents 32.5 hours with approximately 6,200 rock/debris turned, and 32 spotlight survey hours (covering ~34.8km) over multiple survey events.
Occurrence	**Disturbance Footprint**	No population identified within the disturbance footprint during field surveys.
	Project Area	No population identified within the project area during field surveys.
	Area of Interest	Only one historical record (1972) for the species in the area of interest.
Habitat		Only one suitable RE for this species occurred within the project area, RE11.4.9a, with only one ~ 3 ha patch of this RE present within the project area (in the centre part of the project area). This habitat patch was isolated from other nearby habitat, with no other patches of suitable REs for the Ornamental Snake within 20km. As a result, it was considered that the patch of RE11.4.9a in the project area was unlikely to be sufficient in size to support a population of Ornamental Snake.
Connectivity of Habitat		The Ornamental Snake is unlikely to occur in a single isolated patch of 3 ha, as the species depends on larger areas of connected gilgai habitat with cracking clay soils to sustain viable populations. When habitat availability is this limited, opportunities for dispersal, access to prey and shelter, and genetic exchange are effectively absent, making the persistence of the species in such a small, isolated patch highly improbable.
Likelihood of Occurrence after targeted survey		**Unlikely to occur** As described above, no evidence of the species occurring within the project area, and the lack of habitat availability in the area of interest makes it highly improbable the species occurs in such a small isolated patch of suitable habitat.
Significant Impact Assessment Required		**No,** the Ornamental Snake was not confirmed present within the disturbance footprint or project area during targeted surveys. It was considered high improbable the species could persist within a small, isolated patch of suitable habitat. In addition, this patch of suitable habitat was avoided by design of the disturbance footprint, therefore an MNES significant impact assesment was considered unnecessary for the species.

Collared Delma, Delma torquata

The Collared Delma is listed as vulnerable under the *EPBC Act* (Cth) and *Nature Conservation Act 1992* (Qld).The Collared Delma is a species of legless lizard endemic to Queensland. It normally inhabits Eucalypt dominant woodland and open forest associated with exposed rocky outcrops (TSSC, 2008). It appears to be a sedentary species that stays within a very small area, possibly using the same rock for shelter (Ryan, 2006).

Habitat for this species is defined as open forest and woodlands on land zone 3, 9, 10 associated with suitable micro-habitats (exposed rocky outcrops) and a ground cover predominantly made up of *Themeda triandra, Cymbopogon refractus, Aristida* sp. and *Lomandra* sp. (Peck & Hobson, 2007). From the Specimen Hill Wind Farm surveys, we know this species also occurs in the region on land zones 11 and 12 (EMM, 2020).

Table 37 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance area, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 37 Collared Delma occurrence details

Collared Delma		
Targeted Survey Guidelines met		**Yes.** The Commonwealth's *Draft referral guidelines for the nationally listed Brigalow Belt reptiles (DCCEEW, 2023)* defines diurnal searches (active searches; 1.5 person hours per ha, over a minimum of three days) and tile grids as a supplementary technique (50 tiles at 5m intervals, minimum 2 grid per 2 ha, 1 grid per 2 ha for sites up to 40ha and 20 grids for sites >40ha). While the SPRAT website defines survey guidelines for the Collared Delma as habitat assessments and active searches. Targeted survey effort for the Collared Delma was implemented in the eastern part of the project area, where relatively intact vegetation existed on land zone 11 (the same landzone where EMM recorded Collared Delma species for the Specimen Hill Wind Farm project, approximately 25 km to the east of the project area. All other areas within the project area were considered unlikely to be Collared Delma habitat due to high fragmentation and disturbance e.g., cattle presence). Targeted survey effort undertaken in the eastern part of the project area included 44 habitat assessments, 40 active searches within suitable Collared Delma habitat (represents 10hours, @~50 rocks per 15mins = 2,000 rocks turned), 16 microhabitat assessments and six tile grids surveys from September to May (1,010 survey nights). Note, an additional 132 active searches were conducted throughout the rest of the project area (represents 23 hours @~50 rocks per 15mins = ~4,600 rocks turned) to ensure all potential habitat areas were targeted during the surveys. Active searches were difficult in most areas throughout the eastern part of the project area, due to the embedded nature and small size of the metamorphic rocks present. Active searches were still conducted where possible and to the extent possible to meet survey effort requirements, however not all rocks within an area could be flipped. Therefore, a tile grid survey was considered necessary to add critical value to the survey and better determine whether the species was present. Due to the patchiness of rock and leaf litter within the mapped habitat area in the eastern part of the project area, a microhabitat assessment was also implemented which identified the presence of appropriate microhabitat features that are known to be preferred by the species (e.g., rock presence and size, leaf litter presence, canopy cover estimates, level of embeddedness of rocks). This microhabitat assessment allowed us to gain crucial information about the substrate for us to refine suitable habitat for the species (survey effort shown in Map 5, Appendix G).
Occurrence	**Disturbance Footprint**	No population identified within the disturbance footprint during field surveys.
	Project Area	No population identified within the project area during field surveys.
	Area of Interest	No records occur in the area of interest, however two occur approx. 25 km southeast at Kroombit Tops National Park (EMM, 2020).
Habitat		Breeding and foraging habitat for the Collared Delma was verified in the eastern part of the project area (Map series 14 – Collared Delma) where appropriate microhabitat features were present (data used from the microhabitat assessment, detailed Appendix F). This habitat however was considered marginally suitable for the species.

Collared Delma	
Connectivity of Habitat	The Collared Delma has a very small home range, meaning it relies on highly connected habitat to move safely between shelter, foraging, and breeding sites. Even small gaps or fragmentation can act as barriers, restricting dispersal and increasing vulnerability to localised decline. With the species not detected in the disturbance footprint, disturbance to habitat connectivity from the Project is unlikely to impact on this species.
Likelihood of Occurrence after targeted survey	**Unlikely to occur** No evidence of the species to date despite targeted effort in accordance with targeted survey guidelines. Habitat within the disturbance footprint was verified as being marginally suitable only.
Availability of areas critical to the species survival, important habitat or important populations	Important habitat defined as suitable habitat within the known/likely to occur distribution of the species and the Toowoomba Range occurs, and suitable habitat between grazed or cropped areas, along road reserves and travelling stock routes. Important habitat is a surrogate for an important population - Open-forests, woodlands and adjacent exposed rocky areas in QLD E land zones 3, 9 and 10. As the species has not been detected within the disturbance footprint despite targeted surveys, and the habitat is considered marginally suitable, this habitat would not be considered important habitat for the species.
Threats	No Recovery Plan for the species occurs but threats to the species include: • Habitat loss from vegetation clearing for agriculture. • Habitat degradation by cattle overgrazing. • Removal of microhabitat. • Use of agricultural chemicals. • Predation by Feral Cats and Foxes. • Weed invasion degrading habitat.
Significant Impact Assessment Required	**Yes**, due to the cryptic nature of the species, and marginally suitable habitat being mapped within the disturbance footprint, an MNES significant impact assesment was undertaken for the species as a conservative measure.

6.3.5 Migratory Species

Fork-tailed Swift, Apus pacificus

The Fork-tailed Swift *(Apus pacificus)* is listed as migratory and marine under the *EPBC Act* (Cth). This migratory species does not breed within Australia. In Australia, the species habitat includes inland plains, but sometimes over foothills or in coastal areas, cliffs and beaches, and sometimes well out to sea or over urban areas. They mostly occur flying over dry or open habitats with water nearby, such as riparian woodland, Melaleuca swamps, low scrub, heathland or saltmarsh (Higgins, 1999). The species is an aerial feeder, foraging above the ground for insects in suitable habitat.

Table 38 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 38 Fork-tailed Swift occurrence details

Fork-tailed Swift		
Targeted Survey Guidelines met		No State of Commonwealth targeted survey guidelines have been defined for this species. Targeted effort however included 46 Bird plot surveys over multiple survey events (16 survey hours), the 44km project area walked by ecologists (~220 survey hours) and 46 fauna habitat assessments (survey effort shown in Map 5, Appendix G).
Occurrence	**Disturbance Footprint**	No population was observed within the disturbance footprint during field surveys.
	Project Area	No population was observed within the project area during field surveys.
	Area of Interest	There were two records in the area of interest, one historical in 1955, and one recent in 2021, near Biloela (Map series 14 – Fork-tailed Swift).
Habitat		No breeding habitat occurs in Australia. Foraging and dispersal habitat however was confirmed present in the disturbance footprint associated with the riparian habitat of Callide and Kroombit Creeks, and the ephemeral wetlands in the centre part of the project area (Map series 14 – Fork-tailed Swift).
Connectivity of Habitat		For Fork-tailed Swifts, connected habitats are essential to provide continuous aerial foraging opportunities, access to shelter sites, and reliable resources across their migratory pathways. Fragmentation disrupts these requirements, reducing foraging efficiency and increasing energetic costs. Connectivity pathways in the region for the Fork-tailed Swift are highly fragmented, due to historical clearing for agriculture. The connectivity pathways that remain include the riparian habitat along Callide and Kroombit Creek, which likely connects to larger habitat areas in the region (Map series 14 – Fork-tailed Swift).
Likelihood of Occurrence after targeted survey		**Likely to occur** No individuals or population confirmed within the project area or project area during field surveys, however there is a recent record within the area of interest. Hence, given the species aerial nature and extensive distribution throughout Australia, it was considered that the species is likely to occur at least on occasion within the project area or directly adjacent.
Threats		No recovery plan for the species occurs but threats to the species include: • Habitat destruction from development. • Predation from feral species such as the Feral Cat.
Significant Impact Assessment Required		**Yes,** the Fork-tailed Swift, while not confirmed present within the disturbance footprint or project area during targeted surveys, has foraging and dispersal habitat verified within the disturbance footprint, which will be directly impacted by the Project. Therefore, an MNES significant impact assesment was considered necessary for the species.

Gull-billed Tern, Gelochelidon nilotica

The Gull-billed Tern *(Gelochelidon nilotica)* is listed as migratory and marine under the *EPBC Act* (Cth). This migratory species does not breed within Australia. In Australia, the species habitat is generally found in freshwater swamps, brackish and salt lakes, beach and estuarine mudflats, and flood waters. They have also been known to occupy sewage farms, irrigated croplands and grasslands (Pringle, 1987). Their foraging habitat includes the same waters, where it swift dives above the surface of the water to catch small fish but also feed on reptiles, amphibians, crustaceans, small mammals and insects.

Table 39 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 39 Gull-billed Tern occurrence details

Gull-billed Tern		
Targeted Survey Guidelines met		No State of Commonwealth targeted survey guidelines have been defined for this species. Targeted effort however included 46 Bird plot surveys over multiple survey events (16 survey hours), the 44km project area walked by ecologists (~220 survey hours) and 46 fauna habitat assessments (survey effort shown in Map 5, Appendix G).
Occurrence	**Disturbance Footprint**	No population was observed within the disturbance footprint during field surveys.
	Project Area	No population was observed within the project area during field surveys.
	Area of Interest	Multiple records for this species occur near Lake Callide, from 1994 – 2021. (Map series 14 – Gull-billed Tern).
Habitat		No breeding habitat occurs in Australia. Potential foraging and dispersal habitat was identified as ephemeral wetlands, irrigated croplands, and grasslands (Map series 14 – Gull-billed Tern).
Connectivity of Habitat		The Gull-billed Tern relies on wetland habitats for foraging and roosting, with connectivity between wetlands essential to support seasonal movements and ensure access to suitable feeding grounds as water levels and resource availability fluctuate. Connectivity pathways for the Gull-billed Tern are highly fragmented, due to historical clearing for agriculture within the region. The connectivity pathways that remain include a network of small ephemeral wetlands and farm dams within the project area, linking habitat within Lake Callide to other larger wetland systems likely to occur within the region (Map series 14 – Gull-billed Tern).
Likelihood of Occurrence after targeted survey		**May occur** No individuals or population confirmed within the disturbance footprint or project area during field surveys, however records occur within the area of interest. Hence it was considered that the species may occur at least on occasion within the project area.
Threats		No recovery plan for the species occurs but threats to the species include: • Habitat loss or degradation through the introduction of exotic plants. • Pollution from pesticides and agricultural run-off into suitable habitat.
Significant Impact Assessment Required		**Yes,** the Gull-billed Tern, while not confirmed present within the disturbance footprint or project area during targeted surveys, has foraging and dispersal habitat verified within the disturbance footprint, which will be directly impacted by the Project. Therefore, an MNES significant impact assesment was considered necessary for the species.

Caspian Tern, Hydroprogne caspia

The Caspian Tern *(Hydroprogne caspia)* is listed as migratory and marine under the *EPBC Act* (Cth), and primarily found in sheltered coastal embayments (harbours, lagoons, inlets, bays, estuaries and river deltas) and those with sandy or muddy margins are preferred. They also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, especially lakes (including ephemeral lakes), waterholes, reservoirs, rivers and creeks. They are known to use artificial wetlands, including reservoirs, sewage ponds and saltworks. In offshore areas the species prefers sheltered situations, particularly near islands, and is rarely seen beyond reefs (Higgins & Davies, 1996).

This species typically does breed in Australia with the only records of them breeding in inland Queensland from Lake Bindegolly and Lake Moondarra (Chatto, 1998). Breeding habitat typically occurs on low islands, beaches and terrestrial wetlands. Foraging habitat includes open wetlands, lakes and rivers, preferring sheltered shallow water in margins (Higgins and Davis 1996).

Table 40 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 40 Caspian Tern occurrence details

Caspian Tern		
Targeted Survey Guidelines met		No State of Commonwealth targeted survey guidelines have been defined for this species. Targeted effort however included 46 Bird plot surveys over multiple survey events (16 survey hours), the 44km project area walked by ecologists (~220 survey hours) and 46 fauna habitat assessments (survey effort shown in Map 5, Appendix G).
Occurrence	**Disturbance Footprint**	No population was observed within the disturbance footprint during field surveys.
	Project Area	No population was observed within the project area during field surveys.
	Area of Interest	Multiple records for this species occur near Lake Callide, from 1995 – 2023. (Map series 14 – Caspian Tern).
Habitat		No known breeding habitat occurs in the region. Potential foraging habitat was identified throughout the project area at dams, wetlands, creeks, and rivers (Map series 14 – Caspian Tern).
Connectivity of Habitat		The Caspian Tern relies on wetland habitats for foraging and roosting, with connectivity between foraging habitat essential to support seasonal movements and ensure access to suitable feeding grounds as water levels and resource availability fluctuate. Connectivity pathways for the Caspian Tern are highly fragmented, due to historical clearing for agriculture within the region. The connectivity pathways that remain include Callide and Kroombit Creek, and the ephemeral wetlands, which likely connects to larger habitat areas in the region (Map series 14 – Caspian Tern).
Likelihood of Occurrence after targeted survey		**May occur** No individuals or population confirmed within the disturbance area or project area during field surveys, however there are records within the area of interest. Hence it was considered that the species may occur at least on occasion within the project area.
Threats		No Recovery Plan for the species occurs but threats to the species include: • Habitat loss or degradation through the introduction of exotic plants. • Exposure to and bioaccumulation of contaminants such as runoff from pastoral lands.
Significant Impact Assessment Required		**Yes,** the Caspian Tern, while not confirmed present within the disturbance footprint or project area during targeted surveys, has foraging and dispersal habitat verified within the disturbance footprint, which will be directly impacted by the Project. Therefore, an MNES significant impact assesment was considered necessary for the species.

6.4 IMPACT AREAS OF MNES

The total area of each verified MNES habitat within the project area is provided in Table 41. This table also provides the habitat areas within the area of interest, and a calculation of the per cent (%) of the disturbance footprint impacted compared to the area of interest (20km buffer). Each species habitat in context of the area of interest is provided in Map series 14 in Appendix G.

Table 41 Impact areas of MNES in the disturbance footprint compared to the area of interest

Type		MNES	Status QLD[1]	Status CTH[2]	Likelihood of Occurrence[3]	Habitat Type	Disturbance Footprint (ha)	Area of Interest (ha)	% of Impact
TEC		Brigalow TEC	-	EN	Recorded	-	0	3,354	0
Threatened Species	Birds	White-throated Needle Tail	SLC	VU, M, Mi	May occur	Roosting and foraging	0	36,979	0
						Foraging and dispersal	7.73	35,241	0.02
		Squatter Pigeon	VU	VU	Recorded	Breeding	2.46	8,425	0.03
						Foraging	3.84	785	0.49
						Dispersal	1.52	17,030	0.01
		Painted Honeyeater	VU	VU	Recorded	Foraging and dispersal	8.3	67,366	0.01
		Sharp-tailed Sandpiper	SLC	VU, Mi, M	May occur	Foraging and dispersal	1.47	1,200	0.12
	Mammals	Northern Quoll	LC	EN	May occur	Denning and refuge	2.0	38,940	0.01
						Foraging and dispersal	4.64	27,987	0.02
		Koala	EN	EN	Recorded	Breeding and foraging	2.04	58,383	<0.01
						Climate refugia	5.69	8,852	0.06
						Dispersal	80.77	205,607	0.04
		Greater Glider	EN	EN	May occur	Likely and current denning and foraging	5.45	25,989	0.02
						Potential future denning and foraging, including dispersal habitat	2.04	41,247	<0.01
	Reptiles	Collared Delma	VU	VU	May occur	Breeding and foraging	1.96	9,059	0.06
Migratory Species		Fork-tailed Swift	SLC	M, Mi	Likely	Foraging and dispersal	5.69	9,350	0.06
		Gull-billed Tern	SLC	M, Mi	May occur	Foraging and dispersal	1.47	1,200	0.12
		Caspian Tern	SLC	M, Mi	May occur	Foraging and dispersal	5.45	71,105	0.01

[1] Queensland Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC = Least Concern, SLC = Special Least Concern, - not protected.

[2] Commonwealth Status (EPBC Act; Cth): EX = Extinct, EW = Extinct in the Wild, CE = Critically Endangered, EN = Endangered, VU = Vulnerable

[3] Data in the 'Likelihood of Occurrence' column corresponds to information provided in Section 6 Matters of National Environmental Significance

NA = Not available.

MATTERS OF STATE ENVIRONMENTAL SIGNIFICANCE

7.1 OVERVIEW

Relevant MSES prescribed matters relate to regulated vegetation, connectivity areas, wetlands and watercourses, and protected wildlife habitat (those not protected under the *EPBC Act;* Cth). Based on the desktop assessment and field verified ground-truthing, these prescribed matters have the potential to be impacted by the Project.

Table 46 provides details on whether the applicable MSES (from Table 15) were verified within the project area. To avoid duplication of offset conditions between jurisdictions, State governments can only impose an offset condition in relation to a prescribed matter if the same matter has not been subject to assessment under the *EPBC Act* (Cth). This is particularly important for the protected wildlife habitat assessment. For this project, the State-listed threatened species or special least concern species that were considered likely to or may occur, that was not subject to MNES assessment under the *EPBC Act* (Cth), were *Acacia pedleyi, Solanum elachophyllum*, and the special least concern Short-beaked Echidna, *Tachyglossus aculeatus*. A description of these species' habitat preferences have been provided below.

Section 9 Significant Impact Assessments contains the assessment of significance of the potential impacts on MSES that were confirmed as present or considered likely to or may occur within the project area.

7.2 MSES THREATENED SPECIES

7.2.1 Acacia pedleyi, Pedley's Acacia

Acacia pedleyi is listed as endangered under the *Nature Conservation Act 1992* (Qld) but is not recognised as threatened under the *EPBC Act* (Cth). The species occurs on alluvial flats, hill slopes and tops of ridges in open forest and woodland communities.

Table 42 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, the project area and area of interest, and our compliance with targeted survey requirements.

Table 42 *Acacia pedleyi* occurrence details

Acacia pedleyi		
Targeted Survey Guidelines met		**Yes.** No Commonwealth survey guidelines are defined for this flora species, while the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) defines survey requirements within mapped high-risk trigger areas for protected plants. A flora survey in accordance with the *Flora Survey Guidelines – Protected Plants* was undertaken within the high-risk trigger areas mapped within the eastern part of the project area (Map 9, Appendix A). Timed meanders in accordance with these guidelines were also undertaken in all areas of the project area considered suitability habitat for this species, to detect presence/absence. This timed meanders are shown in Map 5, Appendix G.
Occurrence	**Disturbance Footprint**	No individuals or population confirmed within the disturbance footprint during field surveys.
	Project Area	No individuals or population confirmed within the project area during field surveys.
	Area of Interest	Numerous records for the species have occurred within the Callide Timber Reserve, approximately 5km to the northeast of the project area. The most recent being in 2024.
Habitat		*Acacia pedleyi is* found on alluvial flats, hill slopes and tops of ridges in open forest and woodland communities. Habitat with suitable associated species (i.e., *E. crebra)* occurs in the eastern part of the project area.

Acacia pedleyi	
Likelihood of Occurrence after targeted survey	**Unlikely to occur** No individuals or population confirmed within the disturbance footprint or project area during field surveys despite timed meanders in accordance with the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) in suitable habitat areas within the project footprint.
Threats	No Recovery Plan for the species occurs, but threats to the species include mining and clearing activities, cattle grazing and inappropriate fire management
Significant Impact Assessment Required	**No**, *A. pedleyi* was not confirmed present within the disturbance footprint or project area during targeted surveys. Suitable habitat was sufficiently targeted during the field surveys with no detection of the species. Hence, it was considered unlikely to occur within the disturbance footprint, and therefore an MSES significant residual impact assesment was considered unnecessary for the species.

7.2.2 *Solanum elachophyllum*

Solanum elachophyllum is listed as vulnerable under the Nature Conservation Act 1992 (Qld). But not recognised as threatened under the EPBC Act (Cth). *Solanum elachophyllum* is endemic to Queensland and confined to the central subcoastal part of the state, from Middlemount to Theodore. It grows on fertile cracking-clay soils in open forest of *E. thozetiana, A. harpophylla,* with understorey of *Geijera parviflora, C. cristata, Macropteranthes leichhardtii, E. cambageana*, or woodland of *E. crebra* and *E. tenuipes* (Bean, 2004).

Table 43 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 43 *Solanum elachophyllum* occurrence details

Solanum elachophyllum		
Targeted Survey Guidelines met		**Yes.** Commonwealth survey guidelines are not defined for this flora species, while the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020) defines survey requirements within mapped high-risk trigger areas for protected plants. A flora survey in accordance with the *Flora Survey Guidelines – Protected Plants* was undertaken within the high-risk trigger areas mapped within the eastern part of the project area (Map 9, Appendix G). In addition, the 44km project area was walked by ecologists, whereby 215 general vegetation assessments and incidental recordings of all flora species were undertaken (survey effort shown in Map 5, Appendix G). Survey effort was undertaken during all four seasons; autumn, winter, spring and summer to cover all flowering and fruiting periods for each of the threatened flora species identified in the likelihood of occurrence assessment.
Occurrence	**Disturbance Footprint**	No individuals or population confirmed within the disturbance footprint during field surveys.
	Project Area	No individuals or population confirmed within the project area during field surveys.
	Area of Interest	No individuals previously recorded in the area of interest.
Habitat		Marginal habitat for the species is present within Brigalow patches on landzone 4 and 9 within the project area (REs 11.4.9b and 11.9.1). These RE patches have been avoided by design of the disturbance footprint and as such no suitable habitat for *S. elachophyllum* was confirmed present within the disturbance footprint for the Project.
Likelihood of Occurrence after targeted survey		**Unlikely to occur** No individuals or population confirmed within the disturbance footprint or project area during field surveys. No previous records occur from the area of interest. Suitable habitat areas have been avoided by design of the disturbance footprint; therefore, it was considered the species is unlikely to occur within the disturbance footprint.
Threats		No Recovery Plan for the species occurs, but key threats to the species include habitat clearing and invasive weeds
Significant Impact Assessment Required		**No**, *S. elachophyllum* was not confirmed present within the disturbance footprint or project area during targeted surveys. Suitable habitat for the species has also been avoided by design, therefore an MSES significant residual impact assesment was considered unnecessary for the species.

7.2.3 Short-beaked Echidna, *Tachyglossus aculeatus*

The Short-beaked Echidna is listed as special least concern under the *Nature Conservation Act 1992* (Qld). This species is an egg-laying mammal (monotreme). It is found throughout Australia, including Tasmania, where it lives in forests, woodlands, heath, grasslands and arid environments where it requires rocky outcrops, fallen timber and hollow logs for shelter (Hyett & Shaw, 1980).

Table 44 provides a summary of the habitat requirements, key threats, recorded presence within the disturbance footprint, project area and area of interest, and our compliance with targeted survey requirements for the species.

Table 44 Short-beaked Echidna population records, habitat and threats within the project area

Short-beaked Echidna		
Targeted Survey Guidelines met		No State of Commonwealth targeted survey guidelines have been defined for this species. Targeted effort however included the 44km project area walked by ecologists (~220 survey hours), 46 Fauna habitat assessments, 32 spotlighting survey hours (covering ~34.8km) over multiple survey events, >50 scat and sign searches and incidental records (survey effort shown in Map 5, Appendix G).
Occurrence	**Project Area**	No population was observed within the project area during field surveys.
	Project Area	One individual was observed within the project area, in the vicinity of Callide Creek in the centre of the project area during field surveys (record shown in Map 12, Appendix A).
	Area of Interest	There were five records within the area of interest (Map series 14 – Short-beaked Echidna).
Habitat		Potential habitat was identified within the project area (Map series 14 – Short-beaked Echidna).
Likelihood of Occurrence after targeted survey		**Recorded** The Short-beaked Echidna was confirmed within the project area during field surveys. Given the species extensive distribution throughout Australia, it was considered that the species likely occurs at least on occasion within the disturbance footprint.
Threats		The threats to the species within the project area include: • Feral dogs, cats and foxes can take young. • Often killed by cars on roads. • Habitat loss or degradation.
Significant Impact Assessment Required		**Yes**, The Short-beaked Echidna was confirmed present within the project area during targeted surveys and likely occurs on occasion in the disturbance footprint. Therefore an MSES significant residual impact assesment was considered necessary for the species.

7.3 CONNECTIVITY AREAS

DETSI has developed a Landscape Fragmentation and Connectivity Tool that assists in identifying and quantifying a significant impact on connectivity for an impact area. The measure of impact significance is determined based on a change in size and configuration of remnant vegetation areas and the level of fragmentation that will result at the local scale (5 km radius), giving regard to the regional scale (20km radius).

The tool determined that the project impacts on connectivity were not deemed significant (Table 45).

Table 45 Landscape Fragmentation and Connectivity Tool results for connectivity

Impact Criteria	**Assessment**
Significance test one	Area of core at the local scale (pre impact): 1,365.47 ha Area of core at the local scale (post impact): 1,361.49 ha Per cent change of core at the local scale (post impact): 0.29%
Significance test two	The number of core remnant areas occurring on the site: 2 The number of core remnant areas remaining on the site post impact: 2 Only core polygons greater than or equal to 1 ha are included)
Result	This analysis determined that any impact on connectivity areas is NOT SIGNFICANT (A significant reduction in core remnant at the local scale is FALSE and a change from core to non-core remnant at the site scale is FALSE).

7.4 IMPACT AREAS OF MSES

The total area of each verified MSES prescribed matter within the project area is provided in Table 46. Note, a formal PMAV process has not been undertaken to dispute the regulated vegetation management map, and as such, impact area calculations have been provided for both desktop mapped values, and the ground-truthed areas where applicable.

Table 46 Impact area calculations for applicable MSES prescribed matters

Prescribed Matters		Verification
Regulated Vegetation	Prescribed REs that are endangered REs	The disturbance footprint had mapped Category B (remnant), Category C (high-value regrowth) and Category R (reef regrowth watercourse vegetation) vegetation present. Field-verification confirmed that all vegetation patches in the disturbance footprint were of remnant or regrowth status (Category B or C respectively). Prescribed REs that are endangered REs only include areas of Category B (remnant vegetation). There was some discrepancy between desktop mapped areas and field-verified mapped areas for Category B endangered REs. Both calculations are provided. Desktop mapped areas: 4.57 (Map 7, Appendix G) / Field-verified areas: 0.24 ha (Map 12, Appendix G)
	Prescribed REs that are of concern REs	Prescribed REs that are of concern REs only include areas of Category B (remnant). There was some discrepancy between desktop mapped areas and field-verified areas for Category B of concern REs. Both calculations are provided. Desktop mapped areas: 7.06 ha (Map 7, Appendix G) / Field-verified areas: 3.36 ha(Map 12, Appendix G)
	Prescribed REs that intersect with an area shown as a wetland on the vegetation management wetlands map	0.61 ha of Category B of concern RE11.3.4 intersects wetland areas, based on ground-truthed extents. Desktop mapped extent is 0.46ha (Map 7, Appendix G).
	Prescribed REs that are areas of essential habitat on the essential habitat map for an EVNT plant or animal	Nil. No Category B essential habitat areas were mapped present throughout the project area (Map 7, Appendix G).
	Prescribed RE that is located within a defined distance from the defining banks of a relevant watercourse or drainage feature	0.37 ha of Category B of concern RE11.3.4 intersects watercourses based on ground-truthed extent (Map 10, Appendix G).
Connectivity Areas	Prescribed REs that contain an area of land that is remnant vegetation required for ecosystem functioning (a connectivity area)	Nil To assess the extent of potential connectivity impacts, the DESI Landscape Fragmentation and Connectivity Tool was used. This tool was applied using the variable project area. The tool determined that any impact on connectivity areas was NOT significant. It defined that the reduction in core remnant vegetation at a local scale was not significant at 0.29% and that a change from core to non-core remnant vegetation at the site scale was also NOT significant.
Wetlands and Watercourses	A wetland in a wetland protection area (WPA or a wetland of HES on the map of referrable wetlands	Impacts to field-verified extent for mapped HES wetland (Map 8, Appendix G): • 5.10 ha of WPA (includes four tower locations) • 0.61 ha within the HES wetland (no tower locations). Impacts to field verified extent for unmapped HES wetland (Map 8, Appendix G): • 5.25 ha of WPA (includes four tower locations) • 0.85 ha within the unmapped HES wetland area (no tower locations).

Prescribed Matters		Verification
Protected Wildlife Habitat	An area that is shown as a high-risk area on the flora survey trigger map, that contains plants that are endangered or vulnerable	High-risk areas were mapped within the eastern project area (Map 9, Appendix G). No protected plants were identified within this area during flora survey completed in accordance with the *Flora Survey Guidelines – Protected Plants* (Department of Environment and Science, 2020). Hence, there is nil area of this prescribed matter.
	An area not shown as high risk on the flora trigger map, but contains plants that are endangered or vulnerable	No protected plants were identified throughout the rest of the project area during field surveys, hence, there is nil area of this prescribed matter.
	A habitat for an endangered wildlife or vulnerable wildlife or special least concern animal	Wildlife habitat is mapped within the project area, within the eastern extent, which represents 0.35 ha within the disturbance footprint (total within the project area is 41.72 ha) Field-verification confirmed there was 8.3 ha of Short-beaked Echidna habitat within the disturbance footprint. An SRI assessment has been completed in *Section 9 Significant Impact Assessments.*

IMPACT ASSESSMENT

8.1 IMPACT DESCRIPTION

The Project will involve the following proposed works to construct the high voltage transmission line from Powerlink's existing Calvale substation (new Callide Power Station) to the east of Biloela, to the proposed BRWF Substation near the BRWF Project:

- Approximately 44 km of 275 kV high voltage transmission line within a 60 m wide easement. Clearing width will vary within this easement (between 24 – 50 m in width).
- Transmission tower structures on concrete pads (40 x 40 m clearing footprint for construction; noting this will be rehabilitated leaving a 10 x 10 m cleared concrete footprint for the operation phase).
- Access track provisions, including:
  - New access tracks, requiring clearing up to a maximum of 10 m wide, and
  - Use of existing tracks requiring upgrade and potential clearing up to 10 m wide.
- BRWF Substation within a footprint of 197,166m^2.
- Calvale Substation expansion within a footprint of 20,000m^2.

The disturbance footprint is required to be cleared to support tower construction, provide access tracks for construction and maintenance, reduce bushfire hazard risk and provide sufficient room for conductor sag and swing. It is not anticipated that any development will occur outside of the disturbance footprint. Final micro-siting of the towers will occur on the ground during construction, which will aim to further minimise impacts within the disturbance footprint.

The disturbance footprint has been used to calculate impacts within it (e.g., to MNES and MSES). The total disturbance footprint is 105.49 ha in size (includes all remnant and non-remnant vegetation areas within the corridor). The total disturbance footprint that will be subject to vegetation clearing (i.e., remnant or regrowth vegetation) has been calculated as 7.73 ha.

8.2 IMPACTS

8.2.1 Impact to MNES and MSES

Table 41 in *Section 6.4 Impact Areas of MNES* provided impact area calculations for the identified MNES matters (TECs, listed threatened and migratory species) within the disturbance footprint.

Table 46 in *Section 7.4 Impact Areas of MSES* provided the impact area calculations of the identified MSES prescribed matters within the disturbance footprint. These included desktops mapped and field-verified regulated vegetation, connectivity areas, watercourses and wetlands, and protected wildlife habitat areas.

8.2.2 Potential Construction Impacts

Potential construction impacts to MNES and MSES have been identified as the following:

- Vegetation clearing, resulting in the following impacts:
  - Direct loss of vegetation communities from clearing of endangered and of concern REs, and clearing endangered or of concern REs that intersect wetland or watercourses.
  - Direct loss of threatened fauna species habitat including:
    - Removal of potential foraging and dispersal habitat for the White-throated Needletail.
    - Removal of breeding, foraging and dispersal habitat for the Squatter Pigeon.
    - Removal of foraging and dispersal habitat for the Painted Honeyeater.
    - Removal of foraging and dispersal habitat for the Sharp-tailed Sandpiper.
    - Removal of denning and refuge habitat, and foraging and dispersal habitat for the Northern Quoll.
    - Removal of breeding and foraging, climate refugia, and dispersal habitat for the Koala

        - Removal of likely and current denning and foraging habitat, and potential future denning and foraging habitat for the Greater Glider.
    - Removal of marginal breeding and foraging habitat for the Collared Delma.
    - Direct loss of migratory fauna species habitat including dispersal and foraging habitat for the Fork-tailed Swift, Gull-billed Tern and Caspian Tern.
- Increased fragmentation of habitat, reducing connectivity between fauna habitats.
- Direct fauna impacts including:
    - Removal of actual or potential animal breeding places.
    - The loss of microhabitat features such as tree hollows, hollow logs, leaf litter and rocky areas.
    - Noise, lighting, and vibration disturbances that could potentially disturb breeding and roosting fauna.
    - Increased risk of predation due to increased clearing providing access to predators.
    - Potential for fauna injury or mortality from clearing works.
- Increased edge effect pressure which can result in weed invasion throughout the corridor and surrounding areas, and the introduction and spread of fauna pest species. Weeds also compete with native vegetation communities and threaten the biodiversity values of remaining communities.
- Modification of watercourses and wetlands, potentially impacting water quality and loss of aquatic habitats.
- Changes in hydrology of wetlands due to vegetation clearing.
- Increased potential for sedimentation and erosion due to soil exposure.
- Increased bushfire hazard risk during construction from potential ignition sources such as increased vehicle movements, heavy machinery operations and from construction activities (e.g., welding).

8.2.3 Potential Operational Impacts

Potential impacts to MNES and MSES during operation and maintenance include:

- Increased potential for weed invasion, which can compete with native vegetation communities and threaten the biodiversity values of remaining communities.
- Powerlines present a risk to fauna, particularly birds and bats, in the form of potential injury or mortality from collisions. The presence of powerlines may also result in behavioural avoidance of nearby suitable habitat. Such behaviours include avoiding nesting or foraging resources.
- Increased bushfire hazard risk from powerlines, which could result in unmanaged fires.
- Potential direct impacts to fauna through injury or mortality from any maintenance vegetation clearing required throughout the life of the Project.

8.3 IMPACT DETAILS

8.3.1 Vegetation Clearing

Vegetation clearing is required throughout the disturbance footprint to support construction and maintenance activities along the easement, as well as to reduce bushfire hazard risk. This clearing is expected to result in impacts to MNES and MSES, through the direct loss of threatened and migratory species habitat and microhabitat features; disturbance or removal of potential breeding places; potential injury and mortality of threatened, conservation significant (i.e., special least concern) and migratory species; and a reduction in the condition of remaining habitat. Impact area calculations for each prescribed matter (MNES and MSES) were provided in Table 41 and Table 46.

The total area of the disturbance footprint is 105.49 ha, of which, 7.73 ha (7.34%) comprises regulated native vegetation that will be cleared. The balance of the footprint is predominantly cleared agricultural land and existing infrastructure (e.g., roads). As a result, impacts to fauna are expected to be localised to vegetation patches directly affected by clearing, rather than broadscale across the disturbance footprint.

Given the Project's linear nature (24 – 50 m wide), impacts are discrete and typically confined to patch edges or small components of larger vegetation areas. The disturbance footprint has been designed to avoid and minimise impacts to MNES and MSES by reducing easement width to the minimum necessary for conductor sag and swing, and adjusting tower heights to further limit clearing in sensitive areas. Consequently, vegetation clearing is not expected to result in adverse impacts on habitat connectivity for mobile fauna species. No restrictive barriers (e.g., fencing) are proposed, ensuring movement of listed threatened and conservation-significant species confirmed within the project area (Squatter Pigeon, Painted Honeyeater,

Koala and Short-beaked Echidna) will not be hindered. While minor reductions in connectivity between surrounding vegetation patches may occur, these will not be of a scale likely to disconnect habitat or prevent fauna passage.

The MNES and MSES with the largest area impacts are Painted Honeyeater foraging and dispersal habitat (8.3 ha), White-throated Needletail foraging and dispersal habitat (7.73 ha); Short-beaked Echidna habitat (8.3 ha), Koala climate refugia habitat (5.69), Greater Glider likely and current denning and foraging habitat (5.45 ha), Fork-tailed Swift foraging and dispersal habitat (5.69 ha) an Caspian Tern foraging and dispersal habitat (5.45 ha; Table 41 and Table 46). A significant impact assessment for all identified MNES and MSES has been completed in *Section 9 Significant Impact Assessments* to assess the significance of these direct impacts, as well as and indirect impacts likely from the construction, operation and maintenance of the Project.

8.3.2 Direct Fauna Impacts

Direct impacts to fauna may occur through the removal of suitable habitat, including the loss of actual or potential breeding sites and microhabitat features such as tree hollows, hollow logs, leaf litter and rocky areas. Additional short-term impacts may arise from noise, lighting and vibration disturbance affecting breeding or roosting fauna; increased predation risk due to greater access for predators following clearing; and potential injury or mortality of fauna during clearing activities.

The greatest risk of direct impact is expected during vegetation clearing for construction. While many diurnal and mobile species are likely to disperse ahead of clearing, less mobile species, including nocturnal, sensitive, or breeding individual, are more vulnerable to disturbance or mortality.

Further impacts to fauna may result from construction, maintenance, and operation of the Project, including:

- Dust, light, and noise affecting adjacent vegetation communities and deterring fauna use.
- Risk of injury or mortality to flying species such as birds and bats through powerline collision or electrocution, as powerlines can be difficult to detect despite being located within typical flight paths.
- Vehicle strike causing injury or mortality of fauna during the use of maintenance tracks.

8.3.3 Edge Effects

Edge effects refer to changes in population or community structure that occur at habitat boundaries, and they are often more pronounced in small or fragmented habitat patches. Vegetation clearing within the project area is expected to increase pressure on remaining habitat through weed invasion and the introduction or spread of pest fauna species. Weeds compete with native vegetation, potentially reducing habitat condition and diminishing biodiversity values, while pest fauna can displace native species through predation and competition.

Numerous introduced flora species were recorded as dominant throughout much of the project area, including Guinea Grass, Rhodes Grass, Red Natal Grass, and Leucaena. Several species listed as restricted matter under the *Biosecurity Act 2014* (Qld) and as WoNs were also present, including Lantana, Cat's Claw Creeper, Opuntioid Cacti, Parthenium Weed, and Prickly Acacia. Pest fauna species identified within the project area included Cane Toads, European Rabbits, Feral Cats, Domestic Dogs, and Feral Pigs.

8.3.4 Watercourse and Wetland Modification

Clearing of riparian vegetation has the potential to reduce the ecological integrity of watercourses and wetlands by impacting water quality and diminishing instream aquatic habitat. Riparian vegetation contributes directly to aquatic habitat through inputs of organic matter such as fallen trees, leaf litter, and branches, while submerged roots and logs provide essential shelter and spawning sites for native fish. The loss of these features can lead to a reduction in available feeding, hiding, and breeding sites, ultimately decreasing the diversity and abundance of aquatic fauna.

8.3.5 Sedimentation and Erosion

Construction activities involving clearing, excavation, and filling will disturb land surfaces, increasing the risk of erosion. Exposed soils can be mobilised by stormwater and transported into watercourses and wetlands. Nutrient pollution is also a concern, as nutrients such as phosphorus readily bind to eroding sediment particles and can be carried to sensitive downstream environments, including waterbodies and wetlands.

Sediment deposition can degrade aquatic habitats and water quality by increasing turbidity, reducing water depth, smothering fish spawning sites, and promoting algal growth. In addition to sediments and nutrients, construction activities

can generate other pollutants if not managed appropriately. These include pesticides, fertilisers, hydrocarbons (e.g., oils, fuel, hydraulic fluids) from construction vehicles, and general waste, all of which have the potential to enter watercourses and wetlands and cause significant ecological impacts.

8.3.6 Bushfire Hazard

The project area contains scattered areas mapped as medium to high bushfire hazard potential (JBS&G, 2022). The risk of bushfire is elevated during both the construction and operational phases of the transmission line. During construction, potential ignition sources include increased vehicle movements, operation of heavy machinery, and activities such as welding. During operation, bushfire risk may arise from interactions between powerlines, vegetation, and fauna, which can act as ignition sources and lead to unmanaged fires if not effectively managed.

8.3.7 Collision and Electrocution Risk

Transmission lines present a potential hazard to avifauna and other flying species through collision with overhead wires and, less commonly, electrocution from contact with conductors. Large, fast-flying, or flocking bird species, as well as nocturnal species with limited visibility, are most at risk of collision, particularly in areas where lines cross open habitats, wetlands, or known movement corridors. While collision and electrocution risk are generally low for native fauna due to the spacing of conductors on high-voltage transmission lines, it remains a potential impact for species that perch or attempt to land on structures. Such incidents can result in direct mortality or injury and may cumulatively contribute to population declines if occurring in areas of high ecological value or migratory pathways.

8.3.8 Noise, Dust and Light Disturbance

Construction and maintenance activities associated with transmission lines can generate elevated levels of noise, dust, and artificial lighting, which may temporarily disturb fauna within adjacent habitats. Noise and vibration from machinery and vehicle movements can disrupt communication, foraging, or breeding behaviour in sensitive species. Dust emissions may reduce vegetation quality by coating foliage and altering photosynthesis, indirectly affecting foraging resources. Artificial lighting during night works has the potential to disorient nocturnal species, attract insects, and alter predator–prey interactions. While these impacts are generally localised and temporary, they can reduce habitat quality and deter fauna use of areas in proximity to construction activities.

8.4 IMPACT AVOIDANCE, MINIMISATION AND MITIGATION

Powerlink have implemented the hierarchy of management principles in the planning and development of this Project, which includes avoid, minimise, mitigation, remediate then offset. These principals are described below:

Avoidance:	*Designing the project area to avoid direct impacts to ecological values (e.g., avoid vegetation clearing where practical).*
Minimise:	*Minimise direct and indirect impacts where they cannot be completely avoided.*
Mitigate:	*Implement mitigation and management measures during construction and operation to reduce direct and indirect cumulative impacts.*
Remediate:	*Actively rehabilitate impacted areas where possible to promote long term recovery.*
Offset:	*Provide suitable offsets for activities that result in a significant impact to ecological values after all other management principles have been implemented.*

The following sections in Table 47 describe how impacts on ecological values from the Project will be managed through the hierarchy of management principles approach.

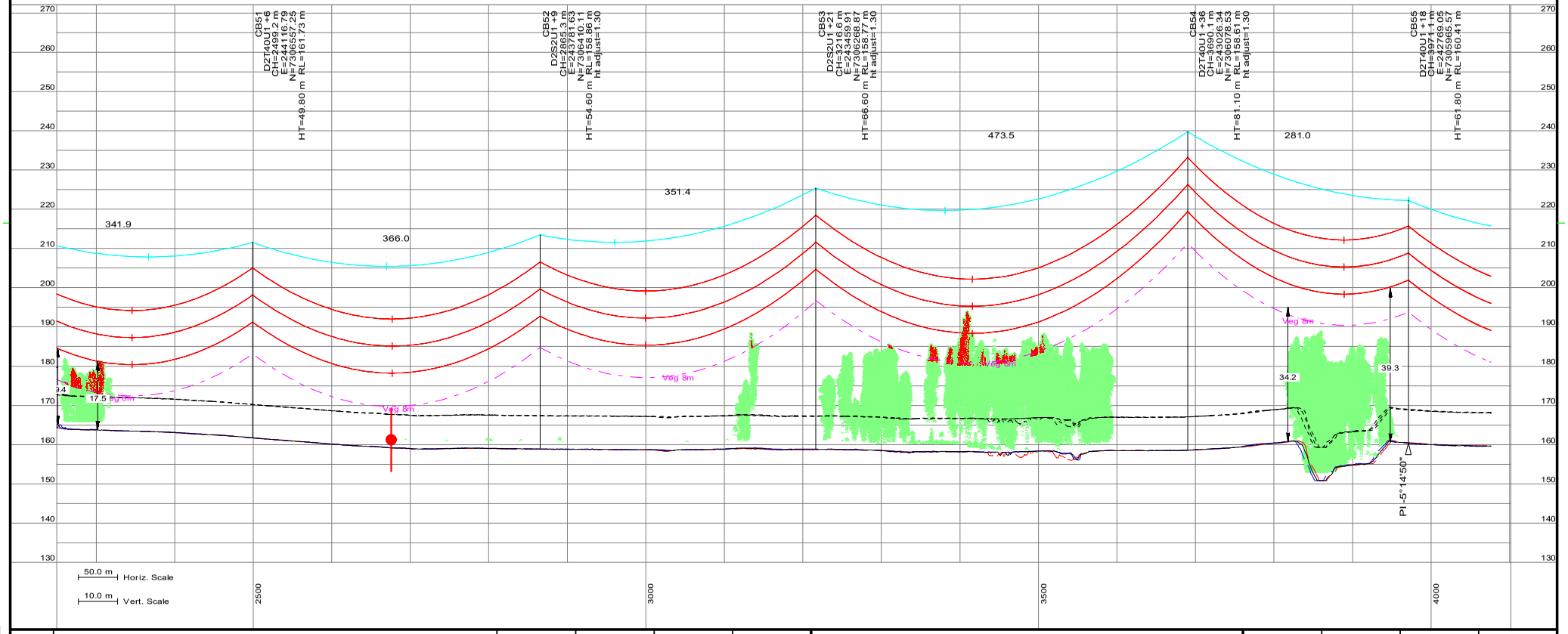
Table 47
Impact management using the hierarchy approach

Management Principles	Management Measures
Avoidance	Findings from the Corridor Selection Report (JBS&G, 2022) and ecological field surveys have contributed to multiple changes in the placement of the transmission line corridor and refinement of the disturbance footprint to avoid impacts to MNES and MSES. Throughout the survey period, our ecologists have had numerous meetings and conversations with Powerlink personnel to clarify the verified ecological values and constraints, and discuss opportunities to avoid, minimise and mitigate impacts through changes to the position of the corridor, changes to clearing widths and tower placement, while also balancing landholder approval and expectations. There are several issues that have prevented any further avoidance measures being implemented, including landholder resistance, proximity to households, and technical constraints (e.g., accounting for conductor sag and swing, and bushfire hazard risk) which significantly inhibit broad design flexibility around isolated patches of remnant vegetation. Where it has not been feasible to entirely avoid areas of ecological value, location changes and design adjustments (e.g., adjusting tower heights) have been implemented where possible to minimise impacts. Avoidance measures were the priority to reduce impacts. Key avoidance measures implemented to date have included: • Selection of the most feasible route for the corridor based on the Corridor Selection Report (JBS&G, 2022), which considered a range of social, environmental, and physical factors identified from desktop and field-based analysis, and engagement with landholders, the wider community, and other stakeholders. • Aligning the corridor through cleared non-remnant areas wherever possible to avoid clearing remnant vegetation, areas constituting Brigalow TEC, and HES wetland areas. • Co-locating infrastructure corridors where possible to avoid additional edge effects. • Reducing the disturbance footprint width wherever feasible to avoid clearing native vegetation, while also accounting for conductor sag and swing and bushfire hazard risk. Plan and profiles are used during line layout design to avoid impacts. The plan and profiles model the height of towers, the conductor modelled under maximum sag, under maximum capacity on the hottest day of the year. Vegetation is classified from LIDAR data and shown in green. Vegetation violations are where the vegetation intercepts the electrical safety clearance zones (shown in red; example figures are shown in Figure 4 and Figure 5). • Utilisation of existing access tracks where available. • Tower structures have been located >50m from watercourses and wetlands. Towers have been located outside of the riparian vegetation to avoid impacts to these sensitive areas. Further impacts will be avoided during construction by: • Micro-siting tower positions; and • Refining the location of the corridor through riparian areas to avoid the loss of potential Greater Glider habitat trees (e.g., micro-siting towers and the alignment as a priority through degraded areas where less large trees with hollows occur).
Minimisation	Where full avoidance of ecological values has not been feasible, corridor location changes and design adjustments have been implemented to minimise impacts, including: • Micro-sighting of each individual tower is planned to occur pre-construction, which looks at the on-ground conditions, and adjust the location as required to minimise impacts. • Refining the location of the corridor through narrower wetland areas with less canopy cover to avoid significant clearing and habitat fragmentation. • Significant design changes have occurred within the vicinity of the mapped HES wetland area, the potential HES wetland and Callide Creeks, including: o Raising towers CB53, CB54 and CB55 on the fringe of the mapped HES wetland and Callide Creek to their maximum height to span the majority of vegetation within the wetland and watercourse extent, to minimise vegetation impacts. Figure 4 (courtesy of Powerlink) provides the plan and profile for CB51 to CB55. Areas shaded green show where vegetation is present beneath the alignment (using LiDAR), while the red markers identify vegetation violations, where vegetation intercepts the electrical safety clearance zones and would require clearing and maintenance to achieve safe clearance distances. By raising tower heights, the design reduces the extent of vegetation disturbance, confining clearing to only the critical locations shown in red, while maintaining the integrity of the surrounding vegetation wherever possible. o Raising towers CB66 and CB67 on the fringe of the potential HES wetland to their maximum height to span some of the vegetation within the wetland extent, to minimise vegetation impacts. Figure 5 (courtesy of Powerlink) provides the plan and profile for CB64-67.

Management Principles	Management Measures
Mitigation	Once avoidance and minimisation strategies have been implemented, mitigation and management measures have been proposed to reduce direct and indirect cumulative impacts during construction and operation. All activities undertaken by Powerlink and its contractors during the construction, operation, maintenance and decommissioning phases will be managed in strict accordance with Powerlink's Environmental Management System (EMS). In particular, implementation will be guided by the *Banana Range Wind Farm Connection Project Environmental Management Plan* (EMP; Powerlink Queensland, 2022) and associated Environmental Work Procedures (EWPs). These documents provide clear, enforceable measures to ensure that environmental risks are effectively managed, giving confidence that robust, established systems are in place to avoid and minimise impacts throughout the life of the project. In addition, a number of mitigation measures are planned to be implemented during construction and operation, these include: • Exclusion areas will be delineated to avoid unauthorised disturbance to native vegetation communities, wetlands and threatened species habitat and communities. • Prior to construction the disturbance footprint will be surveyed for animal breeding places, and should they be present and have the potential to be tampered with during construction, a Species Management Program will be obtained to appropriately manage breeding places. Exclusion zones will be established around known active breeding places and these will be managed appropriately in accordance with the approved Species Management Program. • Direct impacts to fauna to be managed during clearing works through the engagement of Fauna Spotter Catchers to undertake pre-clearance surveys to detect, remove and relocate fauna, and supervise clearing works to capture any dispersed fauna and manage fauna injuries or deaths. Any microhabitat features (e.g., hollow logs) will be relocated to adjacent areas of undisturbed vegetation where practical, so habitat features are not unnecessarily lost. • Clearing within Koala habitat will utilise staged clearing techniques, whereby habitat trees will be cleared strategically so all Koalas occupying the area have time to move out of the area on their own accord. This ensures appropriate habitat links are maintained with the adjacent area so the Koala can safely move outside the disturbance footprint. • Koalas present within the project area during clearing works will be managed in accordance with the *Nature Conservation (Koala) Conservation Plan 2017* (Qld), *Nature Conservation Act 1992* (Qld), and *Nature Conservation (Animals) Regulation 2020* (Qld) as follows: o If a Koala is observed within the clearing area, a 30m buffer of vegetation around the Koala tree, in addition to a corridor of vegetation to the nearest vegetated area will be retained until the Koala moves out of the project area on its own accord. o No felling of any trees that have the potential to fall on or near the tree the Koala is residing in. o Monitoring the Koala's location and its visible stress levels. If the Koala is appearing visibly stressed and agitated, the clearing front will be moved away from the animal. o The Koala will be allowed to self-relocate of its own volition. o Koalas will not be interfered with unless they have been injured. • If Collared Delma is confirmed in the disturbance footprint during clearing works, clearing works will cease until Fauna Spotter Catchers have completed an additional pre-clearance survey to remove and relocate all individuals. Any suitable boulders and rock piles will also be salvaged and recreated in an adjacent suitable area so that microhabitat is retained. • Both weeds and pest animals will be monitored throughout the life of the construction phase with management and control strategies provided in the Construction Biosecurity Management Plan, which allows Powerlink to undertake a risk-based approach to managing the risk of spreading or introducing biosecurity matters because of its activities. A Pre-construction weed survey of the disturbance footprint will be undertaken to inform the development of the Construction Biosecurity Management Plan. • Powerlink's *Banana Range Wind Farm Connection Project Environmental Management Plan* (Powerlink Queensland, 2022) includes mitigation measures to be implemented during construction. Such measures involve management of dust, noise, and light impacts; management of erosion through erosion and sediment control measures; topsoil management; chemical storage, spill containment and management requirements; traffic management including speed restrictions; weed and seed washdown requirements for machinery and vehicles; designated construction working hours etc. • Bushfire risk will be managed throughout the life of the Project. The risk will be reduced through the implementation of several safety strategies, including having vegetation cleared throughout the project area to avoid vegetation interaction with powerlines and provide adequate buffers from

Management Principles	Management Measures
	nearby vegetation stands (i.e., firebreaks). Operation and maintenance of the Project will be undertaken in accordance with Powerlink's Bushfire Mitigation Plan. • Monitoring and maintenance of erosion, vegetation regrowth and bushfire hazard are undertaken through a risk based approach, which dictates the frequency of management.
Remediation	When construction activities have been completed, each tower site will be rehabilitated to ensure the soil is stable and provides a matrix for vegetation establishment to prevent erosion. Rehabilitation also includes the replacement or reinstallation of farm infrastructure that may have been removed and remediation of paddocks affected by construction activities to allow farming activities to recommence.
Offset	The Project has applied the mitigation hierarchy to avoid and reduce impacts to MNES and MSES. To understand if offsets are required significant impact assessments have been undertaken within *Section 9 Significant Impact Assessments* below. The results of the significant impact assessment have deemed that after avoidance, minimisation, mitigation and remediation measures are implemented it is unlikely that impacts to MNES will be significant resulting in adverse impacts. Therefore, it is not expected that offsets under the Commonwealth's *EPBC Act Environmental Offsets Policy 2012* will be required for MNES. The Project, which is seeking approval through the infrastructure designation process under the *Planning Act 2016* (Qld), is exempt from offsets for MSES due to not being a prescribed activity.

PLS-CADD Drawing



283x394 POWERLINK QUEENSLAND IS THE TRADING NAME OF THE QUEENSLAND ELECTRICITY TRANSMISSION CORPORATION LIMITED ACN 078 849 233

CAD

ORIGINAL ISSUE
DATE: 11/08/2025
B

CONDUCTOR:
TWIN ACSR HTC
DISPLAYED AT MAX DESIGN TEMP 145°C
NOTE BOTTOM CONDUCTORS ONLY SHOWN.

EARTHWIRE:
NOT STRUNG/DISPLAYED.

STRUCTURES:
DOUBLE CIRCUIT `U` SERIES

OTHER:
8.5m GROUND CLEARANCE LINE DISPLAYED
6m SAFE WORKING CLEARANCE LINE DISPLAYED
ALL STRUCTURE HEIGHTS INDICATIVE ONLY

OPTION SUMMARY NOTE:

17 x HEAVY TENSION STRUCTURES
21 x MED. TENSION STRUCTURES
79 x SUSPENSION STRUCTURES

CHECKED	-	DESIGNED	C.JOHNSTONE
DRAWN	C.JOHNSTONE	DESIGN CHKD	-
ORIGIN	PSD	APPROVED	-
CIRCULATION	-		

Powerlink QUEENSLAND

CALVALE TO MT BENN
275kV DOUBLE CIRCUIT TRANSMISSION LINE
PLAN AND PROFILE WITH VEGETATION
CO-LOCATION OPTION

PRELIMINARY DRAFT ONLY

LOCATION	CONT/ORDER	PROJECT	DRG CLASS
-	-	CP.02888	A0

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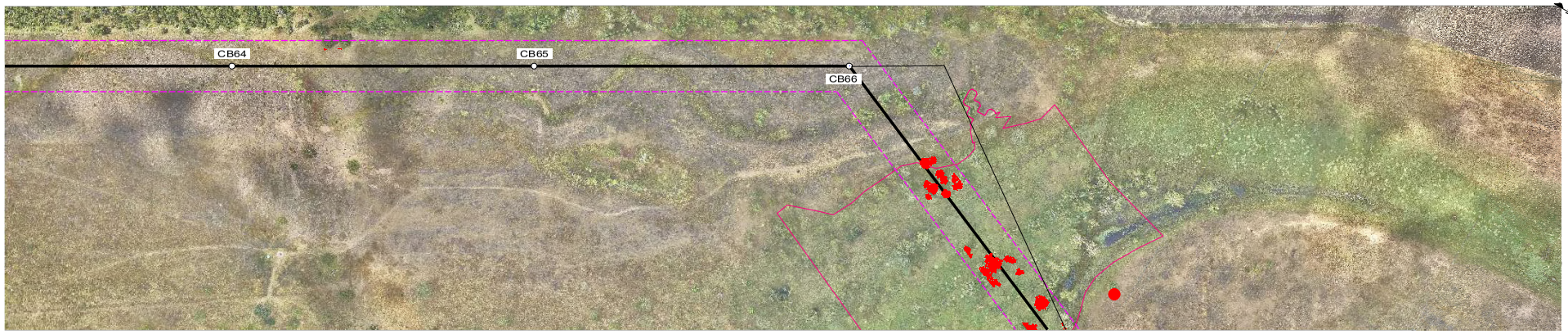
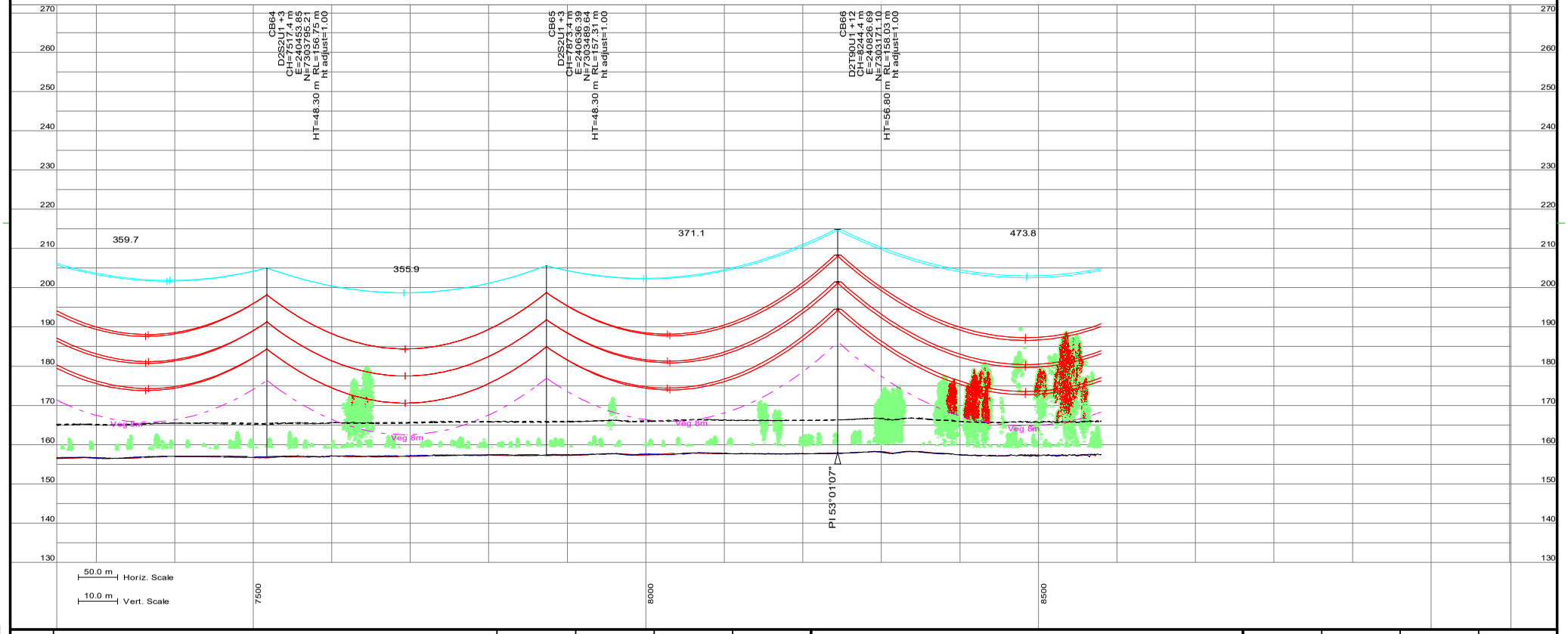
PLS-CADD Drawing





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Powerlink QUEENSLAND

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LOCATION	CONT/ORDER	PROJECT	DRG CLASS
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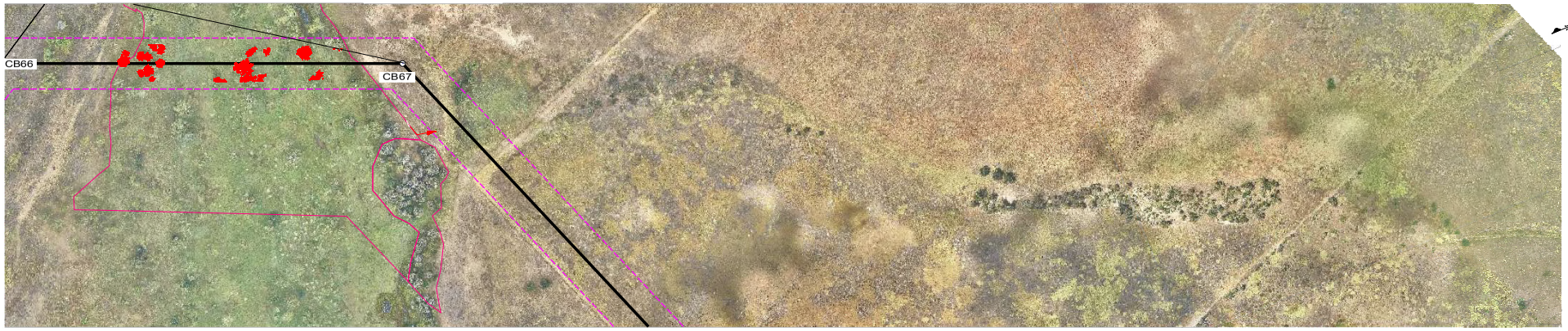

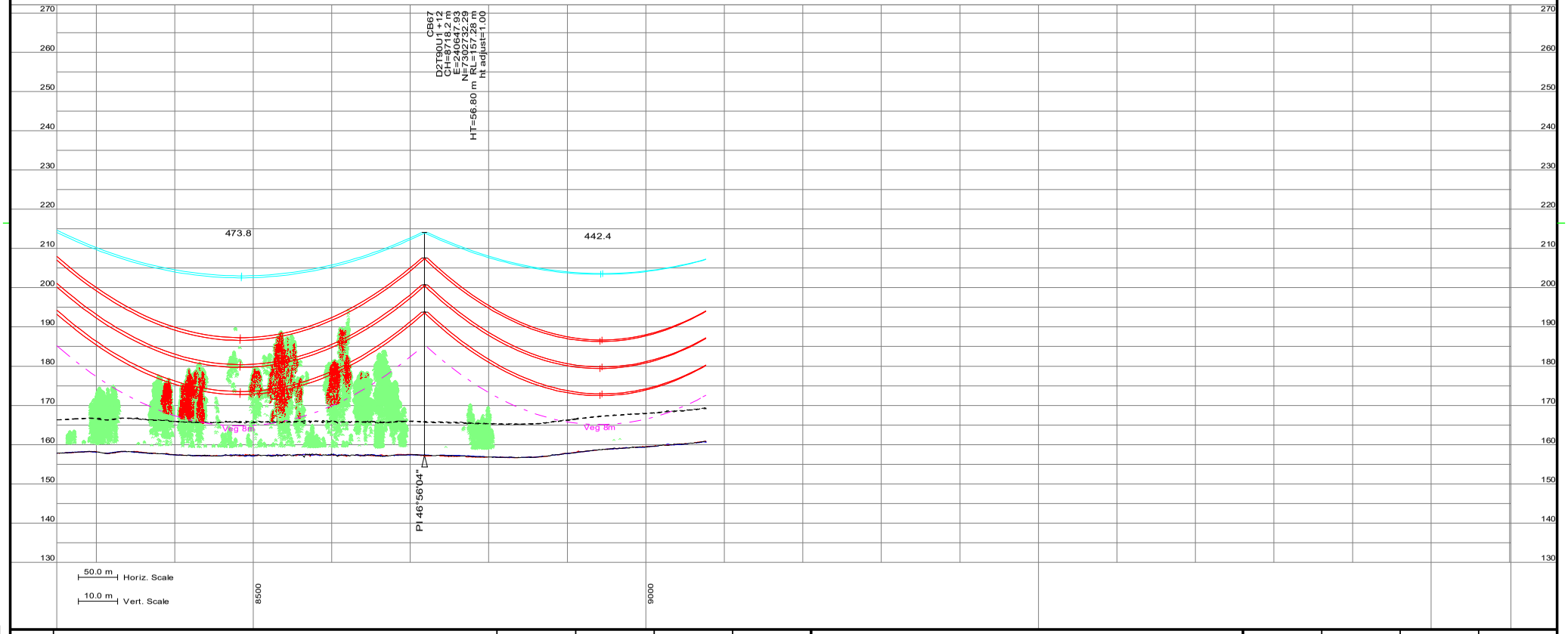

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ORIGIN	PSD	APPROVED	-
CIRCULATION	-		

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Powerlink QUEENSLAND

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-	-	CP.02888	A0

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SIGNIFICANT IMPACT ASSESSMENTS

9.1 MNES

Environmental offset conditions may be imposed for MNES under the *EPBC Act* (Cth) if an activity is likely to result in a significant impact on a prescribed matter. A significant impact assessment has been undertaken for MNES confirmed within the disturbance footprint, or considered likely or potential to occur based on habitat values, in accordance with the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* 1.1 (Department of Environment, 2013). The Commonwealth's *Significant Impact Guideline* provides criteria to determine whether an action will have a significant impact on MNES.

The following section presents a determination for each relevant MNES against these criteria. After consideration of potential impacts, as well as avoidance, minimisation, mitigation and remediation measures, the Project is not expected to result in a significant impact on any MNES confirmed, likely, or with potential to occur within the disturbance footprint.

9.1.1 Significant Impact Assessment on Endangered Ecological Communities

In accordance with the Commonwealth's *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* (Department of Environment, 2013), an action is likely to have a significant impact on a critically endangered or endangered ecological community if there is a real chance or possibility that it will:

- Reduce the extent of an ecological community.
- Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines.
- Adversely affect habitat critical to the survival of an ecological community.
- Modify or destroy abiotic (non-living) factors (such as water, nutrients, or soil) necessary for an ecological community's survival, including reduction of groundwater levels, or substantial alteration of surface water drainage patterns.
- Cause a substantial change in the species composition of an occurrence of an ecological community, including causing a decline or loss of functionally important species, for example through regular burning or flora or fauna harvesting
- Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community, including, but not limited to:
    - Assisting invasive species, that are harmful to the listed ecological community, to become established, or
    - Causing regular mobilisation of fertilisers, herbicides or other chemicals or pollutants into the ecological community which kill or inhibit the growth of species in the ecological community, or
    - Interfering with the recovery of an ecological community.

The TEC present within the project area is the endangered Brigalow TEC. Determination of whether impacts to the TEC will be significant are provided below.

Brigalow (Acacia harpophylla dominant and co-dominant) TEC

Brigalow TEC is an endangered ecological community protected under the *EPBC Act* (Cth). Table 48 provides an assessment against the significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* and determines whether the Project is likely to have a significant impact on this ecological community.

The Project design incorporated avoidance, minimisation, mitigation and remediation measures to manage potential impacts. The disturbance footprint has been aligned to avoid all confirmed Brigalow TEC patches within the project area. As a result, nil hectares of Brigalow TEC will be directly impacted within the 105.49 ha disturbance footprint (Map 12, Appendix G).

Mitigation measures will also be implemented to manage potential indirect impacts, including a rigorous, long-term weed management program designed to minimise edge effects and reduce the risk of condition decline in adjacent TEC patches.

By avoiding all confirmed Brigalow TEC and applying targeted mitigation measures, the Project is considered **UNLIKELY** to result in a significant impact on this ecological community.

Table 48 Assessment of significance of impacts to the Brigalow TEC

Brigalow (Acacia harpophylla dominant and co-dominant) TEC	
Criteria	**Response**
Reduce the extent of an ecological community	**No** The Brigalow TEC is characterised by the presence of *A. harpophylla* as a dominant tree species in the ecological community. The Brigalow TEC in the disturbance footprint is comprised of remnant and regrowth RE11.3.1, and RE11.11.14. A total of eleven patches of Brigalow TEC were verified within the project area. Each patch was less than 4 ha in size, mostly surrounded by non-remnant vegetation with no connectivity to other remnant or regrowth vegetation. The exception being the RE11.11.14 patches in the eastern part of the project area, which were connected by mixed eucalypt dominant woodland. All eleven patches of Brigalow TEC within the project area were avoided by design of the disturbance footprint, hence no direct impacts to Brigalow TEC are expected from the Project. With no direct impacts to the Brigalow TEC proposed, the Project is unlikely to result in a reduction to the extent of the ecological community. In addition, the Project will implement mitigation measures to manage indirect impacts to the adjacent patches, including: • Weed and pest management through implementation of a Construction Biosecurity Management Plan. • Implementation of a Bushfire Mitigation Plan to reduce bushfire hazard risk, effectively reducing the frequency and intensity of fires if they occur.
Fragment or increase fragmentation of an ecological community, for example by clearing vegetation for roads or transmission lines	**No** No clearing is proposed within the Brigalow TEC patches confirmed in the project areas. As a result, the Project will not fragment or increase fragmentation of the ecological community.
Adversely affect habitat critical to the survival of an ecological community	**No** The Conservation Advice for Brigalow TEC lists habitat critical to the survival of the TEC as all patches that meet the key diagnostic characteristics and condition thresholds for the ecological community. This means all patches of Brigalow TEC within the project area are considered critical to the survival of the ecological community. Based on the Conservation Advice, other patches of Brigalow within the project area that do not meet the key diagnostic criteria or condition thresholds may also provide habitat critical to the survival of the Brigalow TEC due to its supporting biodiversity, wildlife corridors and habitat values. While the Brigalow communities within the project area are considered critical habitat for the TEC, no clearing of the Brigalow TEC patches is proposed, and the remaining patches will be protected through the implementation of mitigation measures such as weed and pest management to reduce edge effects, and bushfire management to reduce the frequency and intensity of fires if they occur. Hence, it is considered unlikely the Project will adversely affect habitat critical to the survival of this ecological community.
Modify or destroy abiotic factors necessary for an ecological community's survival, including reduction of groundwater, or substantial alteration of surface water drainage patterns	**No** No clearing of Brigalow TEC is proposed within the 105.49 ha disturbance footprint. With not clearing proposed, the Project is unlikely to impact on groundwater levels nor alter the surface water drainage patterns associated with this ecological community. Therefore, it is very unlikely the proposed impacts will modify or destroy abiotic factors necessary for the ecological community's survival. A Construction Biosecurity Management Plan will also be implemented as a mitigation measure to ensure sediment from construction activities is contained and does not enter the receiving environment nor impact on remaining Brigalow TEC patches.
Cause a substantial change in the species composition of an occurrence of an ecological community,	**No** With no clearing proposed within the Brigalow TEC patches it is unlikely the Project will directly cause a substantial change to the species composition within any of the patches. Also, the following mitigation measures will reduce indirect impacts, further reducing the likelihood:

Brigalow (Acacia harpophylla dominant and co-dominant) TEC	
including causing a decline or loss of functionally important species.	• Strict weed management to be implemented as part of the Construction Biosecurity Management Plan to ensure weed invasion is controlled and edge effects do not occur. • Bushfire management to be implemented as part of Powerlink's Bushfire Mitigation Plan which will reduce bushfire hazard risk, effectively reducing the frequency and intensity of fires which can kill the root system of Brigalow communities. • Pest control (e.g., feral pig management) to be implemented as part of the Construction Biosecurity Management Plan to ensure these pests do not degrade the communities or affect the recruitment and growth of Brigalow trees.
Cause a substantial reduction in the quality or integrity of an occurrence of an ecological community,	**No** The weed, pest and fire management proposed as mitigation measures will greatly reduce the likelihood that impacts to the Brigalow TEC from the Project will cause a substantial reduction in the quality or integrity of the Brigalow TEC in the project area.
Interfere with the recovery of an ecological community	**No** There is no recovery plan for this ecological community; however, key threats include clearing, fire, weed invasion, and pest species. Mitigating these threats is critical to supporting the recovery of the Brigalow TEC. The Project will not clear any Brigalow TEC and will implement measures to address indirect impacts, including active fire, weed, and pest management throughout both construction and operation of the transmission line. These measures directly align with managing the primary threats to the ecological community. Accordingly, the Project is considered unlikely to interfere with the recovery of the Brigalow TEC.
Assessment Outcome	**UNLIKELY** to result in a significant impact on the ecological community

9.1.2 Significant Impact Assessment on Critically Endangered and Endangered Species

An action is likely to have a significant impact on a critically endangered or endangered species if there is a real chance or possibility that it will:

- Lead to a long-term decrease in the size of a population.
- Reduce the area of occupancy of the species.
- Fragment an existing population into two or more populations.
- Adversely affect habitat critical to the survival of a species.
- Disrupt the breeding cycle of a population.
- Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
- Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat.
- Introduce disease that may cause the species to decline.
- Interfere with the recovery of the species.

No critically endangered species have habitat verified within the project area. The endangered species however that were either recorded or have habitat verified in the disturbance footprint include the Northern Quoll, Koala and Greater Glider.

Northern Quoll, Dasyurus maculatus

The Northern Quoll is an endangered species protected under the *EPBC Act* (Cth). Table 49 provides an assessment against the significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* (Department of Environment, 2013) and assesses whether the Project is likely to have a significant impact on this species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed **UNLIKELY** that the proposed Project will result in a significant impact to this threatened species.

Table 49 Assessment of significance of impacts to the Northern Quoll

Northern Quoll	
Criteria	**Response**
Lead to a long-term decrease in the size of a population	**No** No Northern Quolls were detected within the project footprint during targeted surveys. Although marginally suitable denning and foraging habitat is present, the Project has been designed to minimise clearing extents and will not introduce barriers to fauna movement. Given its linear nature, the Project is therefore unlikely to lead to a long-term decrease in the size of a population, should one occur in the area. In addition, proposed mitigation measures, including staged clearing, pre-clearance surveys, and the presence of a qualified Fauna Spotter Catcher during clearing, will further reduce the potential for impacts on any individuals or populations within the disturbance footprint.
Reduce the area of occupancy of the species	**No** The Project will result in the loss of approximately 2 ha of potential denning and refuge habitat and 4.64 ha of foraging and dispersal habitat for the Northern Quoll, within a total disturbance footprint of 105.49 ha (Table 41). These areas represent a very small proportion (0.01 and 0.02% respectively) of the available habitat in the area of interest (Table 41; Map series 14 – Northern Quoll), and clearing has been minimised through project design. Given the linear nature of the disturbance and the absence of barriers to fauna movement, the proposed clearing is unlikely to materially reduce the area of occupancy of the species at a local or regional scale. Furthermore, mitigation measures, including staged clearing, pre-clearance surveys, and the use of a Fauna Spotter Catcher, will be implemented to minimise risks to individuals and to ensure remaining habitat continues to promote occupancy.
Fragment an existing population into two or more populations	**No** No Northern Quolls were detected within the project footprint during targeted surveys, and marginally suitable denning and foraging habitat is present. The Project is linear in nature, with a narrow disturbance width (24–50 m), and does not include fencing or other barriers that would

Northern Quoll	
	restrict fauna movement. As such, the Project is unlikely to fragment an existing population into two or more populations. In addition, avoidance and minimisation measures have reduced clearing extents, and mitigation measures, including pre-clearance surveys, staged clearing, and the presence of a Fauna Spotter Catcher, will be implemented to further reduce the likelihood of impacts on the species should it occur within the disturbance footprint.
Adversely affect habitat critical to the survival of a species	**No** No critical habitat for the species was verified within the project area (Table 32), hence the Project is not anticipated to adversely affect habitat critical to the survival of a species.
Disrupt the breeding cycle of a population	**No** No Northern Quolls were recorded within the disturbance footprint during targeted surveys, although marginally suitable denning and foraging habitat is present. Given the limited extent of proposed clearing (2 ha of denning/refuge habitat and 4.64 ha of foraging/dispersal habitat; Table 41) and the linear nature of the disturbance, the Project is unlikely to interfere with the breeding cycle of a population. Further, the Project incorporates avoidance and minimisation measures, with clearing restricted to the minimum area required. Mitigation measures, including pre-clearance surveys, staged clearing, and the presence of a qualified Fauna Spotter Catcher, will reduce the risk of disturbance to individuals and ensure that any potential breeding habitat is appropriately managed. Accordingly, the Project is not expected to disrupt the breeding cycle of a Northern Quoll population.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No** Targeted surveys did not record Northern Quolls within the project footprint, though marginally suitable denning and foraging habitat is present. The Project will result in the removal of approximately 2 ha of potential denning/refuge habitat and 4.64 ha of foraging/dispersal habitat within a 105.49 ha disturbance footprint (Table 41). This represents a very small area relative to available habitat in the area of interest. The Project design has minimised clearing extents, with no barriers to fauna movement proposed. Mitigation measures will further reduce the likelihood of impacts to individuals and ensure adjacent habitat continues to support occupancy. Given the small scale of habitat loss, linear nature of the disturbance, and implementation of mitigation measures, the Project is unlikely to modify or reduce habitat to the extent that the Northern Quoll population would decline.
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	**No** The Recovery Plan for this species defines some threats to the species as weeds, feral predators and Cane Toads (DoE, 2016). The Project will implement pest management measures as part of the Construction Biosecurity Management Plan to manage, monitor and control weeds and invasive pests including the Cane Toad. Hence the Project is unlikely to lead to an increase in invasive animals or result in an invasive animal becoming established within the species habitat.
Introduce disease that may cause the species to decline, or	**No** While there have been historical population crashes of Quolls that may have been attributable to disease (Finlayson, 1934), no specific disease has been identified to date as a contributing factor to population declines.
Interfere with the recovery of the species	**No** The National Recovery Plan for the Northern Quoll states the threats to include Cane Toads, feral predators, inappropriate fire regimes, habitat degradation, weeds, disease, hunting and persecution, and population isolation (DoE, 2016). The Project has been designed to minimise and mitigate impacts to the species and its habitat. Mitigation measures include weed and pest management under a Construction Biosecurity Management Plan, bushfire management under Powerlink's Bushfire Management Plan and no proposed fencing to restrict movement. These mitigation measures will ensure that the Project will not substantially interfere with the recovery of the species.
Assessment Outcome	**UNLIKELY** to result in a significant impact on the species

Koala, Phascolarctos cinereus

The Koala is an endangered species protected under the *EPBC Act* (Cth). Table 50 provides an assessment against the. significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* and determines whether the Project is likely to have a significant impact on this species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed **UNLIKELY** that the proposed Project will result in a significant impact to this threatened species.

Table 50 Assessment of significance of impacts to the Koala

Koala	
Criteria	**Response**
Lead to a long-term decrease in the size of a population	**No** An important population is defined as those that are valued for cultural, social and economic reasons. In Queensland, priority areas are identified as South-east Queensland (TSSC, 2022). Important populations have been defined as State-level important populations, genetically important populations, climate sensitive populations, and other important populations (TSSC, 2022). Signs of the Koala were recorded during field surveys however no direct sighting of a Koala was recorded, suggesting a population does occur but likely in very low densities. This is likely the result of high habitat fragmentation throughout the project area. The local koala population meets the following definitions of an important population: • Is considered a genetically important population being a population north of the Clarence River in NSW. The local koala population does not meet the following definitions of an important population: • Does not meet State-level important population status being outside of the priority areas in Queensland which are identified as south east Queensland where densities of Koalas are greater than in central Queensland. • Is not considered a climate sensitive population which is defined as those on the western edge of the species range. • The local population would not be considered a source population due to its low density outside of contiguous habitat areas. As a result, the local population, while not within a priority area, would be considered important genetically. Suitable habitat for the species has been mapped throughout the project area due to the presence of locally important koala trees or ancillary habitat trees (as defined in Youngentob et al., 2021). These habitat areas are however degraded due to being isolated and patchy, with habitat for the species fragmented throughout the region. The impact of historical clearing and agriculture is notable throughout the project area. Due to this, the habitat within the project area is not considered unique or important for refuge given its degraded nature, with availability of higher quality habitat outside of the project area. There will be 2.04 ha of breeding and foraging habitat 5.69 ha climate refugia, and 80.77 ha of dispersal habitat (e.g., shrublands or grasslands with emergent koala food trees, shelter or paddock trees) that will be impacted within the disturbance footprint (Table 41). This dispersal only habitat is non-remnant vegetation, is highly degraded due to historical clearing and agriculture and provides a very low abundance of koala food trees. These impact areas represent the following percentage of impacts compared to the full disturbance footprint (105.49 ha), and habitat within the project area and the area of interest (Table 41): • Breeding, foraging and dispersal habitat: 7.10% of the disturbance footprint and 0.39% of the project area. When compared to habitat available within the area of interest (20km buffer area; Map series 14 – Koala in Appendix G), these percentages are further reduced to <0.01% of impacts to the species habitat (Table 41). • Climate Refugia: 5.39% of the disturbance footprint, 0.30% of the project area and 0.06% of the area of interest (Table 41). • Dispersal only: 76.57% of the disturbance footprint, 5.98% of the project area, and 0.04% of the area of interest. The Project is not proposing broadscale clearing, rather linear clearing of isolated patches of habitat. This linear clearing will range from 24 – 50 m in width throughout the project area. This marginal loss of habitat is unlikely to result in a reduction in size of the local population, with no

	obstructions such as fencing proposed as part of the Project. It is expected that the surrounding habitat particularly within habitat corridors along Callide and Kroombit Creeks, the wetlands and the intact habitat in the eastern part of the project area will absorb any displaced individuals from the disturbance footprint. While the Project may disturb Koala individuals if present within the disturbance footprint during clearing works, it is anticipated that this would have a short-term impact on their movements only. Interaction with Koalas will be mitigated by implementing the following measures: • Implementing staged clearing so Koalas can disperse on their own accord prior to clearing. • Having a permitted and experienced Fauna Spotter Catcher undertake pre-clearance surveys within Koala habitat areas to identify presence prior to clearing, and supervise clearing works and manage interactions with fauna. • Koalas will be managed in accordance with the *Nature Conservation (Koala) Conservation Plan 2017* (Qld), *Nature Conservation Act 1992* (Qld), and *Nature Conservation (Animals) Regulation 2020* (Qld) as follows: o If a Koala is observed within the clearing area, a 30 m buffer of vegetation around the Koala tree, in addition to a corridor of vegetation to the nearest vegetated area will be retained until the Koala moves out of the project area on its own accord. o No felling of any tree that has the potential to fall on or near the tree the Koala is residing in. o Monitoring the Koala's location and its visible stress levels. If the Koala is appearing visibly stressed and agitated, the clearing front will be moved away from the animal. o Allowing the Koala to self-relocate of its own volition. o Koalas will not to be interfered with unless they have been injured. • Invasive species that are harmful to the species (e.g., Wild dogs) will be managed within the easement under a Construction Biosecurity Management Plan. This will reduce the risk of predation on Koalas within the easement area. While some suitable habitat for the Koala is expected to be impacted from the Project, given the infrequent use of the habitat within the project area by the Koala, any short-term disturbance to this species as a result of clearing is unlikely to lead to a long-term decrease in the size of the local population of this species. The ability of the Koala to disperse throughout the region will not be impacted by the Project, and it is anticipated that genetic diversity, breeding opportunities and dispersal capabilities will be maintained.
Reduce the area of occupancy of the species	**No** The Koala is found throughout eastern mainland Australia. The species occurs in both urban and rural landscapes and is tolerant of disturbance but is at risk of habitat loss from vegetation clearing. Some linear clearing of habitat for the Koala is proposed by the Project. This linear clearing is not broadscale clearing and is unlikely to hinder a koala's movement throughout the region. Also, clearing activities associated with the Project will be implemented with mitigation measures employed, as detailed above, which will reduce interactions with Koalas and allow them to disperse into nearby habitat on their own accord. With the Project being linear clearing and the mitigation measures proposed, it is unlikely the Project will result in a reduction in extent of occurrence of this species.
Fragment an existing population into two or more populations	**No** The Koala is considered highly mobile and known to disperse large distances including across cleared or modified areas. The project area is surrounded by extensive, albeit fragmented habitat for this species, which will not be impacted by the Project. The Project will result in some linear fragmentation of the species habitat for the local population, but it is unlikely to greatly impact connectivity for the species throughout the area of interest, with approximately >99.99% of habitat retained for the species (Table 41). This linear clearing will range from 24 – 50 m. This marginal loss of habitat is unlikely to result in fragmentation of an existing population into two or more populations, particularly given its linear nature, the ability of this species to readily disperse across non-remnant areas, and no obstructions such as fencing proposed as part of the Project. It is expected that the surrounding habitat particularly within habitat corridors along Callide and Kroombit Creeks, the wetlands and the intact

Koala	
	habitat in the eastern part of the project area will absorb any displaced individuals from the disturbance footprint.
Adversely affect habitat critical to the survival of a species	**No** Habitat critical for the survival of Koalas is habitat that includes both coastal and inland areas that are typically characterised by eucalypt forest and woodlands. It is defined as areas that the species relies on to avoid, or halt decline and promote recovery of the species. In this respect, the mapped Koala breeding, foraging and climate refugia habitat within the project area would be considered habitat critical for the survival of the Koala (Map series 14 – Koala in Appendix G). As described above, the Project is expected to cause minor linear fragmentation of this habitat, with removal of habitat limited to small, isolated patches of habitat rather than through concentrated clearing. This patchy removal of habitat is unlikely to impact connectivity of the habitat for this species and will not hinder the movement of a koala throughout the region with no barriers (e.g., fencing) to dispersal proposed. Hence, while the Project will result in impacts to habitat critical to the survival of a species, these impacts are considered negligible in the landscape context, comprising <0.01% of the area of interest (20km buffer; Table 41). Given the very small proportion affected, and the fact that clearing is not concentrated, the Project is unlikely to be considered as having an adverse effect on habitat critical to the survival of a species.
Disrupt the breeding cycle of a population	**No** The factors that govern Koala dispersal, breeding and home-ranges include the social relationships between individuals, the size, density, and reproductive health of the population, and the proximity and connection to neighbouring populations (AMBS, 2012). These factors also depend on availability of preferred tree species, tree size, terrain, soil, and the many components of successful water balancing (Moore & Foley, 2005). These factors vary from region to region and from individual to individual, thereby resulting in different patterns of dispersal and home-range features in different areas. Koalas are seasonal breeders, with peak breeding during summer. The population in the project area is expected to be in very low densities; however Koalas can locate each other even at very low population densities as long as connectivity throughout the region is maintained (Moore & Foley, 2005). The linear clearing proposed is not expected to affect functionally affect habitat types (e.g., breeding habitat), nor affect connectivity of habitat with the project area, with no barriers (e.g., fencing) to dispersal proposed. The mitigation measures proposed (as described above) will also limit interactions with individual Koalas which will greatly reduce impacts to the species. Therefore, it is not anticipated that the Project will disrupt the breeding cycle of the local Koala population.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No** The Project will result in minor linear clearing throughout the disturbance footprint. While this clearing will cause some loss of habitat, it is unlikely to impact the functionality of the habitat, nor the connectivity of habitat throughout the region for the local population of Koala, due to no barriers (e.g., fencing) to dispersal proposed. In the context of impacts to the species habitat in the area of interest, the impacts to habitat within the disturbance footprint are minute at <0.01% (Table 41). In addition, weed management of remaining patches of habitat within the easement will be managed under a Construction Biosecurity Management Plan which will reduce the likelihood of edge effects that could degrade remaining habitat for the species. The minor loss of habitat proposed and the mitigation measures to be implemented will reduce the likelihood that the local population will decline as a result of the clearing proposed.

Koala	
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	**No** The Recovery Plan for this species defines the threats for the species, with invasive species, the Wild dog, defined as a threat to the species (DAWE, 2022b). The Project will implement pest management measures as part of the Construction Biosecurity Management Plan to manage, monitor and control invasive pests. Hence the Project is unlikely to lead to an increase in invasive animals or result in an invasive animal becoming established within the species habitat.
Introduce disease that may cause the species to decline	**No** Two diseases are known to affect Koalas: Chlamydia and Koala Retro Virus. Chlamydia can become evident as a result of stress, such as from habitat reduction, while the cause of Koala Retro Virus is unknown but is potentially prevented by managing mortality from other causes, maintaining large population sizes and minimising inbreeding (Vitali et al., 2023). The proposed clearing is unlikely to cause stress on the Koala given the clearing is linear in nature and the implementation of mitigation measures will limit interactions with a Koala during construction. Due to these measures, it is also unlikely the Project will cause Koala mortality, impact population size or cause inbreeding to increase the risk of the retro virus. As a result, the Project is unlikely to introduce a disease that may cause the population to decline.
Interfere with the recovery of the species	**No** The National Recovery Plan for the Koala states the threats to Koalas include land use change and climate change; disease; dogs and vehicles (DAWE, 2022b). The objectives of the Recovery Plan are to stabilise then increase the area of occupancy and size of populations, and maintain or improve metapopulation processes (i.e., population and ecosystem health). Habitat within the project area forms part of a fragmented landscape of habitat for this species. Habitat loss is a recognised threat for the species through land use change. In the context of habitat available within the area of interest, habitat loss from the Project is unlikely to interfere with the recovery of the species. The Project will also implement mitigation measures to limit interactions with a Koala to ensure no loss or injury of individuals during construction. This aligns with the objectives of the Recovery Plan. Hence, it is unlikely the Project will adversely impact the Koala population in a way that it would interfere with the recovery of this species.
Assessment Outcome	**UNLIKELY** to result in a significant impact on the species

Greater Glider, Petauroides volans

The Greater Glider is an endangered species protected under the *EPBC Act* (Cth). Table 51 provides an assessment against the significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* (Department of Environment, 2013) and assesses whether the Project is likely to have a significant impact on this species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed **UNLIKELY** that the proposed Project will result in a significant impact to this threatened species.

Table 51 Assessment of significance of impacts to the Greater Glider

Greater Glider	
Criteria	**Response**
Lead to a long-term decrease in the size of a population	**No** Important populations of Greater Gliders are considered to be all known populations of the species. No evidence of the Greater Glider was recorded within the project area during field surveys. Also, no records of the Greater Glider occur in adjacent areas of the project area, with the nearest record being from the Kroombit Tops National Park, approximately ~25km to the southeast of the project area. While this was the case, some remnant REs within habitat corridors and intact areas of the project area have been mapped as likely and potential denning and foraging habitat for the species. These habitat areas are however mostly fragmented, with habitat for the species further fragmented throughout the region due to agricultural clearing. Where habitat is fragmented by distances of more than 100 m, it is unlikely the species occurs due to an inability to glide more than this distance. The Project is not proposing broadscale clearing, rather some discrete sections of linear clearing (24-50 m) which will leave adjacent wooded areas intact. This marginal loss of habitat is unlikely to result in a reduction in size of the local population of Greater Gliders if one is present within the project area, given that connectivity of habitat will remain, and the species will not be further hindered by the linear clearing width of 24-50 m proposed (noting the maximum gliding distance for the species is approximately 100 m). This linear clearing for the project footprint will also not be extensive, but rather discrete units where actual clearing is required. With the implementation of mitigation measures proposed (e.g., staged clearing, preclearance surveys and having a fauna spotter catcher present for clearing works) there is likely to be negligible impacts to the local population of this species if it is present within the project area.
Reduce the area of occupancy of the species	**No** The Greater Glider is found throughout eastern mainland Australia, where it requires remnant vegetation comprising suitable large Eucalypt species with large hollows (>10 cm) for denning. Approximately 5.45 ha of likely and current denning habitat and 2.04 ha of potential and future denning habitat for the Greater Glider was mapped as present within the 105.49 ha disturbance footprint (Table 41). These impacts represent 0.02 and <0.01% of available habitat within the area of interest respectively (Table 41; Map series 14 – Greater Glider). The Project will result in some localised loss of Greater Glider habitat. The linear discrete clearing (24 – 50 m wide) however is expected to have negligible impacts on the species which is mobile and capable of gliding 100m. Considering impacts to the species will be mitigated during construction through staged clearing, preclearance surveys and Fauna Spotter Catchers present for clearing, the Project is anticipated to have negligible impacts to the local population if one is present within the project area. Therefore, it is not anticipated that the Project will result in the reduction in area of occupancy of the species.
Fragment an existing population into two or more populations	**No** The project area is surrounded by extensive habitat corridors for this species (Map series 14 – Greater Glider), which will not be impacted by the Project. The clearing proposed represents 0.02 or less of available habitat for the species in the area of interest (Table 41). While the Project will result in some discrete linear fragmentation of this habitat, it will not impact on connectivity of the habitat for the species and will not fragment habitat to the extent that a population would be split into two or more populations. The Greater Glider population's movement throughout the region is unlikely to be hindered by the Project.
Adversely affect habitat critical to the survival of a species	**No** No critical habitat for the species was verified within the project area (Table 34), hence the Project is not anticipated to adversely affect habitat critical to the survival of a species.

Greater Glider	
Disrupt the breeding cycle of a population	**No** Greater Gliders are exclusively arboreal and rely on appropriate tree hollows to breed. Hollow bearing trees are lacking throughout the majority of the project area and as such, the habitat available is unlikely to support a large population of Greater Gliders, if it supports a population at all. Regardless, the Project has been designed to minimise impacts to denning and foraging habitat and will utilise sensitive clearing techniques such as staged clearing, undertaking pre-clearance surveys and having Fauna Spotter Catchers present for clearing works to ensure the local population, if present, will not be directly impacted by the Project. The area of interest also contains extensive habitat for the species along riparian areas and intact contiguous areas of vegetation within protected estates (e.g., Kroombit Tops National Park to the southeast) which will not be impacted by the Project. Should the species be present in the disturbance footprint, these adjacent habitats are available for the population to disperse into, making it unlikely that the clearing proposed for the Project will impact on the breeding cycle of the population. Also, the discrete linear clearing will not impact connectivity of the habitat for this species, as it will not hinder the movement of Greater Glider individuals with no barriers restricting movement proposed, hence gene flow for the species is unlikely to be impacted by the Project.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No** The Project involves discrete sections of linear clearing. While this will result in some fragmentation, it is unlikely to affect habitat connectivity for the Greater Glider given the species' ability to glide up to 100 m and the presence of more extensive suitable habitat outside the disturbance footprint. A Construction Biosecurity Management Plan will be implemented to manage weeds and minimise edge effects, thereby reducing the risk of habitat degradation in adjacent patches. Considering the small scale of habitat loss and the mitigation measures proposed, the Project is unlikely to modify, remove, isolate, or reduce the quality of habitat to the extent that the Greater Glider population would decline
Result in invasive species that are harmful to a critically endangered or endangered species becoming established in the endangered or critically endangered species' habitat	**No** There is no recovery plan for this species however the threats from invasive species such as Feral Cats and Foxes have been defined as a threat to the species. The Project will implement pest management measures as part of the Construction Biosecurity Management Plan to manage, monitor and control invasive pests including the Feral Cat and Fox. Hence the Project is unlikely to lead to an increase in invasive animals or result in an invasive animal becoming established within the species habitat.
Introduce disease that may cause the species to decline, or	**No** The only reported disease for the Greater Glider is Chlamydia (Bodetti et al., 2003) but it is not recognised as a key threatening process for the species. Chlamydia can become evident as a result of stress, such as from habitat reduction but it appears not to be debilitating for the species (Maloney, 2007). The proposed clearing is unlikely to cause stress on the Greater Glider given the plans to avoid large trees with hollows within the Callide and Kroombit Creek crossings, and the implementation of mitigation measures to limit interaction with the species during clearing (e.g., staged clearing, pre-clearance surveys and Fauna Spotter Catchers present during clearing works). As a result, the Project is unlikely to introduce a disease that may cause the population to decline.
Interfere with the recovery of the species	**No** There is no recovery plan for this species however the threats include habitat loss, habitat fragmentation, timber harvesting, barbed wire fencing, climate change, hyper-predation by owls, competition from the Sulphur-crested Cockatoo, predation by introduced species including Feral Cats and Foxes. The Project has been designed to minimise and mitigate impacts to the species and its habitat. Mitigation measures include weed and pest management under a Construction Biosecurity Management Plan, and bushfire management under Powerlink's Bushfire Management Plan. These mitigation measures will ensure that the Project will not substantially interfere with the recovery of the species.
Assessment Outcome	**UNLIKELY** to result in a significant impact on the species

9.1.3 Significant Impact Assessment on Vulnerable Species

An action is likely to have a significant impact on a vulnerable species if there is a real chance or possibility that it will:

- Lead to a long-term decrease in the size of an important population of a species.
- Reduce the area of occupancy of an important population.
- Fragment an existing important population into two or more populations.
- Adversely affect habitat critical to the survival of a species.
- Disrupt the breeding cycle of an important population.
- Modify, destroy, remove or isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
- Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
- Introduce disease that may cause the species to decline.
- Interfere substantially with the recovery of the species.

The vulnerable species that were either recorded or have habitat present in the project area include White-throated Needletail, Squatter Pigeon, Painted Honeyeater, Sharp-tailed Sandpiper and Collared Delma.

White-throated Needletail, Hirundapus caudacutus

The White-throated Needletail is a vulnerable species, protected under the *EPBC Act* (Cth). Table 52 provides an assessment against significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* (Department of Environment, 2013) and assesses whether the Project is likely to have a significant impact on this species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed UNLIKELY that the proposed Project will result in a significant impact to this threatened species.

Table 52 Assessment of significance of impacts to the White-throated Needletail

White-throated Needletail	
Criteria	**Response**
Lead to a long-term decrease in the size of an important population of the species	**No** The White-throated Needletail is a migratory bird species, that is a non-breeding visitor to Australia. The species is almost exclusively aerial. Its habitat is widespread, occurring over both inland plains and coastal areas. The species therefore has a very large home range, utilising timbered and sparse habitats for foraging over. This species was not recorded within the project area during field surveys, however, given its widespread distribution and the occasional adjacent record, it could not be discounted that the remnant and regrowth REs within the project area provide suitable foraging habitat for the species, and provides dispersal opportunities for the species throughout the region There is an approved Conservation Advice for this species, however there is no listed important populations for the species. While this is the case, an ecologically significant proportion of a population is defined as 100 individuals (Commonwealth of Australia, 2015). Based on the highly fragmented nature of the foraging and dispersal habitat within the disturbance footprint, and the lack of roosting habitat for the species, it is considered unlikely an ecologically significant proportion of a population would occur. The project area is surrounded by extensive habitat for this species, which will not be impacted by the Project. The Project will not result in increased fragmentation of the habitat and will not impact connectivity throughout the region. Given the species is exclusively aerial, the minor disturbance to its foraging and dispersal habitat is unlikely to lead to a long-term decrease in the size of a population, let alone an important population of the species.
Reduce the area of occupancy of an important population	**No** There is no defined important populations for the species and it is unlikely that the fragmented habitat within the disturbance footprint would support an ecologically significant proportion of a population (100 individuals; Commonwealth of Australia, 2015). Hence, the Project is unlikely to reduce area of occupancy of an important population.

White-throated Needletail	
Fragment an existing important population into two or more populations	**No** As described above, no important population is defined for the species, and it is unlikely that the fragmented habitat within the disturbance footprint would support an ecologically significant proportion of a population (100 individuals; Commonwealth of Australia, 2015). Hence, the Project is not expected to fragment an existing important population into two or more populations with impacts to connectivity of habitat expected to negligible (0.02% of impacts to habitat within the area of interest; Table 41; Map Series 14 – White-throated Needletail).
Adversely affect habitat critical to the survival of a species	**No** There is no defined recovery plan for this species, and no defined habitat critical to the survival of the species. However, important habitat is defined as non-breeding habitat only. The species is found across a range of habitats, more often over wooded areas, where it is almost exclusively aerial. Large tracts of native vegetation, particularly forest, may be a key habitat requirement for species. Found to roost in tree hollows in tall trees on ridge-tops, on bark or rock faces. Appears to have traditional roost sites. Due to the high fragmentation of foraging habitat within the disturbance footprint, the lack of nearby roost sites, and sparse records for the species in the area of interest, it is unlikely the habitat within he disturbance footprint would be considered important habitat for the species. Hence, the Project is not anticipated to impact on important habitat for the White-throated Needletail.
Disrupt the breeding cycle of an important population	**No** There is no defined important populations for the species and it is unlikely that the fragmented habitat within the disturbance footprint would support an ecologically significant proportion of a population (100 individuals; Commonwealth of Australia, 2015). Hence, the Project is unlikely to disrupt the breeding cycle of an important population.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No** No roosting habitat for the species was verified in the project area. Approximately 7.73ha of foraging and dispersal habitat for the species has been mapped as present within the disturbance footprint, which will be impacted (Table 41). This extent of impact to foraging and dispersal habitat however represents 0.02% of available habitat within the area of interest (Table 41; Map series 14 – White-throated Needletail). The Project will result in discrete sections of linear clearing throughout the project area. While this clearing will cause minor fragmentation of habitat, it is unlikely to impact connectivity of habitat throughout the area of interest, especially given the species aerial nature and ability to easily traverse a 24-50 m wide linear corridor. In addition, weed management of remaining patches of habitat adjacent to the project area will be managed under a Construction Biosecurity Management Plan which will reduce the likelihood of edge effects that can degrade remaining habitat for the species. The minor loss of habitat for this species, and the proposed mitigation measures to be implemented will reduce the likelihood that species will decline as a result of the Project to negligible.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No** There is no recovery plan for this species, and no significant threats listed in Australia. Collision with overhead wires is the only recorded threat to individuals of this species. Hence, the Project is considered unlikely to result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
Introduce disease that may cause the species to decline	**No** There are no known diseases for this species.
Interfere substantially with the recovery of the species	**No** There is no recovery plan for the White-throated Needletail, and the species faces no major threats in Australia, other than the potential for individual mortality from collision with overhead wires. Powerlink assesses each project for bird strike risk and installs line-marking devices (e.g., bird diverters) where required. With these mitigation measures in place, the Project is not expected to substantially interfere with the recovery of the species.
Assessment Outcome	**UNLIKELY** to result in a significant impact on the species

Squatter Pigeon, Geophaps scripta scripta

The Squatter Pigeon is a vulnerable species, protected under the *EPBC Act* (Cth). Table 53 provides an assessment against significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* (Department of Environment, 2013) and assesses whether the Project is likely to have a significant impact on this species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed **UNLIKELY** that the proposed Project will result in a significant impact to this threatened species.

Table 53 Assessment of significance of impacts to the Squatter Pigeon

Squatter Pigeon	
Criteria	**Response**
Lead to a long-term decrease in the size of an important population of the species	**No** Squatter Pigeons inhabit open forests and sparse woodlands with a native grass understorey, which they rely on for foraging. Their habitat suitability varies with proximity to water sources. Squatter Pigeons were observed adjacent to the project area (Map 12, Appendix G). An important population for the Squatter Pigeon is defined as the southern boundary of its known distribution (southern Queensland; Squatter Pigeon Workshop, 2011). The population within the project area, due to its location, would not be considered an important population for the Squatter Pigeon. As such the Project will not lead to a long-term decrease in the size of an important population of the species.
Reduce the area of occupancy of an important population	**No** An important population for the species does not occur within the project area, based on the important population definition provided by the Squatter Pigeon Workshop (2011). Hence, the Project will not reduce the area of occupancy of an important population.
Fragment an existing important population into two or more populations	**No** The local population of Squatter Pigeon is not considered to be an important population. Hence, the Project is not expected to fragment an existing important population into two or more populations.
Adversely affect habitat critical to the survival of a species	**No** Although habitat critical to the survival of this species has not been formally defined, the habitat within the project area could potentially be considered critical. This is due to its utilisation for key life stages including foraging, breeding, roosting, and dispersal. Much of the surrounding region has already been cleared for agriculture, contributing to significant habitat loss and fragmentation, an identified key threat to the species (TSSC, 2015). Given this context, the breeding and foraging habitats within the disturbance footprint may be critical to the species' ongoing survival in the region. While this is the case, the Project proposed discrete sections of linear clearing. This clearing within the disturbance footprint will result in direct impacts to 2.46 ha of breeding habitat, 3.84 ha of foraging habitat and 1.52 ha of dispersal habitat (Table 41). This extent represents minute areas in the context of the area of interest - 0.03% of the total breeding habitat, 0.49% of the total foraging habitat and 0.01% of the total dispersal habitat (Table 41; Map series 14 – Squatter Pigeon). As a result, the discrete sections of linear clearing is not expected to adversely affect habitat critical to the survival of a species, particularly with no barriers to connectivity or movement of the species proposed. In addition, mitigation measures such as weed and pest control are proposed which will improve the remaining habitat for the species within the easement.
Disrupt the breeding cycle of an important population	**No** Squatter Pigeons require suitable open forest habitat with an abundance of tussocking native grasses, in close proximity to a water source in order to breed. This breeding habitat is near watercourses and wetlands within the project area. The Conservation Advice for the species defines important populations for this species to include those in relatively small, isolated and sparsely distributed sub-populations to the south

Squatter Pigeon	
	of the Carnarvon Ranges in central Queensland, due to the contraction of the southern boundary of the species distribution. The population within the project area therefore is not considered an important population for the species and the Project therefore would not disrupt the breeding cycle of an important population. Regardless, the Project has been designed to minimised impacts to breeding habitat for the local population and will utilise sensitive clearing techniques through staged clearing, complete pre-clearance surveys and have Fauna Spotter Catchers present for clearing works to limit interaction with this species during clearing works. The Project will also have an approved Species Management Program in place prior to construction to appropriately manage any active breeding places, including Squatter Pigeon nests, so these will not be impacted by the Project.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No** The Project will result in discrete sections of linear clearing throughout the project area. While this clearing will fragment habitat, it is unlikely to impact connectivity of habitat throughout the region for the local population of Squatter Pigeon due to the species ability to easily traverse a 24-50 m wide corridor. In addition, weed management of remaining patches of habitat adjacent to the project area will be managed under a Construction Biosecurity Management Plan to reduce the likelihood of edge effects that can degrade remaining habitat for the species. The minor loss of habitat is unlikely to modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No** Invasive species recognised as a key threat to the species include as Buffel Grass and pest animals (TSSC, 2015). The Project will apply strict weed hygiene protocols to control the introduction and spread of weeds during construction and operation. The Project is also unlikely to lead to an increase in feral animal populations (e.g., wild dogs) that threaten the species. In addition, implementation of the Construction Biosecurity Management Plan will provide ongoing management to mitigate risks from invasive flora and fauna. In this respect, it is unlikely the Project will result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
Introduce disease that may cause the species to decline	**No** There are no known diseases for this species.
Interfere substantially with the recovery of the species	**No** There is no recovery plan for this species, however the threats include habitat loss and fragmentation, degradation of habitat by overgrazing and invasive weeds such as Buffel Grass, trampling of nests by cattle, inappropriate fire regimes and predation by pest animals. The Project has been designed to avoid, minimise and mitigate impacts to the local population and its habitat. The Project incorporates weed and pest management under a Construction Biosecurity Management Plan, and bushfire management under Powerlink's- Bushfire Management Plan. These mitigation measures will ensure that the Project will not substantially interfere with the recovery of the species.
Assessment Outcome	**UNLIKELY** to result in a significant impact on the species

Painted Honeyeater, Grantiella picta

The Painted Honeyeater is a vulnerable species, protected under the *EPBC Act* (Cth). Table 54 provides an assessment against significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* and determines whether the Project is likely to have a significant impact on this species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed **UNLIKELY** that the proposed Project will result in a significant impact to this threatened species.

Table 54 Assessment of significance of impacts to the Painted Honeyeater

Painted Honeyeater	
Criteria	**Response**
Lead to a long-term decrease in the size of an important population of the species.	**No** The Painted Honeyeater is a highly specialised species feeding primarily of the fruits and nectar of mistletoe. The species distribution tends to follow the fruiting mistletoes. The species is nomadic and occurs in low densities throughout its range. The greatest concentrations of the species occur within breeding grounds for the species: west of the Great Dividing Range in NSW, Victoria and southern Queensland. The project area is outside these concentrated areas. No important populations have been identified for the species. The whole Painted Honeyeater population however is considered to be a single population. Only one known record of the Painted Honeyeater exists for the area of interest, from 2017 near the township of Biloela with two sightings in May 2023 during the Project's targeted field surveys (Map Series 14 – Painted Honeyeater). These limited sightings suggest that the species may only occur in the region at very low densities, and likely only when mistletoes are fruiting. With no identified important population for the species, the Project will not lead to a long-term decrease in the size of an important population of the species.
Reduce the area of occupancy of an important population	**No** With no identified important population for the species, the Project will not reduce the area of occupancy of an important population
Fragment an existing important population into two or more populations	**No** With no identified important population for the species, the Project will not fragment an existing important population into two or more populations
Adversely affect habitat critical to the survival of a species	**No** Habitat critical for survival of the species is defined as breeding habitat, and foraging habitat where mistletoes are present. The habitat within the project area is foraging habitat with an abundance of mistletoe and therefore could be considered to be habitat critical to the species survival. No breeding habitat for the species occurs within the disturbance footprint. Approximately 8.3 ha of foraging and dispersal habitat for the species is considered present within the 105.49 ha disturbance footprint (Table 41). This extent represents 0.01% of the total foraging and dispersal habitat available within the area of interest (Table 41; Map series 14 – Painted Honeyeater). The level of loss of foraging resources across the Painted Honeyeater's habitat in the area of interest is therefore expected to be negligible at 0.01%. As a result, the localised loss of foraging habitat within the project area is unlikely to have an adverse impact on habitat critical to the survival of a species.
Disrupt the breeding cycle of an important population	**No** The Painted Honeyeater does not breed in the locality of the project area and there is no identified important population for the species. Rather the project area and surrounds would be used only for foraging on mistletoe and dispersal. Therefore, the linear clearing proposed to foraging and dispersal habitat for this species in project area will not disrupt the breeding cycle of an important population.

Painted Honeyeater	
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No** The proposed habitat removal represents a negligible proportion of available habitat for the species within the area of interest (0.01%; Table 41; Map Series 14 – Painted Honeyeater). The linear nature of the clearing will not create a barrier to dispersal, as the species is highly mobile and capable of traversing fragmented landscapes. Accordingly, the Project is unlikely to modify, destroy, remove, isolate, or decrease the availability or quality of habitat to the extent that the Painted Honeyeater population would decline.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No** The National Recovery Plan lists raiding of nests by the invasive Black Rat as a potential threat to the species. The Painted Honeyeater does not breed within the locality of the Project. Therefore, this threat is non-existent within the project area.
Introduce disease that may cause the species to decline	**No** There are no known diseases for this species.
Interfere substantially with the recovery of the species	**No** The Conservation Advice identifies habitat loss from clearing of old-growth forests containing mistletoe as a key threat to the Painted Honeyeater, along with competition from Noisy Miners. The Project has avoided clearing suitable habitat wherever practicable and reduced the clearing width to the minimum feasible. While Noisy Miners are established in the region, they do not currently appear to be impacting Painted Honeyeater presence, and the Project is unlikely to increase their abundance or competition pressures. Accordingly, the Project is considered unlikely to substantially interfere with the recovery of the Painted Honeyeater.
Assessment Outcome	**UNLIKELY** to result in a significant impact on the species

Sharp-tailed Sandpiper, Calidris acuminata

The Sharp-tailed Sandpiper is listed as vulnerable, migratory and marine under the *EPBC Act* (Cth). Table 55 provides an assessment against significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* (Department of Environment, 2013) and assesses whether the Project is likely to have a significant impact on this species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed **UNLIKELY** that the proposed Project will result in a significant impact to this threatened species.

Table 55 Assessment of significance of impacts to the Sharp-tailed Sandpiper

Sharp-tailed Sandpiper	
Criteria	**Response**
Lead to a long-term decrease in the size of an important population of the species	**No** The Sharp-tailed Sandpiper a migratory shorebird species that inhabits freshwater and saline wetland habitats. This species was not recorded within the project area during field surveys, however, given its was recorded on one occasion in 2024 near Lake Callide. Wetland habitats within the project area therefore may provide foraging habitat and dispersal opportunities for the species throughout the region. There is no listed important populations for this species. While this is the case, an ecologically significant proportion of a population (1%) is defined as 850 individuals (Hansen et al., 2016). Based on the highly fragmented nature of the foraging and dispersal habitat within the disturbance footprint, and the lack of records for the species, it is considered unlikely an ecologically significant proportion of a population would occur within the disturbance footprint. The project area is surrounded by extensive habitat for this species, which will not be impacted by the Project. The Project will not result in increased fragmentation of the habitat and will not impact connectivity throughout the region. Given the clearing is minor (1.47 ha; Table 41). disturbance to the species foraging and dispersal habitat is unlikely to lead to a long-term decrease in the size of a population, let alone an important population of the species.
Reduce the area of occupancy of an important population	**No** There is no defined important population for the species and it is unlikely that the fragmented habitat within the disturbance footprint would support an ecologically significant proportion of a population (850 individuals; Hansen et al., 2016). Hence, the Project is unlikely to reduce area of occupancy of an important population.
Fragment an existing important population into two or more populations	**No** As described above, no important population is defined for the species, and it is unlikely that the fragmented habitat within the disturbance footprint would support an ecologically significant proportion of a population (850 individuals; Hansen et al., 2016). Hence, the Project is not expected to fragment an existing important population into two or more populations with impacts to connectivity of habitat expected to negligible (0.12% of impacts to habitat within the area of interest; Table 41; Map Series 14 – Sharp-tailed Sandpiper).
Adversely affect habitat critical to the survival of a species	**No** All internationally or nationally important habitat that exceeds the internationally and nationally important thresholds is considered habitat critical to the survival of the species. There are no wetlands in the area of interest that exceed the thresholds, and as such no habitat critical to the survival of the species occurs. There is no defined recovery plan for this species, and no defined habitat critical to the survival of the species. However, important habitat is defined as non-breeding habitat only. The species is found across a range of habitats, more often over wooded areas, where it is almost exclusively aerial. Large tracts of native vegetation, particularly forest, may be a key habitat requirement for species. Found to roost in tree hollows in tall trees on ridge-tops, on bark or rock faces. Appears to have traditional roost sites. Due to the high fragmentation of foraging habitat within the disturbance footprint, the lack of nearby roost sites, and sparse records for the species in the area of interest, it is unlikely the habitat within the disturbance footprint would be considered important habitat for the species.

Sharp-tailed Sandpiper	
	Hence, the Project is not anticipated to impact on important habitat for the White-throated Needletail.
Disrupt the breeding cycle of an important population	**No** There is no defined important populations for the species and it is unlikely that the fragmented habitat within the disturbance footprint would support an ecologically significant proportion of a population (100 individuals; Commonwealth of Australia, 2015). Hence, the Project is unlikely to disrupt the breeding cycle of an important population.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No** No breeding habitat for the species occurs within the disturbance footprint. Approximately 1.47 ha of foraging and dispersal habitat for the species is considered present within the 105.49 ha disturbance footprint (Table 41). This extent represents 0.12% of the total foraging and dispersal habitat available within the area of interest (Table 41; Map series 14 – Sharp-tailed Sandpiper). The Project will result in discrete sections of linear clearing throughout the project area. While this clearing will cause minor fragmentation of habitat, it is unlikely to impact connectivity of habitat throughout the area of interest, especially given the species aerial nature and ability to easily traverse a 24-50 m wide linear corridor. In addition, weed management of remaining patches of habitat adjacent to the project area will be managed under a Construction Biosecurity Management Plan which will reduce the likelihood of edge effects that can degrade remaining habitat for the species. The minor loss of habitat for this species, and the proposed mitigation measures to be implemented will reduce the likelihood that species will decline as a result of the Project to negligible.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No** There is no recovery plan for this species, and no significant threats listed in Australia. Collision with overhead wires is the only recorded threat to individuals of this species. Hence, the Project is considered unlikely to result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat.
Introduce disease that may cause the species to decline	**No** There are no known diseases for this species.
Interfere substantially with the recovery of the species	**No** There is no recovery plan for the White-throated Needletail, and the species faces no major threats in Australia, other than the potential for individual mortality from collision with overhead wires. Powerlink assesses each project for bird strike risk and installs line-marking devices (e.g., bird diverters) where required. With these mitigation measures in place, the Project is not expected to substantially interfere with the recovery of the species.
Assessment Outcome	**UNLIKELY** to result in a significant impact on the species

Collared Delma, Delma torquata

The Collared Delma is a vulnerable species, protected under the *EPBC Act (Cth).* Table 56 provides an assessment against significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* (Department of Environment, 2013)and assesses whether the Project is likely to have a significant impact on this species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed **UNLIKELY** that the proposed Project will result in a significant impact to this threatened species.

Table 56 Assessment of significance of impacts to the Collared Delma

Collared Delma	
Criteria	**Response**
Lead to a long-term decrease in the size of an important population of the species	**No** No Collared Delma have been recorded within the project area to date despite extensive targeted searches for the species. It is considered that occurrence of important habitat for the species is surrogate for an important population. Based on the results of targeted surveys to date, it is anticipated that the project area will not contain an important population for the species as: • The species has not been detected despite extensive targeted and supplementary searches, • The project area lacks contiguous suitable habitat, with the exception of the eastern part of the project area, however the REs in the eastern part of the project area have no previous records of the species and is subject to threats from cattle grazing. While this is the case, some marginal habitat for the species has been mapped in the eastern part of the project area due to the presence of suitable Eucalypt woodlands on a slight slope, with rocky habitat on land zone 11. It was calculated that 1.96 ha of marginally suitable habitat occurs within the disturbance footprint (Table 41). This impact area represents 0.06% of available marginal habitat for the species within the area of interest (Table 41; Map series 14 – Collared Delma). This marginal habitat has been avoided as far as practical, with reductions in clearing extents proposed as a result of Powerlink refining corridor widths to the minimum feasible width allowing for conductor sag and swing; and bushfire safety. In addition, mitigation measures have been proposed should Collared Delma be found in the project area during construction, including: • Construction boundaries clearly defined prior to clearing. • Pre-clearance surveys to be undertaken by a fauna spotter catcher. • Fauna spotter catcher to supervise all clearing works. • If Collared Delma is confirmed in the project area during clearing works, clearing works will cease until fauna spotter catchers undertake additional preclearance surveys to remove to relocate all individuals, and any suitable boulders and rock piles will be salvaged and recreated in an adjacent area. • The Construction Biosecurity Management Plan will detail pest management to be implemented during construction and operation. • Powerlink's Bushfire Mitigation Plan will detail fire management measures to be implemented during construction and operation. With the mitigation measures implemented, it is not anticipated that the Project would lead to a long-term decrease in the size of an important population of the species.
Reduce the area of occupancy of an important population	**No** No population of Collared Delma has been found present within the project area; therefore, it is considered unlikely an important population occurs. Regardless, marginal habitat mapped as present for the species has been avoided as far as practical, and mitigation measures proposed to reduce the likelihood of impacts to a population if it does occur within the project area and is found during clearing works. These mitigation measures were described above. With these mitigation measures in place, it is unlikely the Project will reduce the area of occupy of an important population.

Collared Delma	
Fragment an existing important population into two or more populations	**No** No existing important population of the species is known to occur within the project area or near vicinity. Hence, while the Project will result in some minor linear fragmentation of mapped marginal habitat for the species, this is unlikely to impact a population with one not confirmed in the project area.
Adversely affect habitat critical to the survival of a species	**No** No important habitat has been confirmed present within the project area; therefore, the Project is unlikely to affect habitat critical to the survival of the species. Should a population occur, mitigation measures have been proposed to ensure that the population will not be adversely affected.
Disrupt the breeding cycle of an important population	**No** As above. Mitigation measures have been proposed to ensure that if a population is present, individuals will be removed and relocated, along with any suitable microhabitat features to ensure the Project does not impact on the species or its breeding cycle.
Modify, destroy, remove, isolate or decrease the availability or quality of habitat to the extent that the species is likely to decline	**No** No important habitat has been confirmed present within the project area. 1.96 ha of marginal habitat was mapped in the disturbance footprint (Table 41), that will be impacted by the Project. This habitat has been avoided as far as practical, with mitigation measure proposed to further reduce the likelihood of impact should a population of Collared Delma occur within the disturbance footprint. With these management measures in place, it is not expected that the species would result in a decline as a result of the Project.
Result in invasive species that are harmful to a vulnerable species becoming established in the vulnerable species' habitat	**No** Appropriate weed and pest management measures are proposed to be implemented as part of the Construction Biosecurity Management Plan for the Project. With these measures in place the Project is unlikely to result in an invasive species that is harmful becoming established.
Introduce disease that may cause the species to decline	**No** There are no known diseases for this species.
Interfere substantially with the recovery of the species	**No** There is no recovery plan for this species, however the threats include habitat loss from vegetation clearing for agriculture, habitat degradation by cattle overgrazing, removal of microhabitat, use of agricultural chemicals, predation by Feral Cats and Foxes, and weed invasion degrading habitat. The Project has minimised impacts to this species marginal habitat and proposed mitigation measures should the species be detected during construction. With these minimisation and mitigation measures in place it is unlikely the Project will substantially interfere with the recovery of the species.
Assessment Outcome	**UNLIKELY** to result in a significant impact on the species

9.1.4 Significant Impact Assessment on Migratory Species

An action is likely to have a significant impact on a migratory species if there is a real chance or possibility that it will:

- Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species.
- Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species.
- Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.

The migratory species that have habitat present in the project area are Fork-tailed Swift, Gull-billed Tern and Caspian Tern.

Fork-tailed Swift, Apus pacificus

The Fork-tailed Swift is a migratory species protected under the *EPBC Act* (Cth). Table 57 provides an assessment against significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* (Department of Environment, 2013) and assesses whether the Project is likely to have a significant impact on this species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed **UNLIKELY** that the proposed Project will result in a significant impact to this threatened species.

Table 57 Assessment of significance of impacts to the Fork-tailed Swift

Fork-tailed Swift	
Criteria	**Response**
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**No** The Fork-tailed Swift is a migratory bird species, that is a non-breeding visitor to Australia. The species is almost exclusively aerial. Its habitat is widespread, occurring over inland plains, coastal areas and it also frequently inhabits urban environments. The species therefore has a very large home range, utilising timbered and sparse habitats for foraging over. This species was not recorded during field surveys, however, given its widespread distribution, it could not be discounted that the remnant and regrowth REs within the project area provide suitable foraging habitat and dispersal opportunities for the species. There is no listed critical habitat or important populations for this species. Important habitat however is defined as non-breeding habitat. As the species has a large home range, and the project area provides highly fragmentated habitat, it is unlikely that the habitat available would be considered important habitat for the species. As a result, the Project will not adversely modify, destroy or isolate important habitat for the species. Also, it was calculated that 0.06% of available habitat within the area of interest (Map series 14 - Fork-tailed Swift) will be impacted within the disturbance footprint (5.69 ha; Table 41). This impact is negligible for an aerial species, especially considering the sparse records in the area of interest.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**No** There is no recovery plan for this species, and no significant threats to this species have been listed. Potential threats however may include habitat destruction and predation by feral animals. Due to the wide home range of the species, the potential impacts are thought to be negligible (BirdLife International, 2009). The Project is unlikely to result in an increase in feral animal populations that pose a threat to the species. Regardless, pest management measures will be implemented. As a result, it is unlikely that an invasive species harmful to the species is likely to become established as a result of the Project.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	**No** 1,000 birds represent a nationally ecologically significant proportion of Fork-tailed Swift (Commonwealth of Australia, 2015). With no current sightings of the species in the area of interest, an ecologically significant proportion of the species population is not expected to occur. This, along with minimal direct impacts to the species habitat and appropriate management of indirect impacts expected, the Project will not seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species.
Assessment Outcome	**UNLIKELY** to result in a significant impact on the species

Caspian Tern, Hydroprogne caspia and Gull-billed Tern, Gelochelidon nilotica

The Gull-billed and Caspian Terns are migratory species protected under the *EPBC Act* (Cth). Table 58 provides an assessment against significant impact criteria in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* (Department of Environment, 2013) and assesses whether the Project is likely to have a significant impact on these species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed **UNLIKELY** that the proposed Project will result in a significant impact to this threatened species.

Table 58 Assessment of significance of impacts to the Caspian and Gull-billed Terns

Caspian Tern, *Hydroprogne caspia* and Gull-billed Tern, *Gelochelidon nilotica*	
Criteria	**Response**
Substantially modify (including by fragmenting, altering fire regimes, altering nutrient cycles or altering hydrological cycles), destroy or isolate an area of important habitat for a migratory species	**No** The Gull-billed and Caspian Terns are migratory bird species, that have similar habitat requirements. The Gull-billed Tern prefers freshwater and saline wetlands, while the Caspian Tern utilises these wetlands but also may be found in waterholes, reservoirs, rivers and creeks. These species were not detected during field surveys, however given their widespread distribution, and records within Lake Callide to the south of the project area, it could not be discounted that the species may occur within the project area at least on occasion. The ephemeral wetlands and watercourses within the project area may provide suitable foraging or dispersal habitat for these species. Important habitat or populations for these species have not been defined, with no Conservation Advice or recovery plans available for these species. Approximately 5.45 ha of Caspian Tern habitat and 1.47 ha of Gull-billed Tern habitat will be impacted within the disturbance footprint, which represents on <0.01% of habitat for the Caspian Tern and 0.12% of habitat for the Gull-billed Tern throughout the area of interest (Table 41; Map series 14 – Caspian Tern and Map series 14 – Gull-billed Tern). The Project will not directly impact on wetlands and watercourses, with most of the vegetation associated with these retained due to towers being located outside of the defined banks and towers heights increased to their maximum to span above vegetation where possible. Both species are widespread throughout eastern Australia and are capable of migrating outside of Australia. Given the Project will result in discrete sections of linear impacts to a width of 24-50 m, and these species are capable of flying very long distances, and there will be no impacts in instream wetland or watercourse habitat, the Project is unlikely to cause isolation or fragmentation of the species habitat.
Result in an invasive species that is harmful to the migratory species becoming established in an area of important habitat for the migratory species	**No** There are no recovery plan for these species, no important habitat has been defined, and invasive species have not been listed as a potential threat to these species within Australia, where these species do not breed. Therefore, the Project is unlikely to result in an invasive species that is harmful becoming established. Regardless, pest management measures are proposed which will include mitigation, monitoring and control measures to reduce the likelihood any invasive pest populations will increase in number as a result of the Project.
Seriously disrupt the lifecycle (breeding, feeding, migration or resting behaviour) of an ecologically significant proportion of the population of a migratory species	**No** No ecological significant proportion of these species populations have been defined, however given the lack of extensive wetland and swamp systems within the project area, it is unlikely a large proportion of these species would occur within the project area. Impacts associated with construction and operation of the Project are also unlikely to impact on individuals given their capability to disperse across regions and no instream impacts proposed from the Project. Rather impacts from the Project will include the minor loss of suitable riparian habitat that assists with shelter and dispersal, which is unlikely to cause serious disruption to the lifecycle of an individual, let alone an ecologically significant proportion of the population of each species.
Assessment Outcome	**UNLIKELY** to result in a significant impact on these species

9.2 MSES

As the Project will obtain a 'Use' approval through the MID process, under Section 44(6)b of the *Planning Act 2016* (Qld), the development becomes 'accepted development' under subsequent legislation e.g., *Vegetation Management Act 1999* (Qld), *Fisheries Act 1994* (Qld) and the *Water Act 2000* (Qld), meaning that development approvals are not required, and offsets cannot be imposed under Queensland's *Environmental Offsets Act 2014* (Qld) for impacts to MSES recognised under these legislation.

Impacts under the *Nature Conservation Act 1992* (Qld) however (e.g., impacts to protected plants) are not considered accepted development as a result of the MID process, and could carry offset implications under the Queensland's *Environmental Offsets Act 2014* (Qld).

While offsets cannot be imposed for MSES recognised under the *Planning Act 2016* (Qld), an assessment against the *Significant Residual Impact Guideline for matters of state environmental significance and prescribed activities assessable under the Sustainable Planning Act 2009* (SDIP, 2014) has been undertaken to evaluate direct and indirect impacts on MSES This assessment also informs recommendations for avoidance and mitigation measures to minimise overall environmental harm during the construction and operation of the Project.

The outcome of the SRI assessment for each identified MSES has been provided in Table 59. After considering potential impacts, avoidance, minimisation, mitigation and remediation measures, and the State SRI criteria provided within the *Significant Residual Impact Guideline* , the Project will likely have an SRI on the following MSES:

- Regulated vegetation, for:
  - Potentially 3.6 ha of prescribed endangered and of concern REs (based on ground-truthed presence).
  - 0.37 ha of prescribed REs that are located within a defined distance of the defining banks of a watercourse.
- 0.61 ha of a mapped HES Wetland (5.10 ha of the WPA); and 0.85 ha of the unmapped HES Wetland (5.25 ha of the WPA).

Table 59
SRI Assessment for MSES in the disturbance footprint

Prescribed Matters		Significant Impact Criteria	Response
Regulated vegetation	Prescribed REs that are endangered or of concern	An action is LIKELY to have a SRI on an 'endangered' or 'of concern' RE if the action will result in clearing of >5ha of 'endangered' or 'of concern' RE vegetation; clearing that results in an area of 'endangered' or 'of concern' RE vegetation of <5ha; OR clearing that results in the physical separation of 'endangered' and 'of concern' REs within and on adjoining sites. Notwithstanding the above, an action is UNLIKELY to have a SRI on an 'endangered' or 'of concern' RE if the action will result in: (a) linear clearing (that is for a purpose under section 22A of the *Vegetation Management Act 1999;* Qld) within 'endangered' or 'of concern' REs not exceeding the width and area thresholds specified in Table 1, SDAP State Code 16 by more than 25%; where an equivalent area which can be mapped as 'endangered' or 'of concern' in the future is being rehabilitated on the subject site; (b) clearing of less than 10% of the total mapped area of 'endangered' or 'of concern' REs intersecting the property boundaries of the project, if total clearing is under 5ha; and where an equivalent area which can be mapped as endangered or of concern in the future, is rehabilitated through other locations on the subject site; (c) clearing of 'endangered' or 'of concern' REs not exceeding the width thresholds specified in Table 1, SDAP Module 8 by more than 100% or the area threshold by 50%; where rehabilitated on the subject site; (d) clearing of 'endangered' or 'of concern' REs within width thresholds specifies in Table 1, SDAP Module 8	**Yes** The linear infrastructure clearing for the Project is expected to result in clearing of 3.6 ha of combined endangered and of concern REs (based on field-verified data). The width of clearing (being mostly 24m) does not meet the width thresholds in State Code 16 (10m in dense and mid-dense vegetation structures, 20m in sparse and very sparse, and 25m in grassland).

Prescribed Matters		Significant Impact Criteria	Response
		and not exceeding the area threshold by more than 50%, to a maximum area of 5ha; (e) removal of up to 5% of the total mapped area of 'endangered' REs intersecting the property boundaries of the project, where not greater than 25m in width; for the purposes of removing fragments, patches, uneven edges or protruding vegetation; (f) removal of up to 10% of the total mapped area of 'of concern' RE intersecting the property boundaries of the project, where not greater than 50m in width; for the purposes of removing fragments, patches, uneven edges or protruding vegetation; (g) clearing of 'endangered' or 'of concern' vegetation that is equivalent in size/area to existing exempt clearing to be protected via the proposal (i.e. realignment of a boundary which results in a shorter length of exempt clearing through an existing endangered or of concern area than allowed via the existing boundary); OR (h) clearing of REs <1.1ha where surrounding land uses are zoned for urban purposes or future urban purposes under a local planning instrument.	
Regulated vegetation	Prescribed RE that intersect with a mapped wetland area	An action is LIKELY to have a SRI on remnant vegetation intersecting with a wetland if the action will result in: (a) clearing within the defining banks of a defined wetland area exceeding the thresholds specified in Table 1, SDAP State Code 16; (b) clearing involving the permanent removal of more than 25% of the vegetation located within 50m of the defining bank of a defined wetland; OR (c) clearing involving the permanent removal of more than 50% of the vegetation located between 50m and 100m of the defining bank of a defined wetland. Notwithstanding the above, actions that are UNLIKELY to have a SRI on remnant vegetation intersecting with a wetland include low risk activities outside of the wetland area (not surrounding buffer areas) if the action will result in: (a) lineal clearing (that is for a purpose under section 22A of the Vegetation Management Act 1999; Qld) within 25% of the area and width thresholds in Table 1, SDAP State Code 16 where the cleared area is proposed for rehabilitation; (b) clearing of vegetation not exceeding the width thresholds specified in Table 1, SDAP State Code 16 by more than 100%; where the overall area threshold is not exceeded; (c) lineal clearing (that is for a purpose under section 22A of the Vegetation Management Act 1999; Qld) that does not exceed the width thresholds specified in Table 1, SDAP State Code 16 and does not exceed the area threshold by more than 50%; (d) clearing that is not within 50m of the defining bank of a wetland and does not exceed the width thresholds specified in Table 1, SDAP State Code 16 by more than 100% or the area threshold by 50%, where the cleared area is proposed to be rehabilitated; (e) clearing of less than 2ha and not within 50m of the defining bank of a wetland for low impact open space	**No** An SRI is not anticipated. While the Project will result in a linear width of clearing that is 24m or more, resulting in the permanent removal of an of concern RE11.3.4 (sparse) within 20m of the defining bank of a mapped wetland, the Project will not trigger the area threshold (2 ha of sparse ecosystem) for an SRI (0.61 ha proposed), and the Project will not result in clearing of more than 25% of the vegetation located within 50m of the defining bank of a defined wetland (Map 8, Appendix A).

Prescribed Matters		Significant Impact Criteria	Response
		uses5 where other management measures (e.g. erosion and sediment control etc.) are included to achieve any of the relevant performance outcomes of SDAP State Code 16; (f) clearing for any lineal infrastructure (e.g. roads and rail) not greater than 50m in width, which results in the permanent removal of less than 25% of the vegetation located within 50m of the defining bank of a wetland and where management plans are demonstrated to achieve the performance outcome of SDAP State Code 16; OR (g) clearing within 100m of a wetland where it can be demonstrated the vegetation type is not associated with the wetland (e.g. separated by topography / catchments or other physical barriers).	
Regulated vegetation	Prescribed RE that is located within a defined distance from the defining banks of a relevant watercourse or drainage feature	An action is LIKELY to have a SRI on remnant vegetation within the defined distance of a watercourse if the action will result in: (a) permanent removal of vegetation within the defined distance of a stream order 3 or higher where no rehabilitation is proposed; (b) building of an online detention basin greater than 1ha in size or other similar works that result in the clearing of vegetation which fragments up and downstream remnant areas on any stream order; OR (c) permanent clearing of more than 0.5ha of an endangered or of concern RE, within the defined distance of a watercourse. Notwithstanding the above, an action is UNLIKELY to have a SRI on remnant vegetation within the defined distance of a watercourse, if the action will result in: (a) lineal clearing of vegetation (that is for a purpose under section 22A of the VMA) less than 25m in width on a stream order 1 or 2 mapped watercourse, where the works include: i. revegetation of exposed embankment areas (e.g. from a new road crossing and culvert installation) in accordance with a vegetation management or rehabilitation plan, ii. temporary erosion and sediment control until construction is completed or stream banks have been stabilised, AND iii. a crossing design which can be demonstrated (through a site-specific study or similar) not to interfere with existing aquatic and terrestrial habitat of the watercourse; (b) temporary clearing of 'least concern' RE of up to 1 ha on a stream order 1 or 2 where erosion and sediment measures are in place and the area is to be rehabilitated on the subject site; (c) removal of vegetation from a partially vegetated / degraded stream order 1 or 2 where revegetation greater than the area removed occurs on other stream order areas within or adjoining the site; (d) clearing of 'least concern' RE not containing Essential Habitat up to 1ha for lineal infrastructure (e.g. roads and rail); OR	**Yes** An SRI is anticipated due to the permanent removal (with no rehabilitation proposed) within the defined distance of a stream order 2 or higher.

Prescribed Matters		Significant Impact Criteria	Response
		(e) (e) removal of understorey vegetation of up to 3ha within a remnant area (excluding clearing within the high bank of the watercourse) for the purposes of open space or safety where not removing any trees with a trunk Diameter at Breast Height (DBH) greater than 150mm in diameter.	
Connectivity Areas	Prescribed regional ecosystems that contain an area of land that is remnant vegetation required for ecosystem functioning (a connectivity area)	In deciding if an offset is required for connectivity areas, the administering agency must consider the significance of the ecosystem tract in the context of the local and regional landscape. A development impact on connectivity areas is determined to be significant if either of the following tests are true: 1. The change in the core remnant ecosystem extent at the local scale) is greater than a threshold determined by the level of fragmentation at the regional scale; or Any core area that is ≥1 hectare is lost or reduced to patch fragments (core to noncore).	**No** The DETSI Landscape Fragmentation and Connectivity Tool determined that any impact on connectivity areas was NOT significant. It defined that the reduction in core remnant vegetation at a local scale was not significant at 0.29%, and that a change from core to non-core remnant vegetation at the site scale was also NOT significant.
Wetlands and Watercourses	A wetland in a wetland protection area or a wetland of high ecological significance on the map of referrable wetlands	An action is LIKELY to have a SRI on a wetland or watercourse if: (a) works are undertaken within a wetland in a WPA, a wetland of HES or the bed or banks of a HEV watercourse that will result in a permanent degradation of the landform, vegetation or water quality; (b) in an urban area, works are undertaken within 50m of a wetland in a WPA, a wetland of HES or the bed or banks of a HEV watercourse that will result in a permanent and significant change to surface or groundwater hydrology or water quality; OR (c) in a non-urban area, works are undertaken within 200m of a wetland in a WPA, a wetland of HES, or the bed or banks of a HEV watercourse that will result in a permanent and significant change to surface or groundwater hydrology or water quality. Notwithstanding the above, an action is UNLIKELY to have a SRI on a wetland or watercourse if: (d) the mapped wetland in a WPA, wetland of HES or a wetland or watercourse in a HEV water is determined as not having 'high' or 'very high' conservations values using AquaBAMM or an appropriate assessment technique agreed with the assessing department (i.e. the site should not be mapped as having HEVs); (e) no works are undertaken within 50m of a wetland in a WPA, a wetland of HES or a HEV watercourse or works undertaken within 50m of a wetland in a WPA or a HEV watercourse will not result in a significant change to the function of the wetland or watercourse including no significant changes to surface and groundwater hydrology and water quality; OR (f) all works undertaken within 50m of a wetland in a WPA or a HEV watercourse, rehabilitate land (including drainage and flow paths) and vegetation to their pre- disturbance condition within a time period or condition agreed to by the assessing department	**Yes** Riparian vegetation within the mapped HES wetland will be cleared. Impact area of the HES wetland is 0.61 ha, while the impact area of the WPA is 5.10 ha. For the unmapped wetland, the impact area will be 0.85ha, while the impact area within a set WPA would be 5.25ha.

Prescribed Matters		Significant Impact Criteria	Response
Waterways	Waterway providing for fish passage	An action is LIKELY to have a SRI on a waterway providing for fish passage if the action will result in: (a) a permanent modification to the volume, depth, timing, duration or flow frequency of the waterway; (b) permanent modification or fragmentation of fish habitat including but not limited to in stream vegetation, snags and woody debris, substrate, bank or riffle formation necessary for breeding and/or survival of native fish species; (c) the mortality or injury of fish species; OR (d) works that permanently reduce the level of fish passage provided in a tidal waterway or a waterway identified as a major high risk waterway for waterway barrier works, to a level that would increase stress on fish populations. Notwithstanding the above, an action is UNLIKELY to have a SRI on a waterway providing for fish passage if: (a) measures have been put in place to provide equal or better fish passage for the waterway during construction and operation activities; AND (b) the waterway is restored to its existing condition immediately on completion of the works; OR (c) for works that permanently alter existing fish passage, equal or better passage will be provided immediately on completion of the works.	**No** The Project is not anticipated to have a significant residual impact on a waterway providing for fish passage as the Project will not permanently modify the volume, depth, timing, duration, or flow frequency of a waterway. Any infrastructure within the drainage features would be mitigated with culverts to retain fauna movement. Any waterway crossings will meet accepted development criteria (DAF, 2018). Fish and aquatic species will be managed onsite during all construction works by an onsite suitably qualified person able to manage and relocate any animals within the project footprint. Any dewatering works undertaken during the Project will be managed under the appropriate permits.
Protected Wildlife Habitat	A habitat for an endangered wildlife or vulnerable wildlife or special least concern animal	ANIMALS - Protected wildlife habitat (habitat for an animal that is 'endangered' or 'vulnerable' wildlife or a special least concern animal7) An action is LIKELY to have a SRI on habitat for an animal that is 'endangered' or 'vulnerable' wildlife if the action will: (a) lead to a long-term decrease in the size of a local population; (b) reduce the extent of occurrence of the species; (c) fragment an existing population; (d) avoid genetically distinct populations forming as a result of habitat isolation; (e) result in invasive species that are harmful to an endangered or vulnerable species (f) becoming established in the endangered or vulnerable species' habitat; (g) introduce disease that may cause the population to decline, (h) interfere with the recovery of the species; OR (i) cause disruption to ecologically significant locations (breeding, feeding, nesting, (j) migration or resting sites) of a species.	**No** The Project is unlikely to have an SRI on the Short-beaked Echidna as potential impacts to its habitat will not result in a long-term decrease in the size of the population, reduce the extent of the species, fragment the population, result in genetically distinct populations of disrupt significant breeding, feeding or nesting sites for this species.

9.2.1 Short-beaked Echidna, *Tachyglossus aculeatus*

The Short-beaked Echidna is a special least concern species protected under the *Nature Conservation Act 1992* (Qld). Table 60 provides an assessment against the threshold criteria in the *Significant Residual Impact Guideline for matters of state environmental significance and prescribed activities assessable under the Sustainable Planning Act 2009* (SDIP, 2014) and determines whether the Project is likely to have a significant residual impact on this species.

The Project has considered avoidance, minimisation, mitigation and remediation measures to manage impacts to this threatened species. After considering these management measures, it was deemed **UNLIKELY** that the proposed Project will result in a significant impact to this threatened species.

Table 60 Assessment of significance of impacts to the Short-beaked Echidna

Criteria	Response
Lead to a long-term decrease in the size of a local population	**No** The Short-beaked Echidna is found throughout Australia, including Tasmania. The species is a habitat generalist, inhabiting a diverse range of environments, including forests, woodlands, heath, grasslands and arid environments where it requires rocky outcrops, fallen timber and hollow logs for shelter. The species is prevalent in urban and rural landscapes and is tolerant of disturbance. Most remnant and regrowth vegetation within the Wards Well MLs provides suitable habitat for this species, with the exception of non-remnant areas, though these areas may be used on occasion for the species to disperse to other remnant or regrowth REs throughout the region. This species was recorded near Callide Creek in the centre part of the project area during field surveys. As a result, it is likely that the species occurs within the disturbance footprint at least on occasion, either for breeding, foraging or dispersal. The Project has avoided and minimised this species habitat by reducing the width of the corridor to the minimal feasible to account for conductor swing and sag, and ensure bushfire safety. Given the mobility of this species, it is anticipated that the species will continue to traverse the disturbance footprint with no barriers to dispersal proposed. Also the discrete sections of linear clearing are unlikely to hinder connectivity of habitat for this species. In addition, mitigation measures have been proposed to manage interactions with the species during clearing works. Any individuals present during construction are expected to self-relocate once clearing works start. However, to mitigate injury to the Short-beaked Echidna, the Project will have Fauna Spotter Catchers undertake pre-clearance surveys and supervise clearing works. Hence, there is not expected to be a reduction in numbers of the local population as a result of the clearing works proposed, let alone lead to a long-term decrease in the size of the population.
Reduce the extent of occurrence of the species	**No** Most remnant and regrowth vegetation within the project area provides suitable habitat for this species. Approximately 8.3 ha of Short-beaked Echidna habitat is present throughout the disturbance footprint (Table 41). Short-beaked Echidnas have large home ranges, up to 400 ha, and can travel long distances in search for food, sometimes over several kilometres (Spring, 2018). This linear Project will have a constructed width of 24-50 m with no obstructions (e.g., fencing), and is therefore unlikely to hinder the movements of the Echidna throughout the region. Extensive habitat for species occurs throughout the region. It is anticipated that a total area of 8.3 ha of habitat will be cleared within the disturbance footprint (Table 41). This extent represents 0.01% of available habitat throughout the area of interest (Table 41; Map series 14 – Short-beaked Echidna). The loss of habitat anticipated relative to the amount of habitat that will be retained throughout the area of interest is negligible. The discrete sections of linear clearing proposed will not result in a reduction in extent of occurrence of this species. Where vegetation clearing is to occur, habitat features suitable for sheltering for this species (i.e., felled trees and hollowed logs) will be retained and relocated outside of the clearing area to continue to provide microhabitat for this species.
Fragment an existing population	**No** The project area is surrounded by extensive habitat for this species, which will not be impacted by the Project. Habitat for this species within the project area typically includes stepping stone

Criteria	Response
	habitat, which may be utilised for the periodic dispersal of the local population throughout the region. The linear clearing proposed will result in some minor fragmentation of the species habitat but is unlikely to impact connectivity throughout the region and will not hinder the species movement given there will be no barriers restricting movement and the species can travel distances much greater than the width of the proposed clearing (24-50 m). Therefore, the Project is unlikely to result in fragmentation of the species population.
Result in genetically distinct populations forming as a result of habitat isolation	As above, the Project will cause minimal habitat fragmentation but will not impact on the connectivity of habitat throughout the region, hence is unlikely to cause genetically distinct populations forming as a result of isolation.
Disrupt ecologically significant locations (breeding, feeding or nesting sites) of a species	Short-beaked Echidnas breed under rocky overhangs, grass tussocks, hollows at the base of trees, rotten tree stumps, hollow logs and in burrows or depressions in the ground. Habitat features (e.g., hollow logs) present within the project area would provide suitable breeding habitat for this species. It is also likely the project area is used for foraging and dispersal of the species throughout the region. However, it is unlikely this site provides habitat that is 'important' for the species or ecologically significant. Regardless, the marginal clearing proposed compared to the species habitat throughout the area of interest (0.01%; Table 41) would be deemed negligible on the species.
Assessment Outcome	**UNLIKELY** to result in a significant residual impact on the species

ENVIRONMENTAL OFFSETS

10.1 OFFSETS FOR MNES

Under the *EPBC Act Environmental Offsets Policy,* offsets for a project may be required to compensate for adverse or significant impacts to MNES. When offsets to MNES are considered possible and appropriate, the principles within this Policy will apply when determining what constitutes a suitable offset.

When determining offsets, the *Environmental Offsets Policy* has five key aims:

- To ensure the efficient, effective, timely, transparent, proportionate, scientifically robust and reasonable use of offsets under the *EPBC Act* (Cth);
- To provide proponents, the community and other stakeholders with greater certainty and guidance on how offsets are determined and when they may be considered under the *EPBC Act* (Cth);
- To deliver improved environmental outcomes by consistently apply the policy;
- To outline the appropriate nature and scale of offsets and how they are determined; and
- To provide guidance on acceptable delivery mechanisms for offsets.

There are eight overarching offset principles within the Policy that are applied in determining the suitability of offsets. Where significant impacts are identified, the *EPBC Act Offsets Assessment Guide* is utilised through a tool developed by the Department to assist proponents with estimating offset requirements. The Policy requires at least 90% of the offset obligation to be delivered through proponent-driven, direct (land-based) offsets. The Policy allows up to 10% of the offset obligation to be delivered through other compensatory measures, such as education or research. Advanced offsets are also permitted and encouraged, whereby offsets are delivered prior to the impact commencing.

Based on the results of our assessment, it is considered unlikely that a significant impact to an MNES will occur as a result of the Project due to avoidance, minimisation, mitigation and remediation measures that have been proposed to reduce adverse impacts. Therefore, it is unlikely that offsets will be required to compensate for impacts to MNES.

10.2 OFFSETS FOR MSES

Under the *Environmental Offsets Act 2014* (Qld), an environmental offset may be required as a condition of an approval under various legislation, where following consideration of avoidance and mitigation measures, a prescribed activity is likely to result in a significant residual impact on a prescribed environmental matter. Significant residual impacts for prescribed activities listed in the *Planning Regulation 2017* (Qld) are determined through the application of criteria outlined in the *Significant Residual Impact Guideline For matters of state environmental significance and prescribed activities assessable under the Sustainable Planning Act 2009* (SDIP 2014).

Prescribed activities that may require offsets are outlined in Schedule 1 of the *Environmental Offsets Regulation 2014* (Qld). A prescribed environmental matter includes but are not limited to protected areas, endangered or vulnerable wildlife, essential habitat, prescribed regional ecosystems, connectivity areas, wetlands and watercourses, fish habitat areas, waterways for fish passage and marine plants.

The infrastructure designation process under the *Planning Act 2016* (Qld) is not considered a prescribed activity for the purpose of providing an offset under the *Environmental Offsets Act 2014* (Qld). Therefore, as the Project will be subject to approval under the infrastructure designation process, offsets for significant residual impacts to MSES do not apply under the *Planning Act 2016* (Qld).

The Project would however be considered a prescribed activity for the taking of a protected plant within the meaning of the *Nature Conservation Act 1992* (Qld), however none were detected within the clearing impact area or disturbance footprint. Accordingly, no significant impact is anticipated and offsets are not required.

Regardless of no offsets being required for impacts to MSES, the avoid, minimise, mitigate approach to the Project has been employed to reduce impacts on MSES.

CONCLUSION

The project area contains ecological values that are considered MNES and MSES under Commonwealth and State government environmental legislation. These MNES and MSES include TECs, threatened and migratory species, regulated vegetation, wetlands and watercourses, and protected wildlife habitat.

During the field ecological surveys completed during May, July, September, December 2023, January 2024 and August 2025, the ecological values were verified within the project area. The project area contained mostly cleared, non-remnant, exotic grasslands that were utilised for cattle grazing or cultivated crops. There were however isolated patches of remnant and regrowth vegetation scattered throughout the project area, as well as HES wetland areas, watercourses, gilgais and paddock trees containing mistletoe that would support habitat for fauna species, including threatened and migratory fauna species and conservation significant species (i.e., special least concern species).

The Project proposes to remove 7.73 ha of remnant or regrowth vegetation within the 105.49 ha disturbance footprint. These vegetated areas contain MNES and MSES that will be directly impacted from clearing works, including threatened and migratory species habitat, regulated vegetation, regulated vegetation within a defined distance of wetlands and watercourses, HES wetlands and protected wildlife habitat.

An assessment of the significance of impacts to both MNES and MSES was undertaken following the application of avoidance, minimisation, and mitigation measures, in accordance with the criteria set out in the *EPBC Act Environmental Offsets Policy's MNES Significant Impact Guideline* (Department of Environment, 2013) and the *Significant Residual Impact Guideline For matters of state environmental significance and prescribed activities assessable under the Sustainable Planning Act 2009* (SDIP, 2014).

Direct impacts from the Project include vegetation clearing and habitat loss. Indirect impacts may include direct fauna impacts (e.g., injury or mortality during clearing works), edge effects, watercourse and wetland modification, sedimentation and erosion, bushfire hazard, collision and electrocution risk, and noise, dust and light disturbance.

The Project will be managed through the hierarchy of management principles of avoid, minimise, mitigate, remediate then offset. Several design and alignment changes have occurred to avoid and minimise impacts to MNES and MSES. The Project has avoided impacts to MNES and MSES as far as practical. Landholder resistance, proximity to households and technical constraints have significantly inhibited broad design flexibility around isolated patches of remnant vegetation which has restricted further alignment changes.

In areas where impacts will occur, mitigation measures have been proposed to reduce these impacts. Mitigation measures include but are not limited to micro-siting towers during construction, having a Fauna Spotter Catcher undertake pre-clearance surveys and to supervise clearing works, undertaking staged clearing in koala habitat areas, implementing a pre-construction weed survey and Construction Biosecurity Management Plan, implementing Powerlink's *Banana Range Wind Farm Connection Project Environmental Management Plan* (Powerlink Queensland, 2022) to reduce risk and impacts during construction, and implementing Powerlink's Bushfire Mitigation Plan to reduce bushfire hazard risk.

In consideration of impacts after avoidance, minimisation, mitigation and remediation measures have been considered, the Project was considered unlikely to have a significant impact on MNES. As a result, the Project is unlikely to result in offset requirements under Commonwealth legislation, the *EPBC Act* (Cth).

In consideration of the state's *Significant Residual Impact Guidelines*, the Project is likely to have a significant impact on regulated vegetation (including prescribed endangered and of concern REs, and prescribed REs intersecting watercourses), and HES wetlands. While this is the case, an offset under the *Environmental Offsets Act 2014* (Qld) would not be required for these impacts, with the Infrastructure Designation process under the *Planning Act 2016* (Qld) not considered a prescribed activity for the purpose of providing an offset for significant residual impacts to these prescribed environmental matters.

It is recommended that a high-risk Species Management Program (SMP) be developed for the Project, due to the potential presence of animal breeding places for threatened and special least concern species within the disturbance footprint, including Squatter Pigeon, Koala, and the Short-beaked Echidna.

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APPENDIX

A

LIKELIHOOD OF OCCURRENCE ASSESSMENTS

THREATENED ECOLOGICAL COMMUNITIES

Likelihood of Occurrence Assessment

Name	Status[1]	Habitat Description	Corresponding REs[2]	Likelihood of Occurrence	Rationale
Brigalow *(Acacia harpophylla* dominant and co-dominant) TEC	EN	This listed ecological community is characterised by the presence of Brigalow (Acacia harpophylla) as one of the three most abundant tree species (Butler, 2007). Brigalow is usually either dominant in the tree layer or co-dominant with other species such as *Casuarina cristata* (Belah), other species of Acacia, or species of Eucalyptus. The structure of the vegetation ranges from open forest to open woodland. The height of the tree layer varies from about 9m in low rainfall areas (averaging around 500mm per annum) to around 25m in higher rainfall areas (averaging around 750mm per annum; (Butler, 2007). A prominent shrub layer is usually present. The minimum patch size for the TEC is 0.5 ha (TSSC, 2013).	RE11.3.1, 11.4.3, 11.4.7, 11.4.8, 11.4.9, 11.4.10, 11.5.16, 11.9.1, 11.9.5, 11.9.6, 11.11.14 and 11.12.21	Known to occur	Field-verified within the EDCM ML (EcoSM, 2021)
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	EN	The Coolibah – Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions ecological community (hereafter, Coolibah – Black Box Woodlands) is associated with the floodplains and drainage areas of the Darling Riverine Plains and the Brigalow Belt South IBRA bioregions. This ecological community represents occurrences of one type of eucalypt woodland where Eucalyptus coolabah subsp. coolabah (Coolibah, Coolabah) and/or Eucalyptus largiflorens (Black Box) are the dominant canopy species and where the understorey tends to be grassy (DSEWPC, 2011a). The minimum patch size for the TEC is 5 ha (TSSC, 2011).	RE11.3.3, 11.3.15, 11.3.16, 11.3.28, 11.3.37	Unlikely	No corresponding REs mapped in the project area
Lowland Rainforest of Subtropical Australia	CE	The Lowland Rainforest of Subtropical Australia ecological community primarily occurs from Maryborough in Queensland to the Clarence River (near Grafton) in NSW. The ecological community also includes isolated areas between the Clarence River and Hunter River such as the Bellinger and Hastings Valleys. The ecological community occurs on basalt and alluvial soils, including sand and old/elevated alluvial soils as well as floodplain alluvia. It also occurs occasionally on historically enriched rhyolitic soils and basaltically enriched metasediments. Lowland Rainforest occurs in areas <300 m above sea level. Aspect can result in the community being found at >300m altitude on north-facing slopes, but typically 300 m defines the extent of the lowlands. In addition, Lowland Rainforest typically occurs in areas with high annual rainfall (>1300 mm). The minimum patch size for the TEC is 0.1ha (DSEWPC, 2011b).	RE12.3.1, 12.5.13, 12.8.3, 12.8.4, 12.8.13, 12.11.1, 12.11.10, 12.12.1, 12.12.16	Unlikely	No corresponding REs mapped in the project area
Poplar Box Grassy Woodland on Alluvial Plains TEC	EN	This ecological community is typically a grassy woodland with a canopy dominated by *Eucalyptus populnea* (Poplar Box) and understorey mostly of grasses and other herbs. The ecological community mostly occurs in gently undulating to flat landscapes and occasionally on gentle slopes on a wide range of soil types of alluvial and depositional origin (Webb et al., 1980). The ecological community is located west of the Great Dividing Range, typically at less than 300m above sea level (ASL) and between latitudes 20°S to 34°S. The minimum patch size for the TEC is 1 ha (TSSC, 2019).	RE11.3.2, 11.3.17, 11.4,7, 11.4.12, and 12.3.10	Likely to occur	RE11.3.2 mapped in the project area

Name	Status[1]	Habitat Description	Corresponding REs[2]	Likelihood of Occurrence	Rationale
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	EN	This ecological community is an extreme form of dry seasonal subtropical rainforest occurring in the Brigalow Belt and Nandewar regions of Queensland and NSW. In Queensland, the ecological community is most common on undulating plains on fine grained sedimentary rocks (frequently shale) and on basalt hills and plains, though also occurring less frequently on coastal dunes, Quaternary alluvium, Tertiary clay plains, old loamy and sandy plains, or hills and lowlands on metamorphic rocks (McDonald, 2010). It occurs in areas with a subtropical, seasonally dry climate on soils of high to medium fertility. Mean annual rainfall ranges from 500–900 mm in the northern parts of the ecological community's distribution (DoEE, 2018). Semi-evergreen Vine Thickets are generally characterised by the prominence of trees with microphyll sized leaves (2.5–7.5 cm long) and the frequent presence of swollen-stemmed *Brachychiton* spp. (bottle trees) as emergents from the vegetation in Queensland. The thickets typically have an uneven canopy 4–9 m high with mixed evergreen, semi-evergreen and deciduous emergent tree species 9–18 m high and vines, twining or scrambling plants prominent (McDonald, 2010).	11.2.3, 11.3.11, 11.4.1, 11.5.15, 11.8.3, 11.8.6, 11.8.13, 11.9.4, 11.9.8 and 11.11.18	Likely to occur	RE 11.8.3 mapped in the project area
Weeping Myall Woodlands	EN	The Weeping Myall Woodlands occur in a range from open woodlands to woodlands, generally 4-12 m high, in which Weeping Myall (Acacia pendula) trees are the sole or dominant overstorey species. Other common names for Weeping Myall include Myall, Boree, Balaar, Nilyah, Bastard Gidgee, and Silver Leaf Boree. Weeping Myall trees often occur in monotypic stands, however other vegetation may also occur in the ecological community, though not as dominant species. These include: *Alectryon oleifolius subsp. Elongatus* (Western Rosewood); *Eucalyptus populnea* (Poplar Box); or *Eucalyptus largiflorens* (Black Box). The understorey of Weeping Myall Woodlands often includes an open layer of shrubs above an open ground layer of grasses and herbs, though the ecological community can exist naturally either as a shrubby or a grassy woodland (Keith, 2004). The minimum patch size for the TEC is 0.5ha.	11.3.2 and 11.3.28	May occur	RE11.3.2 mapped in the project area

[1] *Commonwealth Status (EPBC Act): CE = Critically Endangered, EN = Endangered, VU = Vulnerable,*

[2] *Corresponding REs from the relevant Listing of Conservation Advice for the TEC. Note, patches of vegetation characterised by these REs are considered the TEC if they meet the key diagnostic criteria and condition thresholds within the relevant Conservation or Listing Advice.*

THREATENED FLORA SPECIES

Likelihood of Occurrence Assessment

Family	Scientific Name	Common Name	Status		Habitat Description	Record[3]		Likelihood in project area	Rationale
			QLD[1]	CTH[2]		Area of Interest	In region		
Acanthaceae	*Xerothamnella herbacea*	-	EN	EN	*Xerothamnella herbacea* is known from locations northeast of Chinchilla, near Theodore, and Goondiwindi, Queensland. It is associated with gilgais, and occurs in Brigalow dominated communities in shaded situations, often in leaf litter. Soils are heavy, grey to dark brown clays (Queensland Herbarium, 2008).	2018	2022	May occur	Despite recent records within area of interest and region, there is marginally suitable habitat present due to limited gilgai areas. Hence, considered may occur.
Asteraceae	*Rhaponticum (Leuzea) australe*	Austral Cornflower	VU	VU	This species is known only from Mt Moffat to Gatton in Queensland. *Rhaponticum (Leuzea) australe* usually grows on heavy black or red-brown clay, or clay loams derived from basalt. It is often found in woodland, grassland, roadside and cultivation headlands (Harden, 1992) .	1947	2017	Unlikely to occur	No suitable basalt soils present within the project area for species to occur.
Cycadaceae	*Cycas megacarpa*	-	EN	EN	This species is endemic to southeast Queensland, from Woolooga to Bouldercombe, near Rockhampton in the north (Queensland Herbarium, 2007). *Cycas megacarpa* is found in Spotted Gum *(Eucalyptus maculata)* and Narrow-leaved Ironbark *(Eucalyptus crebra)* woodland and open forest with a grassy understorey. The species usually grows on hill tops and steep slopes. The soil is typically a well-draining rocky or shallow clay, clay/loam (Queensland Herbarium, 2007).	2021	2025	Unlikely to occur	Lack of hilly, steep terrain within the project area for species to occur.
Cyperaceae	*Cyperus clarus*	-	VU	-	*Cyperus clarus* is a perennial sedge that is found from near Emerald in central Queensland to near Delungra on the NSW north-west slopes (DETSI, 2025). The species is associated with grasslands where *Aristida leptopoda* and *Panicum queenslandicum* occur on deep alluvial black clay; in *Eucalyptus melanophloia* woodland with mid-dense ground stratum of *Chrysopogon fallax*; growing with *Stemmacantha australis* in Mountain Coolibah woodland on basalt ridges; and in *Dichanthium* grassland with *Cyperus bifax* and *Fimbristylis* spp (DETSI, 2025).	1975	1981	Unlikely to occur	No suitable basalt soils present within the project area for species to occur.

Family	Scientific Name	Common Name	Status		Habitat Description	Record[3]		Likelihood in project area	Rationale
			QLD[1]	CTH[2]		Area of Interest	In region		
Euphorbiaceae	*Bertya opponens*	-	LC	VU	This species is widely distributed from Charters Towers in the north, down to NSW. *Bertya opponens* has been recorded growing in a variety of community types including mixed shrubland, woodland, open woodland, open forest, and semi-evergreen vine-thicket. The soils are recorded as generally shallow sandy loams associated with sandstone (Department of Environment and Heritage Protection, 2013).	2024	2024	Unlikely to occur	No suitable sandstone habitat within the project area for the species to occur, despite recent records in the area of interest and region.
Leguminosae	*Acacia pedleyi*	Pedley's Wattle	EN	-	*Acacia pedleyi* is found on alluvial flats, hill slopes and tops of ridges in open forest and woodland communities. This species occurs in understorey, sometimes with *Acacia crassa*, in open forest with *Corymbia citriodora, Eucalyptus moluccana* and/or *Eucalyptus crebra*, and in *Eucalyptus populnea* woodland. This species is endemic to the Callide and Calliope Ranges, and Port Curtis District (WorldWideWattle, 2025).	2024	2024	Likely to occur	Suitable habitat for the species in the eastern part of the project area, and recent records in the area of interest and region.
Myrtaceae	*Eucalyptus raveretiana*	Black Ironbox	LC	VU	A Eucalypt species that usually grows along permanent watercourses. It does not form pure stands but is co-dominant with other Myrtaceae or semi-evergreen vine thicket species. Associated REs include 11.3.25, 11.3.11, 9.3.1 and 8.3.3. The main area for this species is Nebo to Ayr, and Aps Creek to Rockhampton in Queensland (Biodiversity Assessment and Management, 2011).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Orchidaceae	*Bulbophyllum globuliforme*	Miniature Moss-Orchid	NT	VU	Bulbophyllum globuliforme, an orchid species occurs in SEQ to inland of Gladstone (Weston & Hill, 1993). It is a host-specific species, only growing on the Hoop Pine, where it colonises the upper branches of mature trees. It occurs in upland subtropical rainforest along the Australian east coast (Harrison, 2002).	-	2024	Unlikely to occur	No suitable Hoop Pine habitat present within the project area for the species to occur.

Family	Scientific Name	Common Name	Status		Habitat Description	Record[3]		Likelihood in project area	Rationale
			QLD[1]	CTH[2]		Area of Interest	In region		
Poaceae	*Arthraxon hispidus*	Hairy-joint Grass	VU	VU	In NSW and Queensland, *Arthraxon hispidus* is recorded from scattered locations from Port Douglas in the north down through NSW (Harden, 1992). It is found on the edges of rainforest and in wet eucalypt forest, often near creeks or swamps, as well as woodland (Harden, 1992).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Poaceae	*Dichanthium queenslandicum*	King Blue-grass	VU	EN	*Dichanthium queenslandicum* is endemic to central and southern Queensland. It is found on black cracking clay in tussock grasslands, mainly in conjunction with other species of blue grasses (Fletcher, 2001).	1937	2012	Unlikely to occur	No suitable grasslands on black cracking clay soils present within the project area for species to occur.
Poaceae	*Dichanthium setosum*	Bluegrass	LC	VU	*Dichanthium setosum* occurs from Toowoomba in the south to the Lynd Junction in the north. It is associated with heavy basaltic black soils and red-brown loams with clay subsoil. Dichanthium setosum is often found in moderately disturbed areas such as cleared woodland, grassy roadside remnants, and highly disturbed pasture (Ayers et al., 1996).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Proteaceae	*Grevillea hockingsii*	-	VU	-	Grevillea hockingsii occurs in Queensland, known from three locations near Monto, Biloela, and Mt Morgan (Queensland Herbarium, 2011). It is found on slopes in hilly sandstone country on shallow sandy to sandy loam soils which are light brown to red in colour and occasionally stony or gravelly. It grows in woodland or open forest communities mostly dominated by either *E. decorticans, C. citriodora ssp. variegata, E. suffulgens* or *E. acmenoides* (Barker, 1996).	2011	2007	Unlikely to occur	No hilly sandstone areas present for the species to occur, despite historical records in the area of interest.
Rhamnaceae	*Polianthion minutiflorum*	-	VU	VU	*Polianthion minutiflorum* is known from west of Mackay, south to Kingaroy in Queensland. The species grows in forest and woodland on sandstone slopes and gullies with skeletal soil, or deeper soils adjacent to deeply weathered laterite (Queensland Herbarium, 2012).	2006	2006	Unlikely to occur	No suitable sandstone slopes or gullies present in the project area for the species to occur, despite historical records in the area of interest.

Family	Scientific Name	Common Name	Status		Habitat Description	Record[3]		Likelihood in project area	Rationale
			QLD[1]	CTH[2]		Area of Interest	In region		
Rutaceae	*Bosistoa transversa*	-	-	V U	This species is distributed from Rockhampton in Queensland to Lismore in NSW. The species grows in lowland subtropical rainforest and vine forest up to 300m above sea level (Floyd, 1989).	2024	2024	Unlikely to occur	No suitable rainforest or vine forest habitat present in project area for the species to occur, despite recent records in the area of interest.
Sapindaceae	*Cossinia australiana*	Cossinia	EN	EN	*Cossinia australiana* is known from fragmented relict patches of Araucarian vine forests or vine thickets on fertile soils in central and southern Queensland (Barry & Thomas, 1994).	2018	2025	Unlikely to occur	No suitable Araucarian vine forests or vine thickets in the project area for the species to occur despite recent records in the area of interest and region.
Sapindaceae	*Cupaniopsis shirleyana*	Wedge-leaf Tuckeroo	VU	VU	This species is distributed along the east coast of Queensland, from Rockhampton to Gold Coast. It occurs in a variety of dry rainforest vegetation types, including vine thicket communities on hillsides, stream beds and along riverbanks at altitudes up to 550 m above sea level (Thomas & McDonald, 1989).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Simaroubaceae	*Samadera bidwillii*	Quassia	VU	VU	*Samadera bidwillii* is known from Mackay to Gympie in the south. It commonly occurs in lowland rainforest or on rainforest margins, but has been found in other forest types, such as open forest and woodland in riparian areas. The species occurs on lithosols, skeletal soils, loam soils, sands, silts, and sands with clay subsoils (QDNR, 2001).	2021	2025	Likely to occur	Suitable woodland in riparian areas present throughout the project area, albeit fragmented. Recent species records in the area of interest were from dense, intact habitat west of Batchfire's Callide Mine.
Solanaceae	*Solanum dissectum*	-	EN	EN	*Solanum dissectum* occurs between Blackwater and Gladstone in central Queensland. It occurs in open forest and woodland of *Acacia harpophylla* or *Eucalyptus thozetiana* on solodic clay soils (Bean, 2004).	2024	2024	Likely to occur	Suitable Brigalow habitat on solodic soils occurs within the project area, and recent records within the area of interest and region.

Family	Scientific Name	Common Name	Status		Habitat Description	Record[3]		Likelihood in project area	Rationale
			QLD[1]	CTH[2]		Area of Interest	In region		
Solanaceae	*Solanum elachophyllum*	-	EN	-	*Solanum elachophyllum* is a sprawling or erect rhizomatous, perennial grey-green shrub growing 0.1 to 0.4 m high. The species is confined to the central subcoastal part of the state, from Middlemount to Theodore, and grows on fertile cracking-clay soils in open forest of *E. thozetiana, A. harpophylla,* with understorey of *Geijera parviflora, Casuarina cristata, Macropteranthes leichhardtii, E. cambageana,* or woodland of *E. crebra* and *E. tenuipes* (Bean, 2004).	2025	2025	Likely to occur	Suitable Brigalow habitat on cracking clay soils occurs within the project area, and recent records within the area of interest and region.
Solanaceae	*Solanum johnsonianum*	-	EN	EN	*Solanum johnsonianum* is found from Rolleston to Biloela in central Queensland. The species is found in open forest and woodland habitats where *A. harpophylla* dominates or co-dominates on heavy cracking clay soils (Bean, 2004).	2020	2022	Likely to occur	Suitable Brigalow habitat on cracking clay soils occurs within the project area, and recent records within the area of interest and region.
Surianaceae	*Cadellia pentastylis*	Ooline	VU	VU	*Cadellia pentastylis* is restricted to Duaringa, west of Rockhampton in Queensland, to the NSW border. This species grows in semi-evergreen vine thickets and sclerophyll vegetation on undulating terrain of various geology, including sandstone, conglomerate, and claystone. Soils generally have low to medium nutrient content and are normally associated with upper and mid-slopes in the landscape (DAWE, 2021b).	1949	1949	Unlikely to occur	No suitable habitat vine thicket habitat or appropriate geology. Also, all records in the area of interest and region are historical.

[1] *Queensland Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in the wild CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, - LC= Least Concern*

[2] *Commonwealth Status (EPBC Act; Cth): EX = Extinct, EW = Extinct in the wild CR = Critically Endangered, EN = Endangered, VU = Vulnerable, - = not protected under the EPBC Act (Cth).*

Notes: Greyed out species are considered unlikely to occur.

- *in common name, means no common name exists for that species.*
- *in last records means no record exists for this species within the area of interest (20km) and within region (50km)*

[3] *Latest record within area of interest and within region from Atlas of Living Australia record.*

THREATENED FAUNA AND MIGRATORY SPECIES

Likelihood of Occurrence Assessment

Family	Scientific Name	Common Name	Status QLD[1]	Status AUS[2]	Habitat Description	Record[3] Area of Interest	Record[3] Region	Likelihood in project area	Rationale
BIRDS									
Accitridae	*Erythrotriorchis radiatus*	Red Goshawk	EN	EN	A bird of prey, that occurs in coast and sub-coastal areas of Queensland, in wooded and forested lands of tropical and warm-temperate Australia. Sparsely dispersed throughout these areas (Marchant & Higgins, 1993).	-	2017	Unlikely to occur	Outside of species known distribution. No records within area of interest. Hence unlikely to occur.
Apodidae	*Hirundapus caudacutus*	White-throated Needletail	VU	VU	Aerial forager, spending non-breeding season in Australia. Occupies a wide range of habitat throughout east and southeast Australia. Open habitats, such as farmland, or recently disturbed areas, such as forest that has been recently cleared or burnt, or above paddocks as they are being ploughed or slashed (Higgins, 1999).	2021	2025	Likely to occur	Suitable foraging habitat occurs with recent records within the area of interest and region. Hence, considered likely to occur.
Columbidae	*Geophaps scripta scripta*	Squatter Pigeon (southern subspecies)	VU	VU	Squatter Pigeon (southern) habitat is generally defined as remnant, regrowth or partly modified eucalypt open forest to sparse, open woodland and scrub typically within 3 km of water bodies or watercourses, including artificial dams (DCCEEW, 2025). Dispersal habitat may extend further.	1993	2025	Recorded during field surveys	Suitable breeding, foraging and dispersal habitat. Species recorded during field surveys.
Estrildidae	*Neochmia ruficauda ruficauda*	Star Finch (eastern and southern)	EN	EN	This species occurs in central Queensland. It inhabits tall grass beds and reedbeds associated with watercourses, swamps. It may be found in grassy woodlands, open forests, and mangroves. Habitat condition varies seasonally (Holmes, 1996). Fragmented habitat unlikely to be suitable.	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Estrildidae	*Stagonopleura guttata*	Diamond Firetail	VU	VU	This species occurs from SEQ south to South Australia. It inhabits grassy groundcover underneath open forest; woodland mallee, acacia scrub and timber belts along watercourses and roadsides; feeds exclusively on the ground (Higgins et al., 2007).	-	-	Unlikely to occur	Species not previously recorded in the area of interest and region, hence considered unlikely to occur.
Falconidae	*Falco hypoleucos*	Grey Falcon	VU	VU	Frequents timbered lowland plains; particularly acacia shrublands that are crossed by tree-lined watercourses (Garnett et al., 2011) The species has been observed hunting in treeless areas and frequents tussock grassland and open woodland, especially in winter.	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.

Family	Scientific Name	Common Name	Status		Habitat Description	Record[3]		Likelihood in project area	Rationale
			QLD[1]	AUS[2]		Area of Interest	Region		
Meliphagidae	*Grantiella picta*	Painted Honeyeater	VU	VU	Sparsely distributed from southeast Australia to northwest Queensland. The greatest concentrations and almost all records of breeding occur from south of 26°S, on inland slopes of the Great Dividing Range between the Grampians, Victoria to Roma, Queensland (Higgins et al., 2001). The species exhibits seasonal north-south movements governed principally by fruiting mistletoe, which its breeding season is closely matched . Following breeding in the lower latitudes, the species move to semi-arid regions such as central and western Queensland. The species inhabits mistletoes in eucalypt forests and woodlands, and riparian woodlands, where it prefers woodlands which contain a higher number of mature trees, as these host more mistletoes for foraging (Garnett et al., 2011).	2017	2017	Recorded during field surveys	Suitable foraging habitat. Abundance of mistletoe present. One recent record within 5km. No further records from the region. Observed during field surveys.
Psittacidae	*Cyclopsitta diophthalma coxeni*	Coxen's Fig-Parrot	CR	EN	This species occurs along the east coast of Queensland and NSW, from Gladstone to Port Macquarie. It occurs in rainforest habitats including subtropical rainforest, dry rainforest, littoral and developing littoral rainforest, and vine forest (Coxen's Fig-Parrot Recovery Team, 2001).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Rostratulidae	*Rostratula australis*	Australian Painted Snipe	EN	EN, M	The Australian Painted Snipe occurs over much of Australia, and is usually found in shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled. Suitable wetlands usually support a mosaic of low, patchy vegetation, as well as lignum and cane grass (Marchant & Higgins, 1993).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Scolopacidae	*Calidris acuminata*	Sharp-tailed Sandpiper	SLC	VU, M, Mi	A migratory bird that does not breed in Australia. In the non-breeding season, it can be found all over Australia, in both inland and coastal freshwater or saline habitats. Most inland records are from birds on passage (Higgins & Davies, 1996).	2023	2023	May occur	A recent record at Lake Callide. Despite this record, there is only marginally suitable water habitat in the project area. As a result, the species was considered 'may occur'.

Family	Scientific Name	Common Name	Status QLD[1]	Status AUS[2]	Habitat Description	Record[3] Area of Interest	Record[3] Region	Likelihood in project area	Rationale
Scolopacidae	*Calidris ferruginea*	Curlew Sandpiper	CR	CE, M, Mi	This migratory species does not breed within Australia. In Australia's winter it occurs around the coasts and inland. Mainly on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and around non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms (Higgins & Davies, 1996).	-	2019	Unlikely to occur	No records in the area of interest but only marginally suitable water habitats within the project area. Hence, considered unlikely to occur.
Scolopacidae	*Gallinago hardwickii*	Latham's Snipe	-	VU, Mi, M	This migratory species does not breed within Australia. In Australia's winter, it occurs in permanent and ephemeral wetlands up to 2000 m above sea-level , usually in open, freshwater wetlands with low, dense vegetation (Naarding, 1986).	2001	2009	Unlikely to occur	Historical record in the area of interest but only marginally suitable water habitats within the project area. Hence, considered unlikely to occur.
Turnicidae	*Turnix melanogaster*	Black-breasted Button-quail	VU	VU	Occurs in SEQ from Byfield in the north. Prefers drier, low closed forests, particularly semievergreen vine thicket and low microphyll vine forest. However, in south-east Queensland they have been recorded in open eucalypt forest with a low sparse shrub layer of eucalypt and acacia species, and a sparse groundcover of tussock grasses and leaf litter (Mathieson & Smith, 2009).	-	1997	Unlikely to occur	No records in the area of interest and no suitable vine thicket habitat. Hence, species considered unlikely to occur.
AMPHIBIANS									
Myobatrachidae	*Taudactylus pleione*	Kroombit Tinker Frog	CR	CE	This frog species distribution is extremely restricted, known only from Kroombit Tops National Park, within rainforest above 500m ASL. Mainly associated with the Piccabeen Palm rainforest and boulder scree gullies. It is found around rocky shelves and under rocks (Liem & Hosmer, 1973).	-	1997	Unlikely to occur	No suitable habitat rainforest habitat and no records within the area of interest, making it unlikely to occur.
MAMMALS									
Dasyuridae	*Dasyurus hallucatus*	Northern Quoll	LC	EN	This species occupies a range of habitats that include rocky areas, such as eucalypt forest, rainforests, sandy lowlands and beaches, grasslands, and desert (TSSC, 2005). The Northern Quoll occurs from Rockhampton to Weipa, north Queensland (McGoldrick, 2013).	-	2025	May occur	Marginally suitable eucalypt forest habitat available. No records within the area of interest, however a recent record in the region. As a result, the species was considered 'may occur'.

Family	Scientific Name	Common Name	Status QLD[1]	Status AUS[2]	Habitat Description	Record[3] Area of Interest	Record[3] Region	Likelihood in project area	Rationale
Hipposideridae	*Hipposideros semoni*	Semon`s Leaf-nosed Bat	EN	VU	This bat occurs from Cooktown to Cape York, though the southern limit is unknown. This species inhabits rainforests, wet sclerophyll forest and open savannah woodland. Daytime roosts include tree hollows, road culverts and caves amongst granite boulders (Churchill, 2008)	-	1995	Unlikely to occur	No suitable habitat and no records in the area of interest. Hence, species considered unlikely to occur.
Megadermatidae	*Macroderma gigas*	Ghost Bat	EN	VU	This bat occurs from Cape York to Rockhampton. In coastal areas they typically inhabit tropical savanna woodland and rainforests. This species requires large caves or rock crevices for roosting (TSSC, 2016).	-	1985	Unlikely to occur	No caves in the project area. Also, no suitable habitat foraging habitat. No records within the area of interest. Hence, species considered unlikely to occur.
Phascolarctidae	*Phascolarctos cinereus*	Koala	EN	EN	Koalas occur from Cairns, in north Queensland through NSW. Koalas typically inhabit forests and semi-arid vegetation communities dominated by Eucalyptus species (Martin & Handasyde, 1999).	2001	2019	Signs recorded during field surveys	Suitable habitat present however only historical record within the area of interest. Signs observed during the field surveys.
Potoroidae	*Potorous tridactylus*	Long-nosed Potoroo	VU	VU	The Long-nosed Potoroo (SE Mainland) has scattered populations extending from south-eastern Queensland through to NSW. The species has been observed in open forests and the ecotones between them. Most sites were dominated by either *E. obliqua* or *E. baxteri*. The soils were highly acidic clay soils with a thin layer of sand (Amos, 1982).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Pseudocheiridae	*Petauroides volans*	Greater Glider (southern and central)	EN	EN	The Greater Glider (southern and central population) is distributed from Proserpine in central Queensland to Victoria. Occurs in open woodlands and open forests in eastern Australia that support den trees with large hollows (>10cm; Andrews et al., 1994). In Queensland, Greater Glider habitat (Eyre et al., 2015) is recognised as the following: • Within the species known distribution; • Regional ecosystems with confirmed Greater Glider records;	-	2025	May occur	Suitable habitat despite no records within the area of interest. Recent records in the region. Species considered to 'may occur'

Family	Scientific Name	Common Name	Status QLD[1]	Status AUS[2]	Habitat Description	Record[3] Area of Interest	Record[3] Region	Likelihood in project area	Rationale
					• Contains habitat attributes (but not necessarily all attributes), such as live and dead hollow-bearing trees for denning, feed trees, large trees, habitat connectivity across the region.				
Pseudocheiridae	*Petaurus australis australis*	Yellow-bellied Glider (south-eastern)	VU	VU	Patchy distribution from SEQ to SA. Occurs in intact, floristically diverse eucalypt-dominated woodlands and forests, including both wet and dry sclerophyll forests (Kavanagh et al., 1995).	-	2025	Unlikely to occur	Limited suitable habitat during fragmentation and disturbance. No records within the area of interest. Species considered unlikely to occur.
Pteropodidae	*Pteropus poliocephalus*	Grey-headed Flying-fox	VU	VU	Occurs in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths, and swamps as well as urban gardens and cultivated fruit crops, from Rockhampton, south to South Australia (Churchill, 2008)	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Tachyglossidae	*Tachyglossus aculeatus*	Short-beaked Echidna	SLC	-	The Short-beaked Echidna occurs in all states of Australia and lives in forests and woodlands, heath, grasslands, and arid environments (Australian Museum, 2023).	2025	2024	Recorded during field surveys	Suitable habitat. Historical record within 5km. Recent regional record.
Vespertilionidae	*Chalinolobus dwyeri*	Large-eared Pied Bat	EN	EN	This species occurs from Rockhampton to Ulladulla in NSW, on sandstone cliffs and fertile woodland valley habitat (Hoye, 2005).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Vespertilionidae	*Nyctophilus corbeni*	Corben's Long-eared Bat	VU	VU	Found in southern central Qld. Occurs in a range of inland woodland vegetation types, including Box, Ironbark and Cypress Pine woodlands .(Woinarski et al., 2014)	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region. Project area likely to be outside the species distribution. Hence considered unlikely to occur.

Family	Scientific Name	Common Name	Status QLD[1]	Status AUS[2]	Habitat Description	Record[3] Area of Interest	Record[3] Region	Likelihood in project area	Rationale
REPTILES									
Chelidae	*Rheodytes leukops*	Fitzroy River Turtle	VU	VU	Found in deep pools associated with shallow fast flowing riffles within the Fitzroy River drainage area (Cogger et al., 1993).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Chelidae	*Elseya albagula*	Southern Snapping Turtle	CR	CE	The Southern Snapping Turtle has been observed to inhabit both clear and turbid waters, and sections of stream with varying flow rates and depths. It occurs in abundance in the upstream reaches of the Fitzroy River Barrage (Hamann et al., 2007).	1998	2000	May occur	Marginal suitable habitat within the Fitzroy River drainage area, however only one historical record within the area of interest and the region. Species considered 'may occur'.
Elapidae	*Denisonia maculata*	Ornamental Snake	VU	VU	Known to inhabit Brigalow regions in Queensland. Preferred habitat is within, or close to, its prey – frogs. The species is known to prefer woodlands and open forests associated with moist areas (WWF and QMDC, 2008). Associated REs include RE11.4.3, 11.4.6, 11.4.8, 11.4.9 and occasionally RE11.3.3 and 11.5.16.	1972	2010	May occur	Project area on the very southern limit of the species distribution. Only historical records in the area of interest and regional. Suitable Brigalow REs however verified. Hence, species considered 'may occur'.
Elapidae	*Furina dunmalli*	Dunmall's Snake	VU	VU	In Queensland, the species occurs from Rockhampton in the north to the NSW border. Found in a variety of habitats including forests and woodlands on black alluvial cracking clay and clay loams; and various spotted gum, ironbark, white cypress pine and bull-oak associations on sandstone derived soils (Cogger et al., 1993).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.

Family	Scientific Name	Common Name	Status QLD[1]	Status AUS[2]	Habitat Description	Record[3] Area of Interest	Record[3] Region	Likelihood in project area	Rationale
Elapidae	*Hemiaspis damelii*	Grey Snake	EN	EN	In Queensland, the species occurs from Rockhampton in the north to the NSW border. Grey Snake habitat is Acacia harpophylla and Casuarina cristata woodlands on heavy, dark brown and black cracking clay soils, particularly in association with water bodies, areas with small gullies and ditches, and floodplain environments where the species shelters beneath longs, rocks, and soil cracks (Hobson, 2012).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Pygopodidae	*Delma torquata*	Adorned Delma, Collared Delma	VU	VU	The species is endemic to Queensland with fragmented colonies known to occur within the Bunya Mountains, Blacktown Tablelands National Park, Expedition National Park, Western Creek near Millmerran and the Toowoomba Range. Inhabits microhabitat of small rocks and leaf litter within eucalypt-dominated woodlands and open forests in Queensland. Common prey items include cockroaches, insect and spiders; however, some species have been captured within subterranean termite colonies (Peck & Hobson, 2007).	-	2010	May occur	Marginally suitable habitat in eastern part of project area. No records within the area of interest. Species considered 'may occur'.
Scincidae	*Egernia rugosa*	Yakka Skink	VU	VU	Endemic to Queensland, patchy distribution from St George to Coen, in Cape York. Dense ground vegetation, fallen timber or rock outcrops in open dry sclerophyll forest (ironbark) or woodland, Brigalow forest, open shrub land, and lancewood forests (Cogger, 2000).	-	1955	Unlikely to occur	Suitable habitat occurs however no records within the area of interest and only a very historical record within the region. Hence, considered unlikely to occur.
MIGRATORY OR MARINE SPECIES									
Accipitridae	*Pandion haliaetus*	Osprey	LC	M, Mi	Eastern Ospreys occur in littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands. They are mostly found in coastal areas but occasionally travel inland along major rivers (Marchant & Higgins, 1993).	-	2010	Unlikely to occur	No records within the area of interest and only a historical record within the region. Project area likely to be outside the species distribution, hence considered unlikely to occur.

Family	Scientific Name	Common Name	Status QLD[1]	Status AUS[2]	Habitat Description	Record[3] Area of Interest	Record[3] Region	Likelihood in project area	Rationale
Apodidae	*Apus pacificus*	Fork-tailed Swift	SLC	M, Mi	The Fork-tailed Swift is almost exclusively aerial. In Australia, they mostly occur over inland plains but sometimes above foothills or in coastal areas. They often occur over cliffs and beaches and over islands and sometimes well out to sea (Higgins, 1999).	-	2021	May occur	Suitable habitat present in the project area. .No records within the area of interest, however recent record from region. May occur due to its aerial nature and capability of flying long distances.
Cuculidae	*Cuculus optatus*	Oriental Cuckoo	LC	Mi	A migratory terrestrial bird that does not breed in Australia but while in Australia occurs in northern and eastern Australia. The species uses a range of vegetated habitats, such as monsoon rainforest, wet sclerophyll forest, open woodlands and appears quite often along edges of forests, or ecotones between forest types. This species feeds arboreally, foraging for invertebrates on loose bark on the trunks and branches of trees, and among the foliage, including in mistletoes. It will forage from the ground but requires shrubs or trees from which it sallies and returns to consume prey items. Caterpillars are a favoured food (Higgins, 1999).	-	1997	Unlikely to occur	No records within the area of interest and only a historical record within the region. Hence considered unlikely to occur.
Laridae	*Gelochelidon nilotica*	Gull-billed Tern	SLC	M, Mi	This migratory species does not breed within Australia. In Australia, it is common throughout southeast Australia. The species habitat is generally found in freshwater swamps, brackish and salt lakes, beach and estuarine mudflats, and flood waters. They have also been known to occupy sewage farms, irrigated croplands, and grasslands (Pringle, 1987).	2019	2018	May occur	Recent records at Lake Callide. Despite these record, there is only marginally suitable water habitats within the project area. As a result, the species was considered 'may occur'.
Laridae	*Hydroprogne caspia*	Caspian Tern	SLC	M, Mi	Caspian Tern is migratory bird that does breed in Australia on offshore islands. In the non-breeding season, it can occur inland. Prefers large expanses of water, including coastlines, large lakes, reservoirs, and large rivers (Higgins & Davies, 1996).	2025	2025	May occur	Recent records at Lake Callide. Despite these record, there is only marginally suitable water habitats within the project area. As a result, the species was considered 'may occur'.

Family	Scientific Name	Common Name	Status		Habitat Description	Record[3]		Likelihood in project area	Rationale
			QLD[1]	AUS[2]		Area of Interest	Region		
Motacillida	*Motacilla flava*	Yellow Wagtail	LC	M, Mi	A migratory, marine shorebird that is a regular visitor around Australia's coastline. Wet ditches and tracks are favoured foraging habitats, and crop fields are utilised for nesting (Gilroy et al., 2010).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.
Scolopacidae	*Actitis hypoleucos*	Common Sandpiper	SLC	M, Mi	A migratory bird that does not breed in Australia. In the non-breeding season, it can be found along all coastlines and many inland areas. Found in coastal or inland wetlands, both saline and fresh, mainly on muddy edges or rocky shores (Higgins & Davies, 1996).	-	2007	Unlikely to occur	No records within the area of interest and only a historical record in the region, but only marginally suitable water habitats within the project area. Hence, considered unlikely to occur.
Scolopacidae	*Calidris melanotos*	Pectoral Sandpiper	SLC	M, Mi	A migratory bird that does not breed in Australia. In the non-breeding season, it can be found all over Australia, in shallow fresh to saline wetlands (Higgins & Davies, 1996).	-	-	Unlikely to occur	Species not previously recorded within the area of interest and region, hence considered unlikely to occur.

[1] Queensland Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in the wild CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, - LC = Least Concern, SLC = Special Least Concern

[2] Commonwealth Status (EPBC Act; Cth): EX = Extinct, EW = Extinct in the wild CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, M = Marine, Mi = Migratory,- = not protected under the EPBC Act (Cth).

Notes: Greyed out species are considered unlikely to occur.

- *in common name, means no common name exists for that species.*
- *in last records means no record exists for this species within area of interest (20km) or region (50km)*

[3] Latest record within area of interest or region from Atlas of Living Australia records.

APPENDIX

B

FAUNA SPECIES LIST

Scientific Name	Common Name	Status	
		QLD[1]	CTH[2]
AMPHIBIANS			
Rhinella marina	Cane Toad	I	-
BIRDS			
Acanthagenys rufogularis	Spiny-cheeked Honeyeater	LC	-
Accipiter cirrocephalus	Collared Sparrowhawk	LC	-
Acrocephalus australis	Australian Reed-Warbler	LC	M
Aegotheles cristatus	Australian Owlet-nightjar	LC	-
Anas gracilis	Grey Teal	LC	-
Anas superciliosa	Pacific Black Duck	LC	-
Aprosmictus erythropterus	Red-winged Parrot	LC	-
Aquila audax	Wedge-tailed Eagle	LC	-
Ardea pacifica	White-necked Heron	LC	-
Artamus leucorynchus	White-breasted Woodswallow	LC	-
Aviceda subcristata	Pacific Baza	LC	
Bubulcus ibis	Cattle Egret	LC	M
Cacatua galerita	Sulphur-crested Cockatoo	LC	-
Cacatua sanguinea	Little Corella	LC	-
Centropus phasianinus	Pheasant Coucal	LC	-
Cincloramphus cruralis	Brown Songlark	LC	-
Circus approximans	Swamp Harrier	LC	M
Cisticola exilis	Golden-headed Cisticola	LC	-
Colluricincla harmonica	Grey Shrike-thrush	LC	-
Coracina novaehollandiae	Black-faced Cuckoo-shrike	LC	M
Corvus orru	Torresian Crow	LC	-
Cracticus nigrogularis	Pied Butcherbird	LC	-
Cracticus torquatus	Grey Butcherbird	LC	-
Cygnus atratus	Black Swan	LC	-
Dacelo leachii	Blue-winged Kookaburra	LC	-
Dacelo novaeguineae	Laughing Kookaburra	LC	-
Dromaius novaehollandiae	Emu	LC	-
Egretta novaehollandiae	White-faced Heron	LC	-
Elanus axillaris	Black-shouldered Kite	LC	-
Entomyzon cyanotis	Blue-faced Honeyeater	LC	-
Eolophus roseicapilla	Galah	LC	-
Falco berigora	Brown Falcon	LC	-
Falco cenchroides	Nankeen Kestrel	LC	M
Gallinula tenebrosa	Dusky Moorhen	LC	-
Gavicalis virescens	Singing Honeyeater	LC	-
Geopelia humeralis	Bar-shouldered Dove	LC	-
Geophaps scripta scipta	Squatter Pigeon	VU	VU
Gerygone olivacea	White-throated Gerygone	LC	-
Grallina cyanoleuca	Magpie-lark	LC	M
Grantiella picta	Painted Honeyeater	VU	VU

Scientific Name	Common Name	Status QLD[1]	CTH[2]
Gymnorhina tibicen	Australian Magpie	LC	-
Haliastur sphenurus	Whistling Kite	LC	M
Lichmera indistincta	Brown Honeyeater	LC	-
Lonchura castaneothorax	Chestnut-breasted Mannikin	LC	-
Malurus cyaneus	Superb Fairy-wren	LC	-
Manorina flavigula	Yellow-throated Miner	LC	-
Manorina melanocephala	Noisy Miner	LC	-
Merops ornatus	Rainbow Bee-eater	LC	M
Milvus migrans	Black Kite	LC	-
Myiagra inquieta	Restless Flycatcher	LC	-
Myiagra rubecula	Leaden Flycatcher	LC	-
Ninox boobook	Southern Boobook	LC	-
Nymphicus hollandicus	Cockatiel	LC	-
Ocyphaps lophotes	Crested Pigeon	LC	-
Pachycephala rufiventris	Rufous Whistler	LC	-
Pardalotus striatus	Striated Pardalote	LC	-
Phalacrocorax carbo	Great Cormorant	LC	-
Platycercus adscitus	Pale-headed Rosella	LC	-
Podargus strigoides	Tawny Frogmouth	LC	-
Pomatostomus temporalis	Grey-crowned Babbler	LC	-
Rhipidura albiscapa	Grey Fantail	LC	-
Rhipidura leucophrys	Willie Wagtail	LC	-
Sphecotheres vieilloti	Australasian Figbird	LC	-
Strepera graculina	Pied Currawong	LC	-
Struthidea cinerea	Apostlebird	LC	-
Synoicus ypsilophorus	Brown Quail	LC	-
Taeniopygia bichenovii	Double-barred Finch	LC	-
Threskiornis spinicollis	Straw-necked Ibis	LC	M
Todiramphus macleayii	Forest Kingfisher	LC	M
Todiramphus pyrrhopygius	Red-backed Kingfisher	LC	-
Trichoglossus chlorolepidotus	Scaly-breasted Lorikeet	LC	-
MAMMALS			
Acrobates pygmaeus	Feathertail Glider	LC	-
Bos sp.	Cow	I	-
Canis familiaris	Domestic Dog, Dingo	I	-
Chalinolobus picatus	Little Pied Bat	LC	-
Chalinolobus nigrogriseus	Hoary Wattled Bat	LC	-
Felis catus	Feral Cat	LC	-
Isoodon macrourus	Northern Brown Bandicoot	LC	-
Macropus giganteus	Eastern Grey Kangaroo	LC	-
Miniopterus australis	Little Bent-wing Bat	LC	-
Myotis macropus	Southern Myotis	LC	-
Oryctolagus cuniculus	Rabbit, European Rabbit	I	-
Ozimops lumsdenae	Northern Free-tailed Bat	LC	-

Scientific Name	Common Name	Status	
		QLD[1]	CTH[2]
Ozimops ridei	Eastern Free-trailed Bat	LC	-
Phascolarctos cinereus	Koala	EN	EN
Scoteropens greyii	Little Broad-nosed Bat	LC	-
Scotorepens sanborni	Northern Broad-nosed Bat	LC	-
Sus scrofa	Feral Pig	I	-
Saccolaimus flaviventris	Yellow-bellied Sheath-tailed Bat	LC	-
Tachyglossus aculeatus	Short-beaked Echidna	SLC	-
Trichosurus vulpecula	Common Brushtail Possum	LC	-
Vespadelus troughtoni	Eastern Cave Bat	LC	-
Wallabia bicolor	Swamp Wallaby	LC	-
REPTILES			
Antaresia maculosa	Spotted Python	LC	-
Chelodina longicollis	Eastern Snake-Headed Tortoise	LC	-
Oedura tryoni	Southern Spotted Velvet Gecko	LC	-
Pseudonaja textilis	Common or Eastern Brown Snake	LC	-

[1] Queensland Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in the Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, I = Invasive.

[2] Commonwealth Status (EPBC Act; Cth): EX = Extinct, EW = Extinct in the Wild, CE = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, M = Marine, Mi = Migratory,- = not protected under the EPBC Act (Cth).

APPENDIX

C

FLORA SPECIES LIST

Family	Scientific Name	Common Name	Status QLD[1]	Status CTH[2]
Amaranthaceae	*Alternanthera pungens*	Khaki Weed	I	-
Amaranthaceae	*Amaranthus viridis*	Green Amaranth	I	-
Apocynaceae	*Alyxia ruscifolia*	Chainfruit	LC	-
Apocynaceae	*Carissa ovata*	Currantbush	LC	-
Apocynaceae	*Gomphocarpus physocarpus*	Balloon Cotton Bush	I	-
Apocynaceae	*Hoya australis ssp. australis*	Native Hoya	LC	-
Apocynaceae	*Parsonsia lanceolata*	Northern Silkpod	LC	-
Asparagaceae	*Asparagus aethiopicus*	Ground Asparagus	I, R	WoNS
Asparagaceae	*Asparagus africanus*	Ornamental Asparagus	I, R	WoNS
Asteraceae	*Bidens pilosa*	Cobblers Pegs	I	-
Asteraceae	*Coronidium lanuginosum*	-	LC	-
Asteraceae	*Cyanthillium cinereum*	Vernonia	LC	-
Asteraceae	*Erigeron sumatrensis*	Tall Fleabane	I	-
Asteraceae	*Parthenium hysterophorus*	Parthenium Weed	I, R	WoNS
Asteraceae	*Senecio brigalowensis*	-	LC	-
Asteraceae	*Sonchus oleraceus*	Common Sowthistle	I	-
Asteraceae	*Tagetes minuta*	Stinking Roger	I	-
Asteraceae	*Tridax procumbens*	Tridax Daisy	I	-
Asteraceae	*Zinnia peruviana*	Wild Zinnnia	I	-
Bignoniaceae	*Dolichandra unguis-cati*	Cats Claw Creeper	I	WoNS
Boraginaceae	*Heliotropium amplexicaule*	Blue Heliotrope	I	-
Boraginaceae	*Heliotropium indicum*	Indian Heliotrope	I	-
Brassicaceae	*Capsella bursa-pastoris*	Shepherd's Purse	I	-
Brassicaceae	*Lepidium africanum*	Common Peppercress	I	-
Brassicaceae	*Lepidium bonariense*	Argentine Pepperweed	I	-
Brassicaceae	*Rapistrum rugosum*	Giant Mustard	I	-
Brassicaceae	*Sisymbrium orientale*	Indian Hedge Mustard	I	-
Brassicaceae	*Sisymbrium thellungii*	African Turnip-weed	I	-
Cactaceae	*Harrisia tortuosa*	Harrisia Cactus	I	-
Cactaceae	*Opuntia stricta*	Common Prickly Pear	I, R	WoNS
Cactaceae	*Opuntia tomentosa*	Velvety Tree Pear	I, R	WoNS
Cannabaceae	*Trema tomentosa*	Poison Peach	LC	-
Casuarinaceae	*Allocasuarina littoralis*	Black Sheoak	LC	-
Casuarinaceae	*Casuarina cristata*	Belah	LC	-
Convolvulaceae	*Evolvulus nummularius*	-	I	-
Crassulaceae	*Bryophyllum delagoense*	Mother of Millions	I, R	-
Cyperaceae	*Cyperus rotundus*	Nut Grass	I	-
Cyperaceae	*Fimbristylis dichotoma*	Common Fringe-rush	LC	-
Cyperaceae	*Gahnia aspera*	Cut Sedge	LC	-
Cyperaceae	*Scleria brownii*	-	LC	-
Cyperaceae	*Scleria mackaviensis*	Tufted Scleria Sedge	LC	-
Euphorbiaceae	*Alchornea ilicifolia*	Native Holly	LC	-
Euphorbiaceae	*Euphorbia hirta*	Asthma Plant	I	-
Euphorbiaceae	*Ricinis communis*	Castor Oil Plant	I	WoNS

Family	Scientific Name	Common Name	Status	
			QLD[1]	CTH[2]
Fabaceae	*Leuceana Leucophala*	Leuceana	I	-
Fabaceae	*Lysiphyllum carronii*	Northern Bean Tree	LC	-
Lamiaceae	*Salvia coccinea*	Red Salvia	I	-
Laxmanniaceae	*Lomandra confertifolia ssp. pallida*	Pale-leaved Matrush	LC	-
Laxmanniaceae	*Lomandra longifolia*	Longleaf Matrush	LC	-
Laxmanniaceae	*Lomandra multiflora ssp. multiflora*	Many-flowered Matrush	LC	-
Leguminosae	*Acacia farnesiana*	Prickly Acacia	I, R	WoNS
Leguminosae	*Acacia decora*	Pretty Wattle	LC	-
Leguminosae	*Acacia leiocalyx ssp. leiocalyx*	Early-flowering Black Wattle	LC	-
Leguminosae	*Acacia salicina*	Sally Wattle	LC	-
Leguminosae	*Crotalaria pallida var. obovata*	Streaked Rattlepod	I	-
Leguminosae	*Glycine tomentella*	Wooly Glycine	LC	-
Leguminosae	*Jacksonia scoparia*	Native Broom	LC	-
Leguminosae	*Medicago sativa ssp. sativa*	-	I	-
Leguminosae	*Senna pendula var. glabrata*	Easter Cassia	I	-
Leguminosae	*Senna occidentalis*	Arsenic Bush	I	-
Leguminosae	*Stylosanthes scabra*	Shrubby Stylo	I	-
Leguminosae	*Vicia sativa ssp. nigra*	Narrow-leaf Vetch	I	-
Malvaceae	*Malvastrum coromandelianum ssp. coromandelianum*	-	I	-
Malvaceae	*Sida cordifolia*	Flannelweed	I	-
Malvaceae	*Sida hackettiana*	Queensland Hemp	LC	-
Malvaceae	*Sida spinosa*	Spiny Sida	I	-
Malvaceae	*Sida rhombifolia*	Common Sida	I	-
Moraceae	*Ficus rubiginosa forma rubiginosa*	Port Jackson Fig	LC	-
Myrtaceae	*Corymbia clarksoniana*	Long-fruited Bloodwood	LC	-
Myrtaceae	*Corymbia erythrophloia*	Variable-barked Bloodwood	LC	-
Myrtaceae	*Eucalyptus crebra*	Narrow-leaved Ironbark	LC	-
Myrtaceae	*Eucalyptus fibrosa ssp. fibrosa*	Broad-leaved Ironbark	LC	-
Myrtaceae	*Eucalyptus platyphylla*	Poplar Gum	LC	-
Myrtaceae	*Eucalyptus tereticornis ssp. tereticornis*	Queensland Bluegum	LC	-
Myrtaceae	*Melaleuca bracteata*	Black Tea-tree	LC	-
Myrtaceae	*Melaleuca viridiflora var. viridiflora*	Broad-leaved Tea-tree	LC	-
Myrtaceae	*Syzygium australe*	Scrub Cherry	LC	-
Nyctaginaceae	*Bougainvillea glabra*	Bougainvillea	I	-
Papaveraceae	*Argemone ochroleuca ssp. ochroleuca*	Mexican Poppy	I	-
Picrodendraceae	*Petalostigma pubescens*	Quinine Tree	LC	-
Pittosporaceae	*Bursaria incana*	Hoary Blackthorn	LC	-
Poaceae	*Alloteropsis semialata*	Cockatoo Grass	LC	-
Poaceae	*Aristida calycina var. calycina*	Dark Wiregrass	LC	-
Poaceae	*Aristida caput-medusae*	Many-headed Wiregrass	LC	-
Poaceae	*Aristida gracilipes*	-	LC	-
Poaceae	*Aristida leptopoda*	White Speargrass	LC	-
Poaceae	*Aristida queenslandica var. dissimilis*	Queensland Wiregrass	LC	-

Family	Scientific Name	Common Name	Status QLD[1]	Status CTH[2]
Poaceae	*Aristida queenslandica var. queenslandica*	Three-awn Grass	LC	-
Poaceae	*Arundinella nepalensis*	Reedgrass	LC	-
Poaceae	*Axonopus compressus*	Broadleaf Carpet Grass	I	-
Poaceae	*Axonopus fissifolius*	Narrowleaf Carpet Grass	I	-
Poaceae	*Bothriochloa bladhii ssp. bladhii*	Forest Bluegrass	LC	-
Poaceae	*Bothriochloa decipiens var. decipiens*	Pitter Bluegrass	LC	-
Poaceae	*Bothriochloa insculpta*	Creeping Bluegrass	I	-
Poaceae	*Bothriochloa pertusa*	Indian Couch Grass	I	-
Poaceae	*Bromus catharticus*	Prairie Grass	I	-
Poaceae	*Capillipedium parviflorum*	Scented Top	LC	-
Poaceae	*Cenchrus ciliaris*	Buffel Grass	I	-
Poaceae	*Cenchrus echinatus*	Mossmand River Grass	I	-
Poaceae	*Chloris divaricata var. divaricata*	Slender Chloris	LC	-
Poaceae	*Chloris gayana*	Rhodes Grass	I	-
Poaceae	*Chloris inflata*	Purpletop Chloris	I	-
Poaceae	*Chloris ventricosa*	Tall Chloris	LC	-
Poaceae	*Chloris virgata*	Feathertop Rhodes Grass	I	-
Poaceae	*Cenchrus clandestinus*	Kikuyu Grass	I	-
Poaceae	*Cymbopogon refractus*	Barbed Wire Grass	LC	-
Poaceae	*Cynodon dactylon var. dactylon*	-	I	-
Poaceae	*Dichanthium annulatum*	Sheda Grass	I	-
Poaceae	*Dichanthium aristatum*	Angleton Grass	I	-
Poaceae	*Dichanthium sericeum ssp. sericeum*	Queensland Bluegrass	LC	-
Poaceae	*Digitaria brownii*	Cotton Panic	LC	-
Poaceae	*Digitaria ciliaris*	Summer Grass	I	-
Poaceae	*Digitaria eriantha*	Common Finger Grass	I	-
Poaceae	*Digitaria eriantha 'Pangola'*	Pangola Grass	I	-
Poaceae	*Digitaria ramularis*	-	LC	-
Poaceae	*Dinebra decipiens var. decipiens*	Slender Canegrass	LC	-
Poaceae	*Dinebra decipiens var. asthenes*	Slender Canegrass	LC	-
Poaceae	*Eleusine indica*	Crowsfoot Grass	I	-
Poaceae	*Entolasia stricta*	Wiry Panic	LC	-
Poaceae	*Eragrostis brownii*	Brown's Lovegrass	LC	-
Poaceae	*Eragrostis cilianensis*	Stinkgrass	I	-
Poaceae	*Eragrostis curvula*	African Lovegrass	I	-
Poaceae	*Eragrostis leptostachya*	Paddock Love Grass	LC	-
Poaceae	*Eriochloa procera*	Slender Cupgrass	LC	-
Poaceae	*Eriochloa pseudoacrotricha*	Early Spring Grass	LC	-
Poaceae	*Heteropogon contortus*	Black Spear Grass	LC	-
Poaceae	*Hyparrhenia rufa ssp. rufa*	-	I	-
Poaceae	*Imperata cylindrica*	Blady Grass	LC	-
Poaceae	*Megathyrsus maximus var. coloratus*	-	I	-
Poaceae	*Megathyrsus maximus var. maximus*	Guinea Grass	I	-
Poaceae	*Megathyrsus maximus var. pubiglumis*	Green Panic	I	-

Family	Scientific Name	Common Name	Status	
			QLD[1]	CTH[2]
Poaceae	*Melinis repens*	Red Natal Grass	I	-
Poaceae	*Oplismenus aemulus*	Creeping Shade Grass	LC	-
Poaceae	*Panicum decompositum var. decompositum*	-	LC	-
Poaceae	*Panicum effusum*	Hairy Panic	LC	-
Poaceae	*Panicum simile*	Two-colour Panic	LC	-
Poaceae	*Paspalidium distans*	Shotgrass	LC	-
Poaceae	*Paspalum distichum*	Water Couch	I	-
Poaceae	*Setaria pumila ssp. subtesselata*	Pale Pigeon Grass	I	-
Poaceae	*Sorghum bicolor*	Forage Sorghum	I	-
Poaceae	*Sorghum halepense*	Johnson Grass	I	-
Poaceae	*Sporobolus fertilis*	Giant Parramatta Grass	I	-
Poaceae	*Themeda triandra*	Kangaroo Grass	LC	-
Poaceae	*Tragus australianus*	Small Burr Grass	LC	-
Poaceae	*Urochloa decumbens*	Signal Grass	I	-
Poaceae	*Urochloa mosambicensis*	Sabi Grass	I	-
Poaceae	*Urochloa mutica*	Para Grass	I	-
Poaceae	*Urochloa panicoides var. panicoides*	Liverseed Grass	I	-
Polygonaceae	*Rumex crispus*	Curled Dock	I	-
Portulacaceae	*Portulaca oleracea*	Pigweed	I	-
Portulacaceae	*Portulaca pilosa*	Hairy Pigweed	I	-
Pteridaceae	*Adiantum hispidulum var. hispidulum*	Rough Maidenhair-fern	LC	-
Rhamnaceae	*Alphitonia excelsa*	Soap Tree	LC	-
Rubiaceae	*Pomax umbellata*	Pomax	LC	-
Rutaceae	*Geijera salicifolia*	Brush Wilga	LC	-
Santalaceae	*Exocarpos latifolius*	Sandalwood	LC	-
Sapindaceae	*Alectryon connatus*	Grey Birds-eye	LC	-
Sapindaceae	*Atalaya hemiglauca*	Whitewood	LC	-
Sapindaceae	*Dodonaea lanceolata var. subsessilifolia*	Hopbush	LC	-
Scrophulariaceae	*Eremophila mitchellii*	False Sandalwood		
Smilacaceae	*Smilax australis*	Barb-wire Vine	LC	-
Solanaceae	*Solanum americanum*	Glossy Nightshade	I	-
Solanaceae	*Datura ferox*	Fierce Thornapple	I	-
Sparrmanniaceae	*Grewia latifolia*	Dysentry Plant	LC	-
Sterculiaceae	*Brachychiton populneus ssp. populneus*	Kurrajong	SLC	-
Sterculiaceae	*Brachychiton rupestris*	Queensland Bottle Tree	SLC	-
Ulmaceae	*Celtis sinensis*	Chinese Elm	I	-
Verbenaceae	*Glandularia aristigera*	Mayne's Pest	I	-
Verbenaceae	*Lantana montevidensis*	Creeping Lantana	I, R	-
Verbenaceae	*Verbena incompta*	Purpletop	LC	-
Xanthorrhoeaceae	*Xanthorrhoea latifolia ssp. latifolia*	Coastal Grasstree	LC	-

1 Queensland Status (Nature Conservation Act 1992; Qld): EX = Extinct, EW = Extinct in the Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, LC= Least Concern, SLC = Special Least Concern, I = Invasive., R = Restricted Matter under the Biosecurity Act 2014 (Qld).

2 Commonwealth Status (EPBC Act and Australian Weed Strategy): EX = Extinct, EW = Extinct in the Wild, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, M = Marine, Mi = Migratory,- = not protected under the EPBC Act., WoNS = Weed of National Significance.

APPENDIX

D

ANABAT RESULTS REPORT

Project Details			
Client	Trend Environmental Consultants		
Client contact	Emily Krunes		
Position	Director and Principal		
Project Location	Biloela Qld		
Project number	TEC20231		
Version History			
Version No.	Date	Changed by	Nature of Amendment
0.1	2nd of August 2023	M. Head	Final

Preparation of the Report			
Name	Mr Matthew Head	Signature	Matthew Head
Position	Senior Ecologist	Date	2nd of August 2023

This Environmental assessment report is only valid for 12 months as a general quality guideline. A review and potential update is required after period to address any changes in legislation, policy, or societal needs.

Contents

Introduction

Land and Habitat Environmental Services was engaged by Trend Environmental Consultants to analyse anabat data gathered during an ecological survey near Biloela in Central Queensland for the presence and possible identification of microbat species.

Call Capture and data

Trend Environmental collected data using a Titley scientific anabat swift unit for 7 nights beginning the 20th of July 2023. 1 unit was deployed, and the data was supplied to Land and Habitat via cloud storage on the 30th of July. A total of 1,818 files were recorded and provided for this analysis.

Call Identification, Methodology and Accuracy

This analysis used the following resources for call identification with the addition of geographical reference information for species for probability of occurrence.

- Anabat insight - acoustic analysis software (Titley Scientific)
- Key to the bat calls of south-east Queensland and north-east New South Wales (Reinhold et al 2001)
- Key To The Bat Calls Of The Top End Of The Northern Territory (Milne, D.J 2002)
- Bat calls Of New South Wales (Pennay et al 2004)
- Australasian Bat Society - BatMap. (http://ausbats.org.au/batmap Accessed July 2023)
- Australian Bats second edition (Churchill 2008)
- Strahan's Mammals of Australia (4th Edition) (Baker, Andrew M. and Ian C. Gynther, editors.)

The reliability of identification is as follows:

Definite - one or more calls where there is no doubt about the identification of the species.

Probable - most likely to be the species named, low probability of confusion with species that use similar calls.

Possible - call is comparable with the named species, with a moderate to high probability of confusion with species of similar calls.

Results

Table 1 Species list and detector location

Species	Status NCA	Status EPBC	Reliability	Anabat
Chalinolobus picatus	LC	-	Definite	A1
Miniopterus australis	LC	-	Definite	A1
Miniopterus orianae oceanensis	LC	-	Definite	A1
Ozimops ridei	LC	-	Definite	A1
Saccolaimus flaviventris	LC	-	Definite	A1
Vespadelus troughtoni	LC	-	Definite	A1
Myotis macropus	LC	-	Definite	A1
Scotorepens greyii	LC	-	Possible	A1
Scotorepens sanborni	LC	-	Possible	A1
Chalinolobus nigrogriseus	LC	-	Possible	A1
Ozimops lumsdenae	LC	-	Probable	A1

Location Map

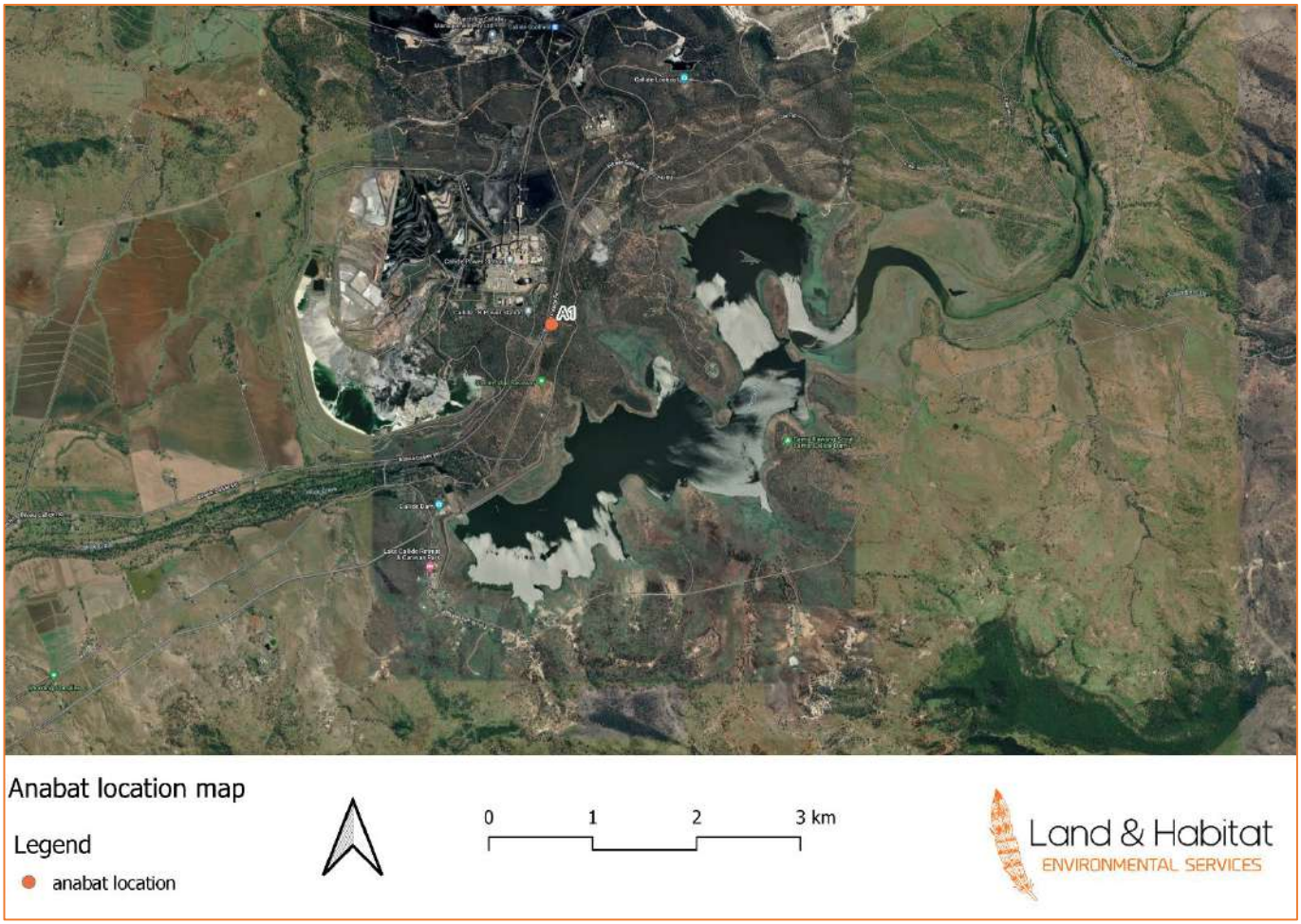
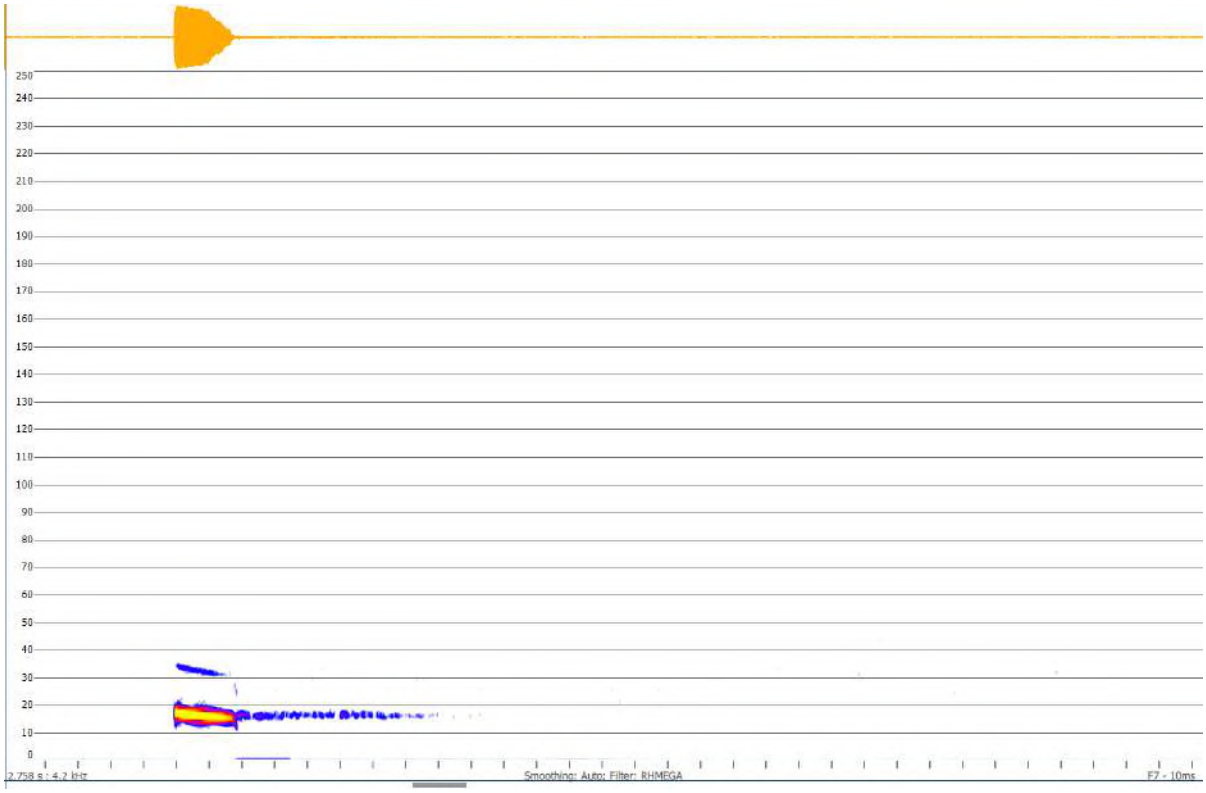


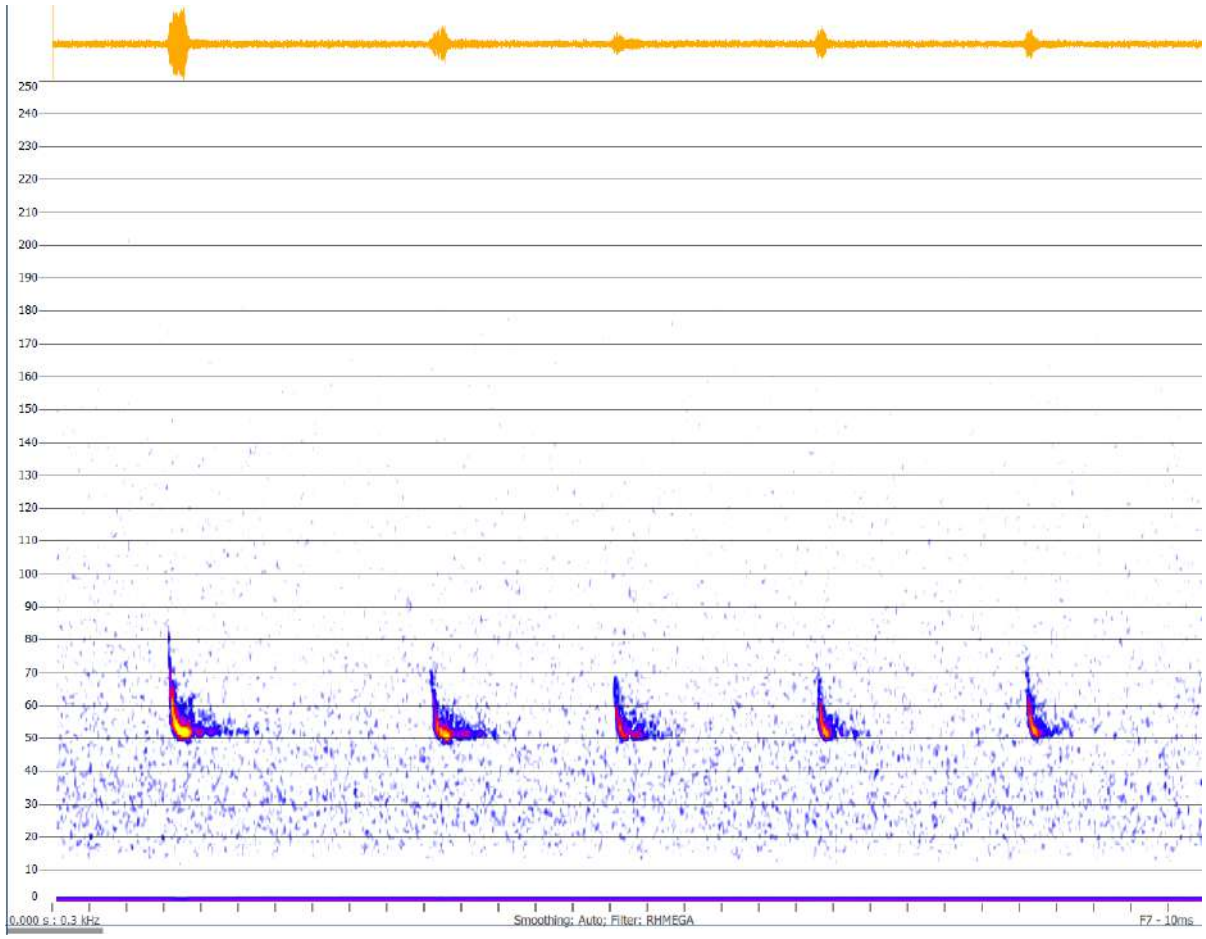
Figure 1 Anabat Location Map

Appendix 1 Species call examples

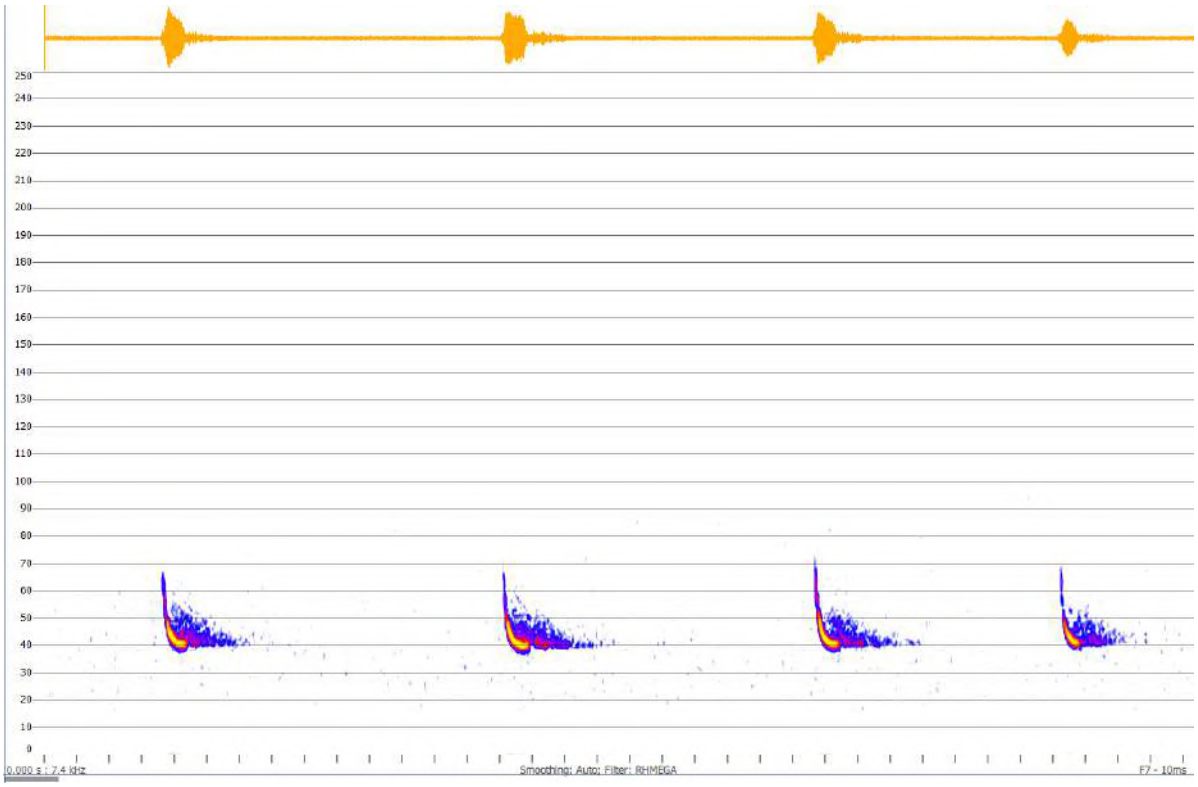
(Calls have been edited and filtered for reporting purposes)



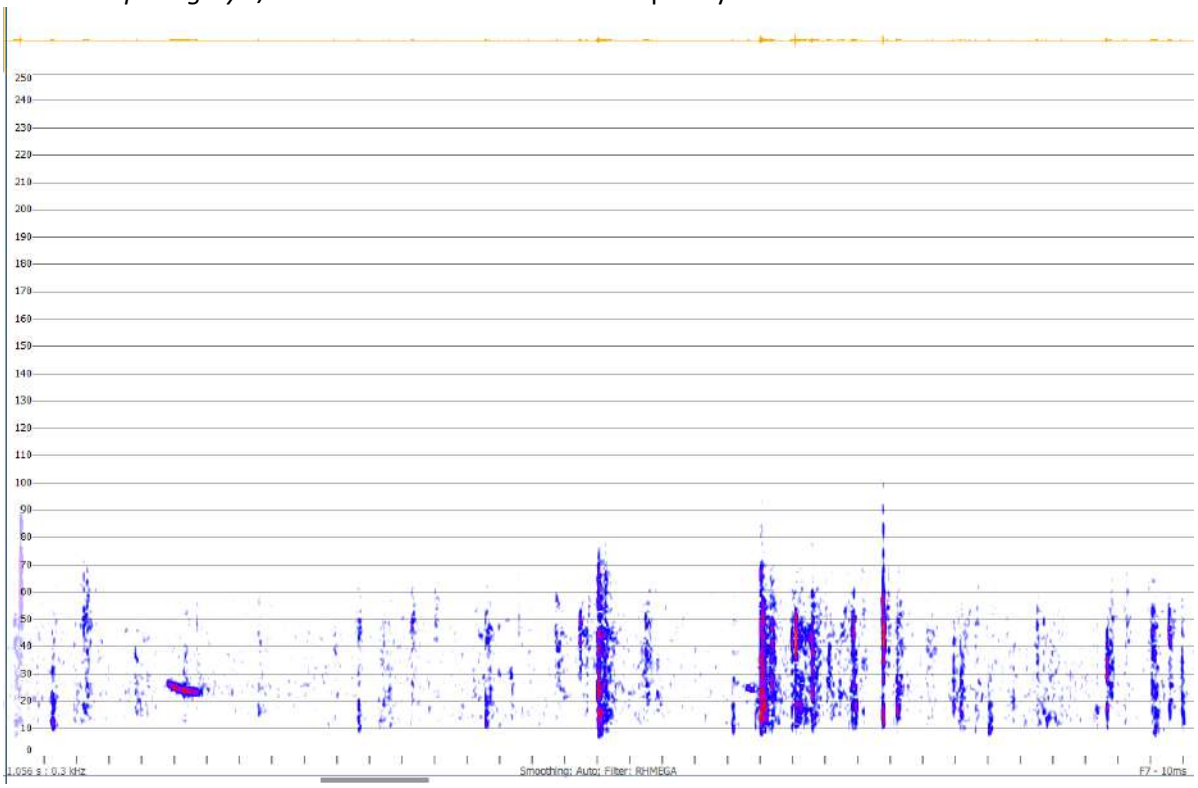
Definitely *Saccolaimus flaviventris*. The characteristic frequency of this call is between 17.5 to 22.5. Harmonic present at about 30 kHz.



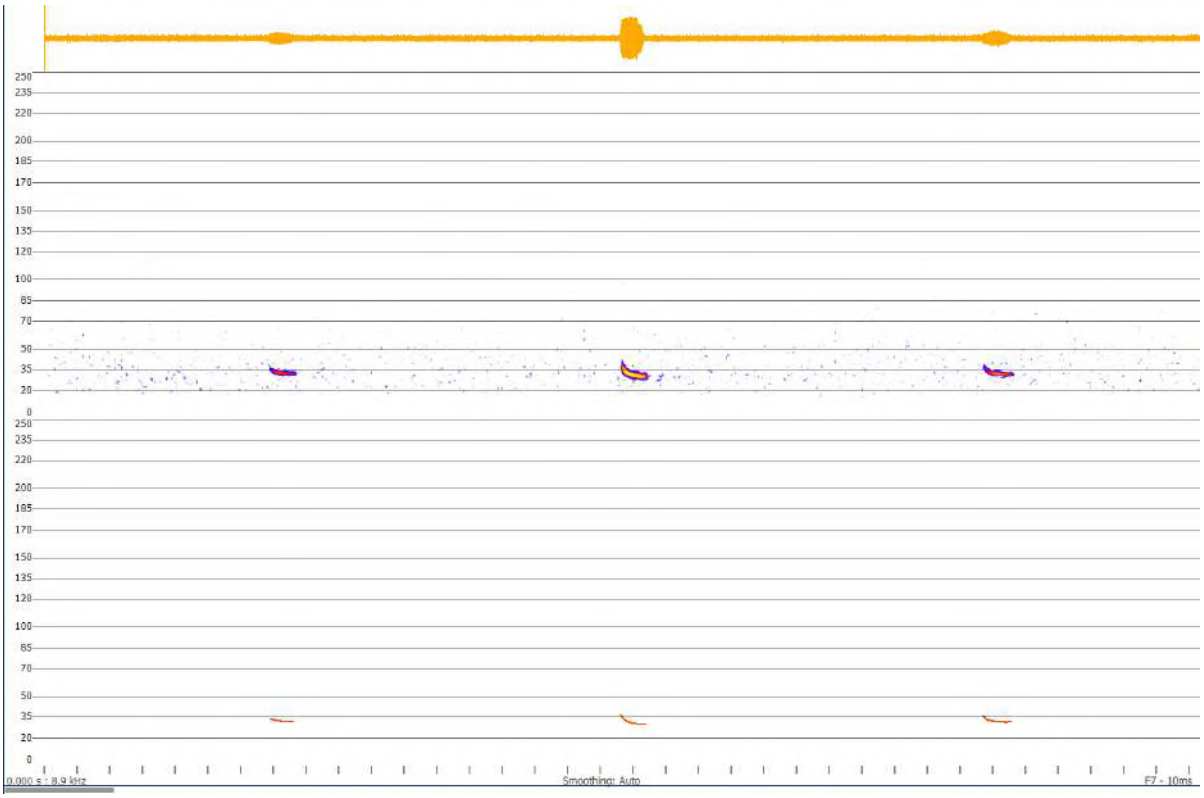
Definitely Vespadelus troughtoni – characteristic frequency of approximately 48.5 to 55 kHz.



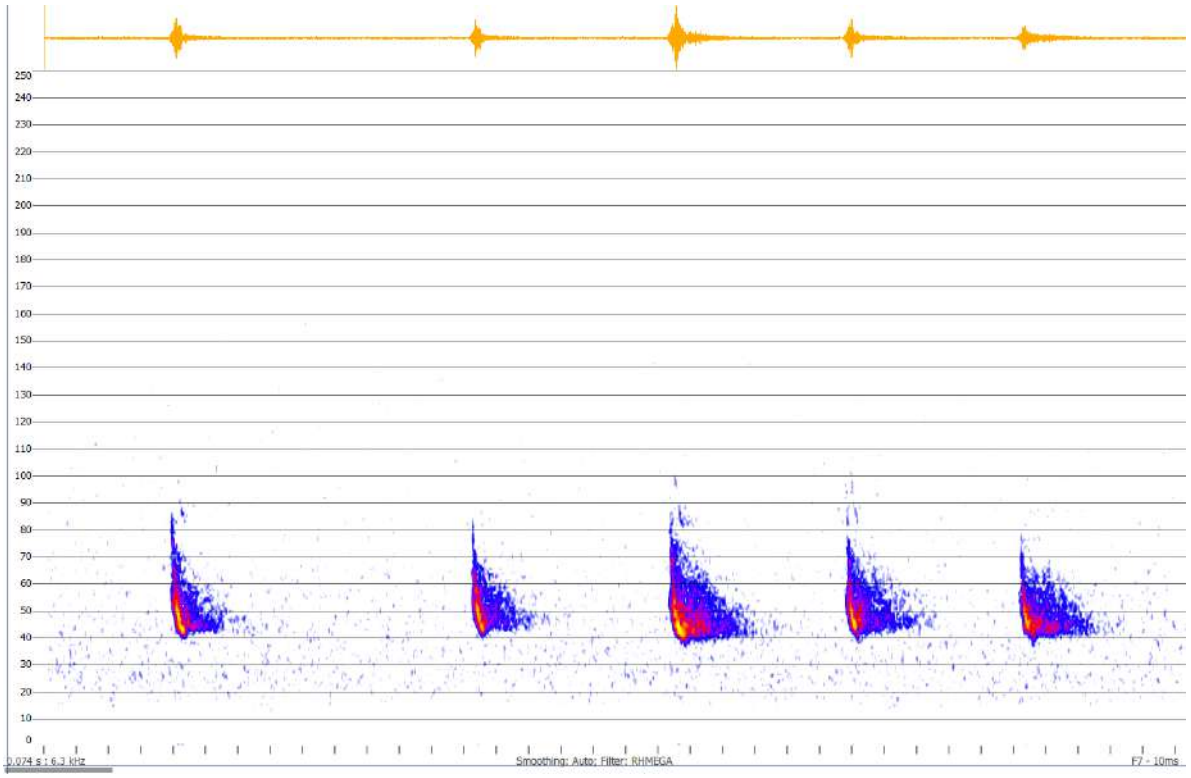
Possible Scotorepens greyii /sanborni with characteristic frequency of 35 - 40kHz.



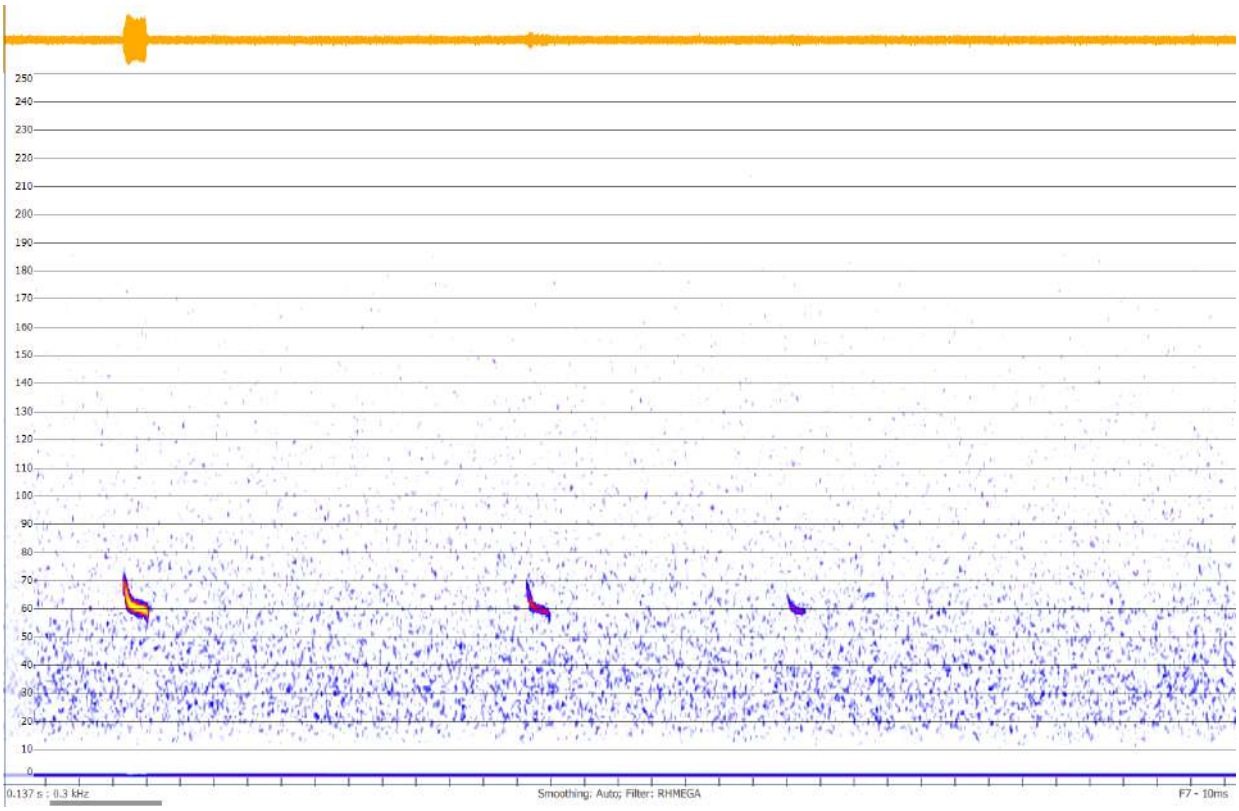
Probably *Ozimops lumsdenae*. Characteristic frequency of 23 to 28 kHz. Can be within the same frequency of *S. flaviventris* and *T. troughtoni* at this frequency. Lack of better-quality calls and other diagnostic features lowers the confidents in identification.



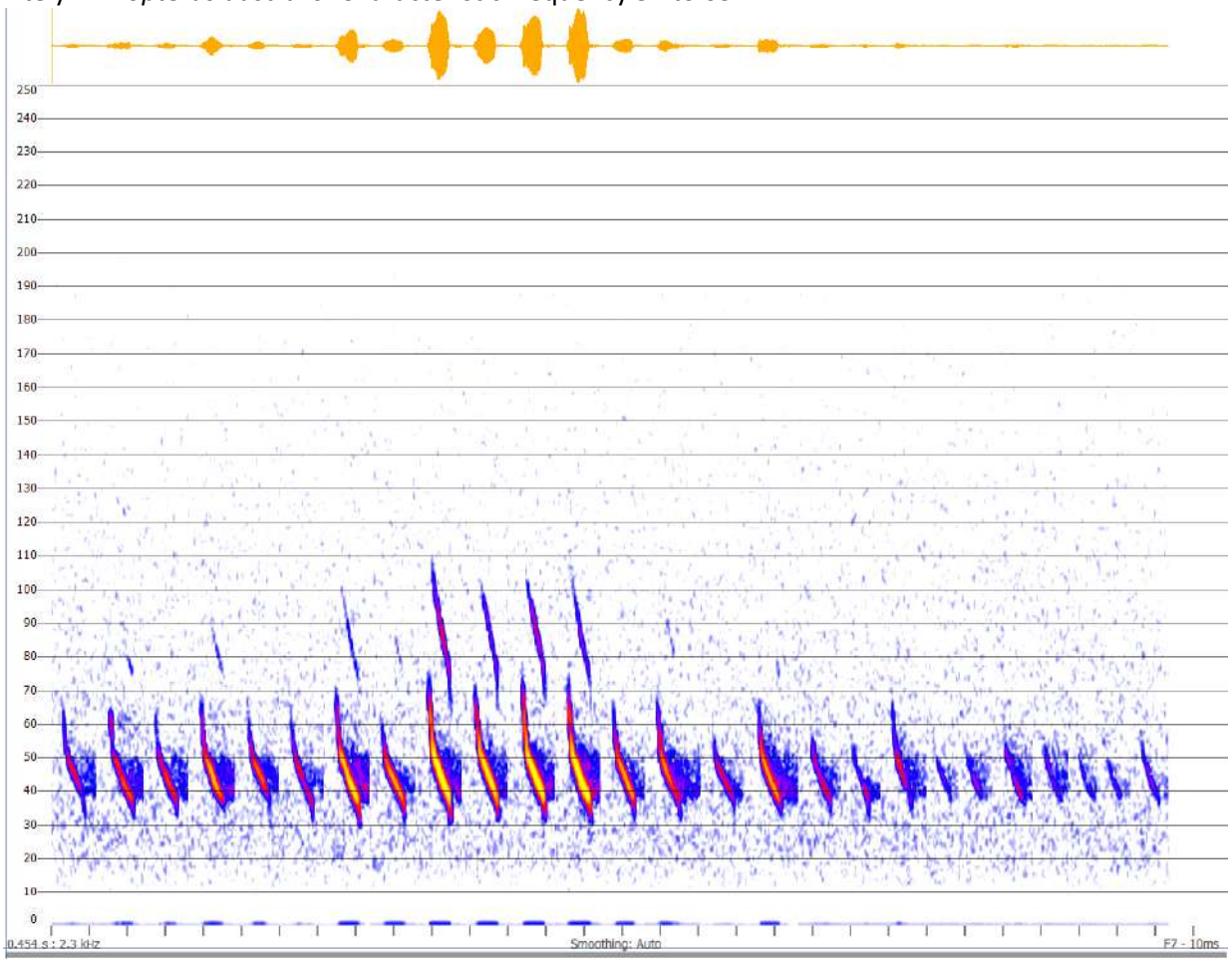
Definitely *Ozimops ridei*. Low profile calls in 'search phase' and the characteristic frequency of this call is between 30 to 36 kHz.



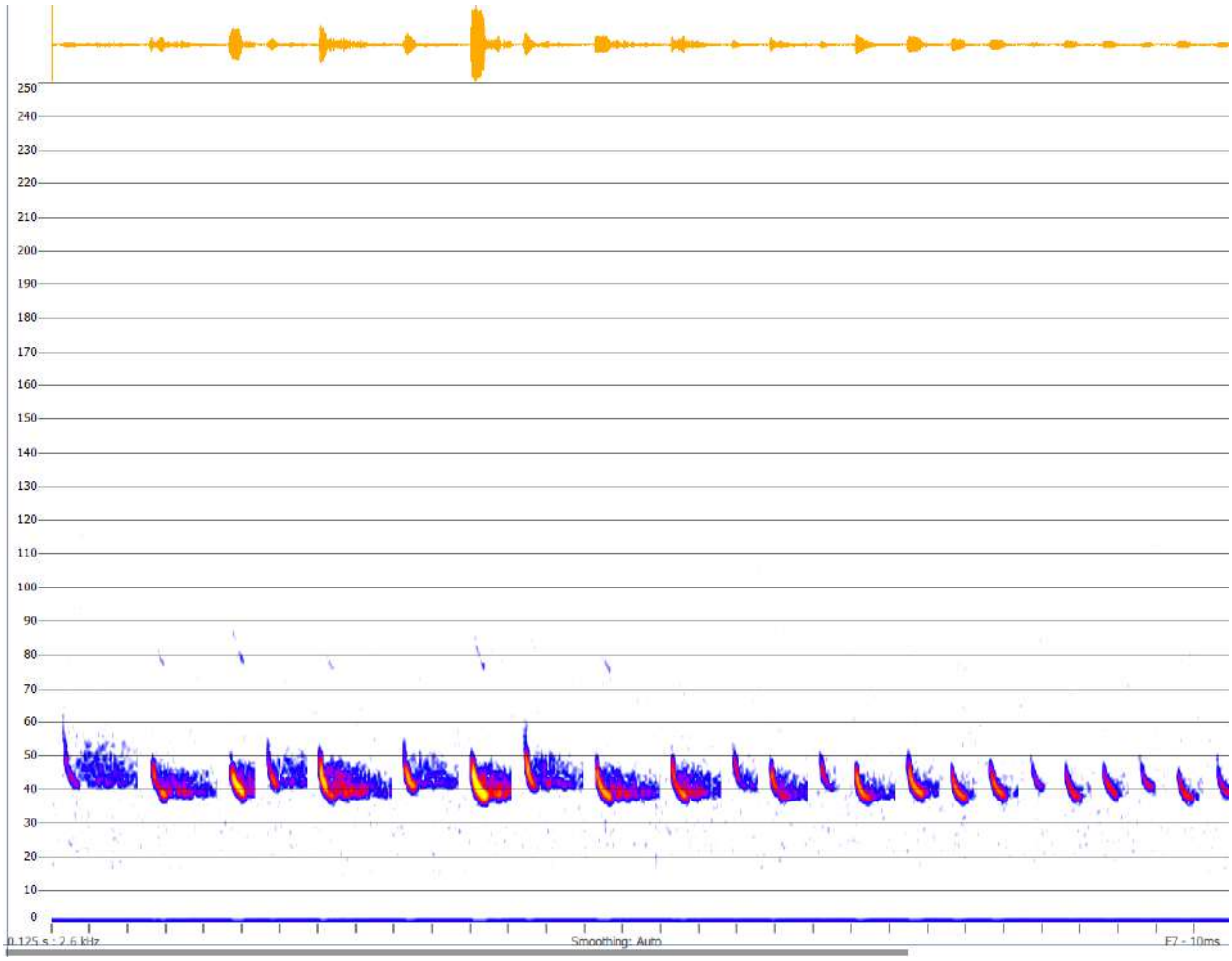
Definitely Miniopterus orianae oceanensis with characteristic frequency of approximately 43kHz.



Definitely *Miniopterus australis.* Characteristic frequency 57 to 63 kHz



Definitely *Myotis macropus.* Characteristic frequency 57 to 63 kHz



Definitely *Chalinolobus picatus*. Characteristic frequency between 38.5 and 43 kHz. Alternating calls (flip flopping) present is recording.

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Report 1: Protected Matters Search Report (20km buffer)

Report 2: WildNet Conservation Significant Species Records (20km Buffer)

Report 3: WildNet Species List (20km buffer)

APPENDIX

E

DATABASE SEARCH RESULTS

PROTECTED MATTERS SEARCH TOOL RESULTS

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 01-Sep-2025

Summary

Matters of National Environment Significance

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

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	6
Listed Threatened Species:	48
Listed Migratory Species:	10

Other Matters Protected by the EPBC Act

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

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

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

Commonwealth Lands:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	20
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	None
Habitat Critical to the Survival of Marine Turtles:	None

Extra Information

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

State and Territory Reserves:	4
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	19
Key Ecological Features (Marine):	None
Biologically Important Areas:	None
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

Community Name	Threatened Category	Presence Text	Buffer Status
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community known to occur within area	In feature area
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Community likely to occur within area	In feature area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area	In buffer area only
Poplar Box Grassy Woodland on Alluvial Plains	Endangered	Community likely to occur within area	In feature area
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions	Endangered	Community likely to occur within area	In feature area
Weeping Myall Woodlands	Endangered	Community likely to occur within area	In feature area

Listed Threatened Species [Resource Information]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

Scientific Name	Threatened Category	Presence Text	Buffer Status
BIRD			
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Cyclopsitta diophthalma coxeni Coxen's Fig-Parrot [59714]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat likely to occur within area	In feature area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat may occur within area	In feature area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat known to occur within area	In feature area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat known to occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area	In feature area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area	In feature area
Stagonopleura guttata Diamond Firetail [59398]	Vulnerable	Species or species habitat may occur within area	In feature area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species habitat likely to occur within area	In feature area
FROG			

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Taudactylus pleione](#) Kroombit Tinker Frog, Pleione's Torrent Frog [1889]	Critically Endangered	Species or species habitat may occur within area	In buffer area only
MAMMAL			
[Chalinolobus dwyeri](#) Large-eared Pied Bat, Large Pied Bat [183]	Endangered	Species or species habitat may occur within area	In buffer area only
[Dasyurus hallucatus](#) Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat likely to occur within area	In feature area
[Hipposideros semoni](#) Semon's Leaf-nosed Bat, Greater Wart-nosed Horseshoe-bat [180]	Vulnerable	Species or species habitat may occur within area	In feature area
[Macroderma gigas](#) Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Nyctophilus corbeni](#) Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Petauroides volans](#) Greater Glider (southern and central) [254]	Endangered	Species or species habitat known to occur within area	In feature area
[Petaurus australis australis](#) Yellow-bellied Glider (south-eastern) [87600]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Phascolarctos cinereus (combined populations of Qld, NSW and the ACT)](#) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Endangered	Species or species habitat likely to occur within area	In feature area
[Potorous tridactylus tridactylus](#) Long-nosed Potoroo (northern) [66645]	Vulnerable	Species or species habitat may occur within area	In buffer area only

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Pteropus poliocephalus](#) Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour may occur within area	In feature area
PLANT			
[Arthraxon hispidus](#) Hairy-joint Grass [9338]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Bertya opponens](#) [13792]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Bosistoa transversa](#) Three-leaved Bosistoa, Yellow Satinheart [16091]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Bulbophyllum globuliforme](#) Miniature Moss-orchid, Hoop Pine Orchid [6649]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Cadellia pentastylis](#) Ooline [9828]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Cossinia australiana](#) Cossinia [3066]	Endangered	Species or species habitat known to occur within area	In feature area
[Cupaniopsis shirleyana](#) Wedge-leaf Tuckeroo [3205]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Cycas megacarpa](#) [55794]	Endangered	Species or species habitat known to occur within area	In feature area
[Dichanthium queenslandicum](#) King Blue-grass [5481]	Endangered	Species or species habitat likely to occur within area	In feature area
[Dichanthium setosum](#) bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Eucalyptus raveretiana](#) Black Ironbox [16344]	Vulnerable	Species or species habitat may occur within area	In buffer area only
[Leuzea australis listed as Rhaponticum australe](#) Austral Cornflower, Native Thistle [9363]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Polianthion minutiflorum](#) [82772]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Samadera bidwillii](#) Quassia [29708]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Solanum dissectum](#) [75720]	Endangered	Species or species habitat likely to occur within area	In feature area
[Solanum johnsonianum](#) [84820]	Endangered	Species or species habitat known to occur within area	In feature area
[Xerothamnella herbacea](#) [4146]	Endangered	Species or species habitat known to occur within area	In feature area
REPTILE			
[Delma torquata](#) Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Denisonia maculata](#) Ornamental Snake [1193]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Egernia rugosa](#) Yakka Skink [1420]	Vulnerable	Species or species habitat known to occur within area	In feature area
[Elseya albagula](#) Southern Snapping Turtle, White-throated Snapping Turtle [81648]	Critically Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area	In feature area
Hemiaspis damelii Grey Snake [1179]	Endangered	Species or species habitat likely to occur within area	In feature area
Rheodytes leukops Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver [1761]	Endangered	Species or species habitat likely to occur within area	In feature area

Listed Migratory Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Migratory Marine Birds			
Apus pacificus Fork-tailed Swift [678]		Species or species habitat likely to occur within area	In feature area
Migratory Terrestrial Species			
Cuculus optatus Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area	In feature area
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Migratory Wetlands Species			
Actitis hypoleucos Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Calidris acuminata Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Calidris melanotos			
Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
Gallinago hardwickii			
Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area	In feature area
Pandion haliaetus			
Osprey [952]		Species or species habitat likely to occur within area	In feature area

Other Matters Protected by the EPBC Act

Commonwealth Lands [Resource Information]

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

Commonwealth Land Name	State	Buffer Status
Defence		
Defence - BILOELA TRAINING DEPOT [30240]	QLD	In buffer area only

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			
Actitis hypoleucos			
Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
Anseranas semipalmata			
Magpie Goose [978]		Species or species habitat may occur within area overfly marine area	In feature area
Apus pacificus			
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area	In feature area
Bubulcus ibis as Ardea ibis			
Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[Calidris ferruginea](#) Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area	In feature area
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area	In feature area
[Chalcites osculans as Chrysococcyx osculans](#) Black-eared Cuckoo [83425]		Species or species habitat likely to occur within area overfly marine area	In feature area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]	Vulnerable	Species or species habitat may occur within area overfly marine area	In feature area
[Haliaeetus leucogaster](#) White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area	In feature area
[Hirundapus caudacutus](#) White-throated Needletail [682]	Vulnerable	Species or species habitat likely to occur within area overfly marine area	In feature area
[Merops ornatus](#) Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area	In feature area
[Monarcha melanopsis](#) Black-faced Monarch [609]		Species or species habitat likely to occur within area overfly marine area	In feature area
[Motacilla flava](#) Yellow Wagtail [644]		Species or species habitat may occur within area overfly marine area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area	In feature area
Pterodroma cervicalis White-necked Petrel [59642]		Species or species habitat may occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area overfly marine area	In feature area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area	In feature area
Symposiachrus trivirgatus as Monarcha trivirgatus Spectacled Monarch [83946]		Species or species habitat may occur within area overfly marine area	In buffer area only

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Kroombit Tops	National Park	QLD	In buffer area only
Mount Murchison	Nature Refuge	QLD	In feature area
Mount Scoria	Conservation Park	QLD	In buffer area only
Rivercal	Nature Refuge	QLD	In buffer area only

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Boundary Hill South Lease Extension	2012/6324		Post-Approval	In buffer area only

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Callide Solar Power Station Project	2024/09863		Completed	In feature area
Callide Wind Farm	2021/9057		Post-Approval	In buffer area only
Calvale to Calliope River Transmission Line Reinforcement Project	2024/10044		Assessment	In feature area
Powerlink Gladstone to Larcom Creek 275kV Transmission Line	2003/1229		Completed	In buffer area only
Specimen Hill Wind Farm	2020/8864		Post-Approval	In buffer area only
Controlled action				
Coal Mining Lease 6993 (The Bluff)	2002/569	Controlled Action	Post-Approval	In buffer area only
Construct and operate 447km high pressure gas transmission pipeline	2009/4976	Controlled Action	Post-Approval	In feature area
Construction of a high pressure buried gas pipeline, Kogan to Gladstone, QLD	2009/5029	Controlled Action	Post-Approval	In buffer area only
Gas Pipeline with Alternative Pipleine to Supply Natural Gas Liquefaction Park	2008/4096	Controlled Action	Post-Approval	In buffer area only
Queensland Curtis LNG Project - Pipeline Network	2008/4399	Controlled Action	Post-Approval	In buffer area only
ZeroGen Integrated Gasification Combined Cycle Power Plant and CO2 Capture, Transport and Storage	2009/5195	Controlled Action	Completed	In feature area
Not controlled action				
Banana Range Wind Farm, near Biloela, Qld	2019/8503	Not Controlled Action	Completed	In feature area
Boundary Hill Mine Extension	2007/3434	Not Controlled Action	Completed	In buffer area only
Clearing of regrowth Brigalow	2003/988	Not Controlled Action	Completed	In buffer area only
Expansion of the Trap Gully Open Cut Mining Area, Callide Mine	2006/2965	Not Controlled Action	Completed	In buffer area only
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed	In feature area

Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Not controlled action				
Surat Basin Railway	2008/3944	Not Controlled Action	Completed	In buffer area only
Referral decision				
Gas Transmission Pipeline to supply Natural Gas Liquefaction Park	2008/4061	Referral Decision	Completed	In buffer area only

Caveat

1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data is available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance on the contents of this report.

3 DATA SOURCES

Threatened ecological communities

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

Threatened, migratory and marine species

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

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions when time permits.

4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

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

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded breeding sites; and
- seals which have only been mapped for breeding sites near the Australian continent

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

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

Acknowledgements

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

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

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

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

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WILDNET CONSERVATION SIGNIFICANT SPECIES LIST

WILDNET CONSERVATION SIGNIFICANT SPECIES LIST

WildNet Records
Conservation Significant Species List

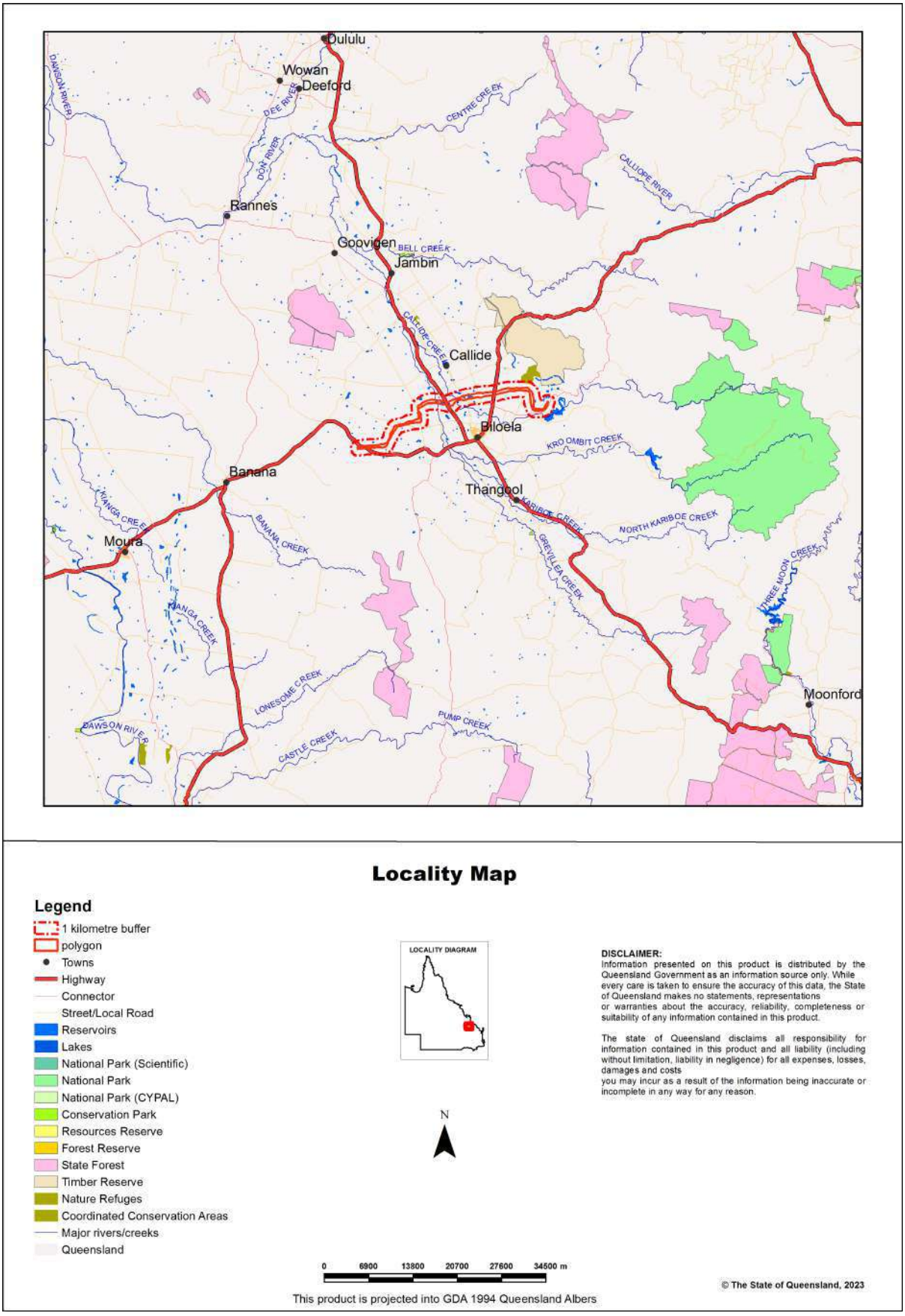
For the selected area of interest 1519.76ha Custom Geometry

Current as at 13/07/2023

WildNetCSSpeciesList

Queensland Government

Map 1. Locality Map



Summary Information

The following table provides an overview of the area of interest Custom Geometry.

Table 1. Area of interest details

Size (ha)	1,519.76
Local Government(s)	Banana Shire
Bioregion(s)	Brigalow Belt
Subregion(s)	Banana - Auburn Ranges, Mount Morgan Ranges, Callide Creek Downs
Catchment(s)	Fitzroy

Protected Area(s)
No estates or reserves are located within the area of interest.

World Heritage Area(s)
No World Heritage Areas are located within the area of interest.

Ramsar Area(s)
No Ramsar Areas are located within the area of interest.

Conservation Significant Species List

Introduction

This report is derived from a spatial layer generated from the WildNet database managed by the Department of Environment and Science. The layer which is generated weekly contains the WildNet wildlife records that are not classed as erroneous or duplicate, that have a location precision equal to or less than 10000 metres and do not have a count of zero.

Conservation significant species are species listed:

- as threatened or near threatened under the Nature Conservation Act 1992;
- as threatened under the *Environment Protection and Biodiversity Conservation Act 1999* or
- migratory species protected under the following international agreements:
  - Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention)
  - China-Australia Migratory Bird Agreement
  - Japan-Australia Migratory Bird Agreement
  - Republic of Korea-Australia Migratory Bird Agreement

The WildNet dataset is constantly being enhanced and the taxonomic and status information revised. If a species is not listed in this report, it does not mean it doesn't occur there and listed species may also no longer inhabit the area. It is recommended that you also access other internal and external data sources for species information in your area of interest (Refer Links and Support).

Table 2 lists the species recorded within the area of interest and its one kilometre buffer.

Table 2. Conservation significant species recorded within the area of interest and its one kilometre buffer

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
1785	Animalia	Aves	Columbidae	*Geophaps scripta scripta*	squatter pigeon (southern subspecies)	V	V	0	1	24/08/1955
1599	Animalia	Aves	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher	SL	None	0	1	31/03/1994
860	Animalia	Mammalia	Phascolarctidae	*Phascolarctos cinereus*	koala	E	E	0	1	31/12/1987

Taxon Id	Kingdom	Class	Family	Scientific Name	Common Name	NCA	EPBC	Specimens	Records	Last record
30272	Animalia	Reptilia	Chelidae	*Elseya albagula*	white-throated snapping turtle	CR	CE	0	1	31/12/1998
16237	Plantae	Equisetopsida	Santalaceae	*Santalum lanceolatum*	None	SL	None	0	2	19/04/1999
16707	Plantae	Equisetopsida	Zamiaceae	*Macrozamia miquelii*	None	SL	None	0	1	19/04/1999

Taxon Id: Unique identifier of the taxon from the WildNet database.

NCA: Queensland conservation status of the taxon under the *Nature Conservation Act 1992* (Least Concern (C), Critically Endangered (CR), Endangered (E), Extinct (EX), Near Threatened (NT), Extinct in the Wild (PE), Special Least Concern (SL), and Vulnerable (V)).

EPBC: Australian conservation status of the taxon under the *Environment Protection and Biodiversity Conservation Act 1999* (Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Vulnerable (V), and Extinct in the Wild (XW)).

Specimens: The number of specimen-backed records of the taxon.

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

Links and Support

Other sites that deliver species information from the WildNet database include:

- Species profile search - access species information approved for publication including species names, statuses, notes, images, distribution maps and records
- Species lists - generate species lists for Queensland protected areas, forestry areas, local governments and areas defined using coordinates
- Biomaps - view biodiversity information, including WildNet records approved for publication, and generate reports
- Queensland Globe - view spatial information, including WildNet records approved for publication
- Qld wildlife data API - access WildNet species information approved for publication such as notes, images and records etc.
- Wetland*Maps* - view species records, survey locations etc. approved for publication
- Wetland*Summary* - view wildlife statistics, species lists for a range of area types, and access WildNet species profiles
- WildNet wildlife records - published - Queensland - spatial layer of WildNet records approved for publication generated weekly
- Generalised distribution and densities of Queensland wildlife - Queensland species distributions and densities generalised to a 10 km grid resolution
- Conservation status of Queensland wildlife - access current lists of priority species for Queensland including nomenclature and status information
- Queensland Confidential Species - the list of species flagged as confidential in the WildNet database.

Please direct queries about this report to the WildNet Team.

Other useful sites for accessing Queensland biodiversity data include:

- Useful wildlife resources
- Queensland Government Data
- Atlas of Living Australia (ALA)
- Online Zoological Collections of Australian Museums (OZCAM)
- Australia's Virtual Herbarium (AVH)
- Protected Matters Search Tool

Disclaimer

WILDNET SPECIES LIST

Queensland Government

WildNet species list

Search Criteria: Species List for a Specified Point
Species: All
Type: All
Queensland status: All
Records: All
Date: All
Latitude: -24.3446
Longitude: 150.6261
Distance: 5
Email: max@trendenvironmental.com.au
Date submitted: Thursday 13 Jul 2023 14:20:25
Date extracted: Thursday 13 Jul 2023 14:30:09

The number of records retrieved = 342

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	amphibians	Bufonidae	*Rhinella marina*	cane toad	Y			1
animals	amphibians	Myobatrachidae	*Pseudophryne major*	great brown broodfrog		C		1
animals	birds	Acanthizidae	*Acanthiza chrysorrhoa*	yellow-rumped thornbill		C		2
animals	birds	Acanthizidae	*Acanthiza lineata*	striated thornbill		C		1
animals	birds	Acanthizidae	*Acanthiza reguloides*	buff-rumped thornbill		C		1
animals	birds	Acanthizidae	*Gerygone olivacea*	white-throated gerygone		C		4
animals	birds	Acanthizidae	*Sericornis frontalis*	white-browed scrubwren		C		2
animals	birds	Acanthizidae	*Sericornis magnirostra*	large-billed scrubwren		C		1
animals	birds	Acanthizidae	*Smicrornis brevirostris*	weebill		C		1
animals	birds	Accipitridae	*Accipiter cirrocephalus*	collared sparrowhawk		C		1
animals	birds	Accipitridae	*Accipiter novaehollandiae*	grey goshawk		C		1
animals	birds	Accipitridae	*Aquila audax*	wedge-tailed eagle		C		3
animals	birds	Accipitridae	*Aviceda subcristata*	Pacific baza		C		2
animals	birds	Accipitridae	*Elanus axillaris*	black-shouldered kite		C		3
animals	birds	Accipitridae	*Haliaeetus leucogaster*	white-bellied sea-eagle		C		2
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		2
animals	birds	Alaudidae	*Mirafra javanica*	Horsfield's bushlark		C		1
animals	birds	Alcedinidae	*Dacelo leachii*	blue-winged kookaburra		C		2
animals	birds	Alcedinidae	*Dacelo novaeguineae*	laughing kookaburra		C		6
animals	birds	Alcedinidae	*Todiramphus macleayii*	forest kingfisher		C		2
animals	birds	Alcedinidae	*Todiramphus pyrrhopygius*	red-backed kingfisher		C		1
animals	birds	Anatidae	*Anas castanea*	chestnut teal		C		1
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		2
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		5
animals	birds	Anatidae	*Aythya australis*	hardhead		C		2
animals	birds	Anatidae	*Chenonetta jubata*	Australian wood duck		C		3
animals	birds	Anatidae	*Cygnus atratus*	black swan		C		6
animals	birds	Anatidae	*Dendrocygna arcuata*	wandering whistling-duck		C		1
animals	birds	Anatidae	*Dendrocygna eytoni*	plumed whistling-duck		C		1
animals	birds	Anhingidae	*Anhinga novaehollandiae*	Australasian darter		C		4
animals	birds	Ardeidae	*Ardea alba modesta*	eastern great egret		C		3
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		2
animals	birds	Ardeidae	*Bubulcus ibis*	cattle egret		C		3
animals	birds	Ardeidae	*Egretta garzetta*	little egret		C		2
animals	birds	Ardeidae	*Egretta novaehollandiae*	white-faced heron		C		2
animals	birds	Artamidae	*Artamus cinereus*	black-faced woodswallow		C		1
animals	birds	Artamidae	*Artamus personatus*	masked woodswallow		C		1
animals	birds	Artamidae	*Artamus superciliosus*	white-browed woodswallow		C		1
animals	birds	Artamidae	*Cracticus nigrogularis*	pied butcherbird		C		4
animals	birds	Artamidae	*Cracticus torquatus*	grey butcherbird		C		1
animals	birds	Artamidae	*Gymnorhina tibicen*	Australian magpie		C		6
animals	birds	Artamidae	*Strepera graculina*	pied currawong		C		5
animals	birds	Burhinidae	*Burhinus grallarius*	bush stone-curlew		C		2
animals	birds	Cacatuidae	*Cacatua galerita*	sulphur-crested cockatoo		C		4
animals	birds	Cacatuidae	*Cacatua sanguinea*	little corella		C		2
animals	birds	Cacatuidae	*Calyptorhynchus banksii*	red-tailed black-cockatoo		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Cacatuidae	*Eolophus roseicapilla*	galah		C		1
animals	birds	Cacatuidae	*Nymphicus hollandicus*	cockatiel		C		1
animals	birds	Campephagidae	*Coracina novaehollandiae*	black-faced cuckoo-shrike		C		5
animals	birds	Campephagidae	*Coracina papuensis*	white-bellied cuckoo-shrike		C		1
animals	birds	Charadriidae	*Elseyornis melanops*	black-fronted dotterel		C		1
animals	birds	Charadriidae	*Vanellus miles novaehollandiae*	masked lapwing (southern subspecies)		C		3
animals	birds	Cisticolidae	*Cisticola exilis*	golden-headed cisticola		C		2
animals	birds	Columbidae	*Geopelia humeralis*	bar-shouldered dove		C		2
animals	birds	Columbidae	*Geopelia placida*	peaceful dove		C		2
animals	birds	Columbidae	*Leucosarcia melanoleuca*	wonga pigeon		C		1
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		3
animals	birds	Coraciidae	*Eurystomus orientalis*	dollarbird		C		1
animals	birds	Corcoracidae	*Struthidea cinerea*	apostlebird		C		3
animals	birds	Corvidae	*Corvus coronoides*	Australian raven		C		1
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		3
animals	birds	Cuculidae	*Cacomantis flabelliformis*	fan-tailed cuckoo		C		1
animals	birds	Cuculidae	*Centropus phasianinus*	pheasant coucal		C		1
animals	birds	Cuculidae	*Chalcites lucidus*	shining bronze-cuckoo		C		1
animals	birds	Cuculidae	*Eudynamys orientalis*	eastern koel		C		1
animals	birds	Cuculidae	*Scythrops novaehollandiae*	channel-billed cuckoo		C		1
animals	birds	Dicaeidae	*Dicaeum hirundinaceum*	mistletoebird		C		2
animals	birds	Dicruridae	*Dicrurus bracteatus*	spangled drongo		C		2
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		6
animals	birds	Falconidae	*Falco berigora*	brown falcon		C		3
animals	birds	Falconidae	*Falco cenchroides*	nankeen kestrel		C		5
animals	birds	Falconidae	*Falco longipennis*	Australian hobby		C		1
animals	birds	Falcunculidae	*Falcunculus frontatus*	crested shrike-tit		C		1
animals	birds	Hirundinidae	*Hirundo neoxena*	welcome swallow		C		3
animals	birds	Hirundinidae	*Petrochelidon ariel*	fairy martin		C		2
animals	birds	Hirundinidae	*Petrochelidon nigricans*	tree martin		C		1
animals	birds	Laridae	*Chlidonias hybrida*	whiskered tern		C		1
animals	birds	Laridae	*Chroicocephalus novaehollandiae*	silver gull		C		3
animals	birds	Laridae	*Gelochelidon nilotica*	gull-billed tern		SL		1
animals	birds	Laridae	*Hydroprogne caspia*	Caspian tern		SL		3
animals	birds	Locustellidae	*Cincloramphus cruralis*	brown songlark		C		2
animals	birds	Maluridae	*Malurus lamberti sensu lato*	variegated fairy-wren		C		1
animals	birds	Maluridae	*Malurus melanocephalus*	red-backed fairy-wren		C		5
animals	birds	Meliphagidae	*Acanthagenys rufogularis*	spiny-cheeked honeyeater		C		1
animals	birds	Meliphagidae	*Entomyzon cyanotis*	blue-faced honeyeater		C		2
animals	birds	Meliphagidae	*Lichmera indistincta*	brown honeyeater		C		2
animals	birds	Meliphagidae	*Manorina melanocephala*	noisy miner		C		3
animals	birds	Meliphagidae	*Meliphaga lewinii*	Lewin's honeyeater		C		2
animals	birds	Meliphagidae	*Melithreptus albogularis*	white-throated honeyeater		C		2
animals	birds	Meliphagidae	*Myzomela sanguinolenta*	scarlet honeyeater		C		1
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		2
animals	birds	Meliphagidae	*Plectorhyncha lanceolata*	striped honeyeater		C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Meropidae	*Merops ornatus*	rainbow bee-eater		C		3
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		5
animals	birds	Monarchidae	*Myiagra cyanoleuca*	satin flycatcher		SL		1
animals	birds	Monarchidae	*Myiagra rubecula*	leaden flycatcher		C		1
animals	birds	Motacillidae	*Anthus novaeseelandiae*	Australasian pipit		C		3
animals	birds	Oriolidae	*Oriolus sagittatus*	olive-backed oriole		C		1
animals	birds	Oriolidae	*Sphecotheres vieilloti*	Australasian figbird		C		1
animals	birds	Pachycephalidae	*Colluricincla harmonica*	grey shrike-thrush		C		1
animals	birds	Pachycephalidae	*Pachycephala rufiventris*	rufous whistler		C		3
animals	birds	Pardalotidae	*Pardalotus rubricatus*	red-browed pardalote		C		1
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		3
animals	birds	Passeridae	*Passer domesticus*	house sparrow	Y			1
animals	birds	Pelecanidae	*Pelecanus conspicillatus*	Australian pelican		C		4
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		3
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		4
animals	birds	Phalacrocoracidae	*Phalacrocorax sulcirostris*	little black cormorant		C		4
animals	birds	Phalacrocoracidae	*Phalacrocorax varius*	pied cormorant		C		3
animals	birds	Phasianidae	*Synoicus ypsilophorus*	brown quail		C		2
animals	birds	Podicipedidae	*Podiceps cristatus*	great crested grebe		C		2
animals	birds	Podicipedidae	*Tachybaptus novaehollandiae*	Australasian grebe		C		4
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		4
animals	birds	Psittaculidae	*Alisterus scapularis*	Australian king-parrot		C		1
animals	birds	Psittaculidae	*Aprosmictus erythropterus*	red-winged parrot		C		3
animals	birds	Psittaculidae	*Platycercus adscitus*	pale-headed rosella		C		5
animals	birds	Psittaculidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		1
animals	birds	Psittaculidae	*Trichoglossus moluccanus*	rainbow lorikeet		C		3
animals	birds	Rallidae	*Fulica atra*	Eurasian coot		C		2
animals	birds	Rallidae	*Gallinula tenebrosa*	dusky moorhen		C		3
animals	birds	Rallidae	*Porphyrio melanotus*	purple swamphen		C		1
animals	birds	Recurvirostridae	*Himantopus leucocephalus*	pied stilt		C		5
animals	birds	Rhipiduridae	*Rhipidura albiscapa*	grey fantail		C		2
animals	birds	Rhipiduridae	*Rhipidura leucophrys*	willie wagtail		C		5
animals	birds	Scolopacidae	*Actitis hypoleucos*	common sandpiper		SL		1
animals	birds	Scolopacidae	*Gallinago hardwickii*	Latham's snipe		SL		1
animals	birds	Strigidae	*Ninox boobook*	southern boobook		C		2
animals	birds	Strigidae	*Ninox connivens*	barking owl		C		1
animals	birds	Threskiornithidae	*Platalea flavipes*	yellow-billed spoonbill		C		3
animals	birds	Threskiornithidae	*Platalea regia*	royal spoonbill		C		1
animals	birds	Threskiornithidae	*Plegadis falcinellus*	glossy ibis		SL		2
animals	birds	Threskiornithidae	*Threskiornis molucca*	Australian white ibis		C		2
animals	birds	Threskiornithidae	*Threskiornis spinicollis*	straw-necked ibis		C		2
animals	birds	Tytonidae	*Tyto javanica*	eastern barn owl		C		1
animals	birds	Zosteropidae	*Zosterops lateralis*	silvereye		C		1
animals	mammals	Bovidae	*Bos taurus*	European cattle	Y			1
animals	mammals	Canidae	*Canis familiaris (dingo)*	dingo				1
animals	mammals	Emballonuridae	*Taphozous troughtoni*	Troughton's sheathtail bat		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	mammals	Leporidae	*Oryctolagus cuniculus*	rabbit	Y			1
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		1
animals	mammals	Macropodidae	*Notamacropus dorsalis*	black-striped wallaby		C		1
animals	mammals	Macropodidae	*Notamacropus parryi*	whiptail wallaby		C		1
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		1
animals	mammals	Phascolarctidae	*Phascolarctos cinereus*	koala		E	E	3
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		1
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		SL		1
animals	ray-finned fishes	Apogonidae	*Glossamia aprion*	mouth almighty				1/1
animals	ray-finned fishes	Atherinidae	*Craterocephalus stercusmuscarum*	flyspecked hardyhead				1/1
animals	ray-finned fishes	Clupeidae	*Nematalosa erebi*	bony bream				1/1
animals	ray-finned fishes	Eleotridae	*Oxyeleotris lineolata*	sleepy cod				1
animals	ray-finned fishes	Osteoglossidae	*Scleropages leichardti*	southern saratoga				2/1
animals	ray-finned fishes	Percichthyidae	*Macquaria ambigua*	golden perch				1
animals	ray-finned fishes	Terapontidae	*Amniataba percoides*	barred grunter				1/1
animals	ray-finned fishes	Terapontidae	*Bidyanus bidyanus*	silver perch			CE	1
animals	reptiles	Agamidae	*Diporiphora nobbi*	nobbi		C		1
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		1
animals	reptiles	Chelidae	*Chelodina longicollis*	eastern snake-necked turtle		C		1
animals	reptiles	Chelidae	*Elseya albagula*	white-throated snapping turtle		CR	CE	1
animals	reptiles	Chelidae	*Emydura macquarii krefftii*	Krefft's river turtle		C		2
animals	reptiles	Diplodactylidae	*Nebulifera robusta*	robust velvet gecko		C		1
animals	reptiles	Elapidae	*Vermicella annulata*	bandy-bandy		C		1
animals	reptiles	Gekkonidae	*Gehyra dubia*	dubious dtella		C		1
animals	reptiles	Scincidae	*Carlia pectoralis sensu lato*			C		1
animals	reptiles	Scincidae	*Lygisaurus foliorum*	tree-base litter-skink		C		1
fungi	lecanoromycetes	Graphidaceae	*Diploschistes sp. (Callide H.Streimann 52528)*			C		1/1
plants	land plants	Acanthaceae	*Ruellia simplex*		Y			1/1
plants	land plants	Amaranthaceae	*Alternanthera pungens*	khaki weed	Y			1/1
plants	land plants	Amaranthaceae	*Deeringia amaranthoides*	redberry		C		1/1
plants	land plants	Amaranthaceae	*Ptilotus psilorhachis*			C		1/1
plants	land plants	Anacardiaceae	*Euroschinus falcatus*			C		2
plants	land plants	Anacardiaceae	*Pleiogynium timorense*	Burdekin plum		C		2
plants	land plants	Anacardiaceae	*Schinus molle var. areira*	pepper tree	Y			1/1
plants	land plants	Apocynaceae	*Alstonia constricta*	bitterbark		C		2
plants	land plants	Apocynaceae	*Alyxia ruscifolia*			C		1/1
plants	land plants	Apocynaceae	*Alyxia sharpei*			C		4/4
plants	land plants	Apocynaceae	*Carissa ovata*	currantbush		C		2
plants	land plants	Apocynaceae	*Cryptostegia grandiflora*	rubber vine	Y			1/1
plants	land plants	Apocynaceae	*Hoya australis subsp. australis*			C		1/1
plants	land plants	Apocynaceae	*Parsonsia plaesiophylla*			C		1/1
plants	land plants	Araliaceae	*Polyscias elegans*	celery wood		C		1/1
plants	land plants	Asteraceae	*Calotis cuneifolia*	burr daisy		C		1/1
plants	land plants	Asteraceae	*Camptacra barbata*			C		1
plants	land plants	Asteraceae	*Cassinia laevis*			C		1
plants	land plants	Asteraceae	*Coronidium glutinosum*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Asteraceae	*Gynura drymophila var. glabrifolia*			C		1/1
plants	land plants	Asteraceae	*Olearia canescens subsp. discolor*			C		2/2
plants	land plants	Asteraceae	*Olearia subspicata*			C		1
plants	land plants	Asteraceae	*Ozothamnus cassinioides*			C		1/1
plants	land plants	Asteraceae	*Peripleura bicolor*			C		1/1
plants	land plants	Bignoniaceae	*Dolichandra unguis-cati*	cat's claw creeper	Y			2/2
plants	land plants	Boraginaceae	*Ehretia membranifolia*	weeping koda		C		3
plants	land plants	Boraginaceae	*Trichodesma zeylanicum var. zeylanicum*			C		1/1
plants	land plants	Brassicaceae	*Lepidium bonariense*	Argentine peppercress	Y			1/1
plants	land plants	Byttneriaceae	*Hannafordia shanesii*			C		1/1
plants	land plants	Byttneriaceae	*Seringia corollata*			C		1/1
plants	land plants	Cactaceae	*Opuntia stricta*		Y			2
plants	land plants	Capparaceae	*Capparis*					1
plants	land plants	Capparaceae	*Capparis canescens*			C		3
plants	land plants	Capparaceae	*Capparis lasiantha*	nipan		C		2/1
plants	land plants	Capparaceae	*Capparis loranthifolia*			C		1
plants	land plants	Casuarinaceae	*Casuarina cristata*	belah		C		1
plants	land plants	Celastraceae	*Denhamia cunninghamii*			C		1
plants	land plants	Celastraceae	*Denhamia oleaster*			C		1
plants	land plants	Celastraceae	*Elaeodendron australe*			C		1
plants	land plants	Celastraceae	*Elaeodendron australe var. integrifolium*			C		3/1
plants	land plants	Chenopodiaceae	*Dysphania carinata*			C		1/1
plants	land plants	Convolvulaceae	*Cuscuta campestris*	dodder	Y			1/1
plants	land plants	Cucurbitaceae	*Diplocyclos palmatus subsp. palmatus*			C		1/1
plants	land plants	Cupressaceae	*Callitris endlicheri*	black cypress pine		C		1/1
plants	land plants	Cycadaceae	*Cycas megacarpa*			E	E	1/1
plants	land plants	Cyperaceae	*Cyperus exaltatus*	tall flatsedge		C		1/1
plants	land plants	Cyperaceae	*Cyperus javanicus*			C		1/1
plants	land plants	Dilleniaceae	*Hibbertia linearis var. obtusifolia*			C		1/1
plants	land plants	Dryopteridaceae	*Parapolystichum microsorum*			SL		1/1
plants	land plants	Ebenaceae	*Diospyros humilis*	small-leaved ebony		C		2
plants	land plants	Ericaceae	*Styphelia mitchellii*			C		1/1
plants	land plants	Erythroxylaceae	*Erythroxylum australe*	cocaine tree		C		2
plants	land plants	Euphorbiaceae	*Bertya opponens*			C	V	2/2
plants	land plants	Euphorbiaceae	*Euphorbia cyathophora*	dwarf poinsettia	Y			1/1
plants	land plants	Goodeniaceae	*Dampiera discolor*			C		1/1
plants	land plants	Haloragaceae	*Gonocarpus elatus*			C		1/1
plants	land plants	Hemerocallidaceae	*Geitonoplesium cymosum*	scrambling lily		C		1
plants	land plants	Lamiaceae	*Clerodendrum floribundum*			C		2
plants	land plants	Lauraceae	*Cryptocarya triplinervis var. triplinervis*			C		1/1
plants	land plants	Laxmanniaceae	*Eustrephus latifolius*	wombat berry		C		1
plants	land plants	Laxmanniaceae	*Lomandra confertifolia subsp. pallida*			C		1/1
plants	land plants	Leguminosae	*Acacia aulacocarpa*			C		1
plants	land plants	Leguminosae	*Acacia deanei*			C		1
plants	land plants	Leguminosae	*Acacia decora*	pretty wattle		C		4
plants	land plants	Leguminosae	*Acacia disparrima subsp. disparrima*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Leguminosae	*Acacia fasciculifera*	scaly bark		C		2
plants	land plants	Leguminosae	*Acacia harpophylla*	brigalow		C		2
plants	land plants	Leguminosae	*Acacia juncifolia*			C		1/1
plants	land plants	Leguminosae	*Acacia podalyriifolia*	Queensland silver wattle		C		1
plants	land plants	Leguminosae	*Acacia polifolia*			C		3/3
plants	land plants	Leguminosae	*Acacia salicina*	doolan		C		3
plants	land plants	Leguminosae	*Acacia shirleyi*	lancewood		C		1
plants	land plants	Leguminosae	*Acacia sp. (Biloela T.Shepard A32)*			C		1/1
plants	land plants	Leguminosae	*Acacia sparsiflora*			C		1/1
plants	land plants	Leguminosae	*Bossiaea carinalis*			C		1/1
plants	land plants	Leguminosae	*Canavalia papuana*	wild jack bean		C		1/1
plants	land plants	Leguminosae	*Cassia*					1
plants	land plants	Leguminosae	*Cassia tomentella*			C		1
plants	land plants	Leguminosae	*Crotalaria incana subsp. purpurascens*		Y			1/1
plants	land plants	Leguminosae	*Glycine sp. (Marburg K.A.Williams 83006)*			C		1/1
plants	land plants	Leguminosae	*Hovea planifolia*			C		1/1
plants	land plants	Leguminosae	*Indigofera australis subsp. australis*			C		1/1
plants	land plants	Leguminosae	*Indigofera pratensis*			C		1/1
plants	land plants	Leguminosae	*Lysiphyllum hookeri*	Queensland ebony		C		1
plants	land plants	Leguminosae	*Pultenaea petiolaris*			C		1/1
plants	land plants	Leguminosae	*Senna sophera var. (40Mile Scrub J.R.Clarkson+ 6908)*			C		2/2
plants	land plants	Leguminosae	*Stylosanthes scabra*		Y			1/1
plants	land plants	Leguminosae	*Tephrosia sp. (The Grampians L.H.Bird AQ565381)*			C		1/1
plants	land plants	Leguminosae	*Vachellia bidwillii*			C		1
plants	land plants	Lejeuneaceae	*Acrolejeunea*					1/1
plants	land plants	Malvaceae	*Sida corrugata var. (Kroombit E.J.Thompson+ BIL95)*			C		1/1
plants	land plants	Meliaceae	*Melia azedarach*	white cedar		C		2
plants	land plants	Meliaceae	*Turraea pubescens*	native honeysuckle		C		1/1
plants	land plants	Menispermaceae	*Stephania renifolia*			C		1/1
plants	land plants	Meteoriaceae	*Papillaria crocea*			C		1/1
plants	land plants	Moraceae	*Ficus opposita*			C		3/1
plants	land plants	Myrtaceae	*Backhousia angustifolia*	narrow-leaved backhousia		C		1
plants	land plants	Myrtaceae	*Corymbia erythrophloia*	variable-barked bloodwood		C		3
plants	land plants	Myrtaceae	*Corymbia intermedia*	pink bloodwood		C		1
plants	land plants	Myrtaceae	*Corymbia tessellaris*	Moreton Bay ash		C		1
plants	land plants	Myrtaceae	*Eucalyptus bakeri*	Baker's mallee		C		1/1
plants	land plants	Myrtaceae	*Eucalyptus crebra*	narrow-leaved red ironbark		C		5/2
plants	land plants	Myrtaceae	*Eucalyptus decorticans*			C		1/1
plants	land plants	Myrtaceae	*Eucalyptus suffulgens*			C		2/2
plants	land plants	Myrtaceae	*Eucalyptus tereticornis*			C		2
plants	land plants	Myrtaceae	*Leptospermum lamellatum*			C		1/1
plants	land plants	Myrtaceae	*Lophostemon confertus*	brush box		C		1/1
plants	land plants	Myrtaceae	*Melaleuca bracteata*			C		2
plants	land plants	Nyctaginaceae	*Boerhavia dominii*			C		1/1
plants	land plants	Nyctaginaceae	*Boerhavia pubescens*			C		1/1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Oleaceae	*Jasminum didymum subsp. racemosum*			C		1
plants	land plants	Orthotrichaceae	*Macromitrium aurescens*			C		1/1
plants	land plants	Oxalidaceae	*Oxalis radicosa*			C		1/1
plants	land plants	Phyllanthaceae	*Breynia oblongifolia*			C		1
plants	land plants	Phyllanthaceae	*Bridelia leichhardtii*			C		2
plants	land plants	Phyllanthaceae	*Phyllanthus gunnii*			C		2/2
plants	land plants	Picrodendraceae	*Petalostigma pubescens*	quinine tree		C		3
plants	land plants	Pittosporaceae	*Auranticarpa rhombifolia*			C		1
plants	land plants	Pittosporaceae	*Bursaria incana*			C		1
plants	land plants	Pittosporaceae	*Pittosporum angustifolium*			C		2
plants	land plants	Pittosporaceae	*Pittosporum spinescens*			C		2
plants	land plants	Poaceae	*Aristida calycina var. calycina*			C		1/1
plants	land plants	Poaceae	*Cenchrus ciliaris*		Y			4/1
plants	land plants	Poaceae	*Digitaria brownii*			C		1/1
plants	land plants	Poaceae	*Enneapogon gracilis*	slender nineawn		C		1/1
plants	land plants	Poaceae	*Eragrostis curvula*		Y			1/1
plants	land plants	Poaceae	*Eragrostis longipedicellata*			C		1/1
plants	land plants	Poaceae	*Megathyrsus maximus*		Y			1
plants	land plants	Poaceae	*Melinis repens*	red natal grass	Y			1
plants	land plants	Poaceae	*Paspalidium criniforme*			C		1/1
plants	land plants	Poaceae	*Sporobolus scabridus*			C		1/1
plants	land plants	Poaceae	*Themeda triandra*	kangaroo grass		C		1
plants	land plants	Portulacaceae	*Calandrinia pickeringii*			C		1/1
plants	land plants	Proteaceae	*Grevillea helmsiae*			C		2/1
plants	land plants	Proteaceae	*Grevillea hockingsii*			V		2/2
plants	land plants	Proteaceae	*Grevillea striata*	beefwood		C		1
plants	land plants	Pteridaceae	*Pellaea nana*			SL		1/1
plants	land plants	Ptychomitriaceae	*Ptychomitrium australe*			C		3/3
plants	land plants	Putranjivaceae	*Drypetes deplanchei*	grey boxwood		C		1
plants	land plants	Rhamnaceae	*Alphitonia excelsa*	soap tree		C		2
plants	land plants	Rhamnaceae	*Polianthion minutiflorum*			V	V	1/1
plants	land plants	Rubiaceae	*Psydrax johnsonii*			C		2/1
plants	land plants	Rubiaceae	*Psydrax odorata*			C		1/1
plants	land plants	Rubiaceae	*Psydrax oleifolia*			C		3
plants	land plants	Rutaceae	*Boronia palasepala*			C		2/2
plants	land plants	Rutaceae	*Coatesia paniculata*			C		1/1
plants	land plants	Rutaceae	*Cyanothamnus bipinnatus*			C		1/1
plants	land plants	Rutaceae	*Flindersia australis*	crow's ash		C		1
plants	land plants	Rutaceae	*Geijera parviflora*	wilga		C		2/1
plants	land plants	Rutaceae	*Geijera salicifolia*	brush wilga		C		2
plants	land plants	Rutaceae	*Phebalium*					1
plants	land plants	Santalaceae	*Santalum lanceolatum*			SL		5
plants	land plants	Sapindaceae	*Alectryon diversifolius*	scrub boonaree		C		1
plants	land plants	Sapindaceae	*Atalaya*					1
plants	land plants	Sapindaceae	*Atalaya hemiglauca*			C		1
plants	land plants	Sapindaceae	*Atalaya multiflora*	broad-leaved whitewood		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	land plants	Sapindaceae	*Cossinia australiana*			E	E	1/1
plants	land plants	Sapindaceae	*Dodonaea stenophylla*			C		5/2
plants	land plants	Sapindaceae	*Dodonaea triangularis*			C		2/1
plants	land plants	Sapindaceae	*Elattostachys xylocarpa*	white tamarind		C		1
plants	land plants	Sapotaceae	*Planchonella cotinifolia var. pubescens*			C		1
plants	land plants	Scrophulariaceae	*Eremophila*					1
plants	land plants	Scrophulariaceae	*Eremophila mitchellii*			C		2
plants	land plants	Scrophulariaceae	*Myoporum acuminatum*	coastal boobialla		C		2
plants	land plants	Simaroubaceae	*Samadera bidwillii*			V	V	2/1
plants	land plants	Solanaceae	*Solanum furfuraceum*			C		1/1
plants	land plants	Solanaceae	*Solanum jucundum*			C		1/1
plants	land plants	Solanaceae	*Solanum parvifolium subsp. parvifolium*			C		1/1
plants	land plants	Sparrmanniaceae	*Grewia latifolia*	dysentery plant		C		2
plants	land plants	Sterculiaceae	*Brachychiton australis*	broad-leaved bottle tree		SL		1
plants	land plants	Sterculiaceae	*Brachychiton populneus*			C		1
plants	land plants	Sterculiaceae	*Brachychiton rupestris*			SL		1
plants	land plants	Verbenaceae	*Lantana camara*	lantana	Y			2
plants	land plants	Verbenaceae	*Lantana montevidensis*	creeping lantana	Y			1/1
plants	land plants	Verbenaceae	*Phyla nodiflora*	carpetweed		C		1/1
plants	land plants	Vitaceae	*Clematicissus opaca*			C		2/1
plants	land plants	Zamiaceae	*Macrozamia miquelii*			SL		1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.*
The codes are Extinct (EX), Extinct in the Wild (PE), Critically Endangered (CR), Endangered (E), Vulnerable (V), Near Threatened (NT), Special Least Concern (SL) and Least Concern (C).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.*
The values of EPBC are Extinct (EX), Extinct in the Wild (XW), Critically Endangered (CE), Endangered (E), Vulnerable (V) and Conservation Dependent (CD).

Records - The first number indicates the total number of records of the taxon (wildlife records and species listings for selected areas).
This number is output as 99999 if it equals or exceeds this value. A second number located after a / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

APPENDIX

F

COLLARED DELMA LITERATURE REVIEW AND PREFERRED MICROHABITAT FEATURES REFINEMENT

12.1 INTRODUCTION AND LITERATURE REVIEW

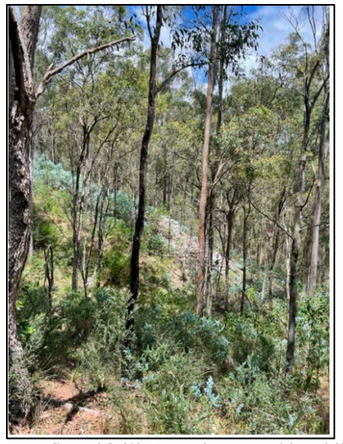
There is currently conflicting advice regarding preferred habitat for the Collared Delma within available guidelines, literature and survey reports. The species is cryptic and to date has only been found in select areas within the South-east Queensland and the southern Brigalow Belt bioregions. Each recorded place differs slightly in vegetation type, slope, microhabitat features etc and as such, defining and narrowing down the species preferred habitat is difficult.

A literature review of all publicly available sources on the Collared Delma was undertaken to identify habitat types and microhabitat features associated with recorded occurrences of the species. This information was used to refine mapped habitat within the project area and to exclude areas unlikely to support the species, either due to the absence of preferred habitat or microhabitat features, or the presence of known threats that reduce habitat suitability given the species' sensitivity to disturbance.

Table 61 Collared Delma literature review

Literature	Location	Defined Habitat Values: Vegetation Type	Land zone/Soils	Microhabitat features	Other useful information
Draft Referral Guidelines for the Nationally Listed Brigalow Belt reptiles (DCCEEW, 2023)	Brigalow Belt bioregion	Suitable habitat was defined as open-forests, woodlands	Land zones 3, 9 and 10.	Adjacent to exposed rocky areas.	Suitable habitat should be mapped within the known/likely to occur distribution for the species (Figure 6 below), and the Toowoomba Range. Suitable habitat is also between grazed or cropped areas, along road reserves, and travelling stock routes, especially the Donnybrook Stock Route region. The species exhibits high site fidelity and appears to be sensitive to grazing.
DCCEEW SPRAT database, Collared Delma (DoE, 2024)	-	• Suitable habitat is defined as open-forests, woodlands and adjacent exposed rocky areas. • Exposed rocky outcrops on ridges or slopes in vegetation communities dominated by E. crebra (Brigalow Belt Reptiles Workshop, 2010). • Other canopy species include *E. crebra, C. tessellaris, E. moluccana, E. microcorys*, and *E. tereticornis* in the Bunya Mountains (Cogger et al., 1993; Peck, 2003; Porter, 1998a). • Habitats to the west of Brisbane include Alphitonia excelsa, Acacia fimbriata, A. concurrens, Lophostemon confertus, Hovea longifolia, and Lantana (Peck, 2003). The ground cover is predominantly native grasses such as Themeda triandra, Cymbopogon refractus, Aristida sp. and Lomandra sp. Introduced ground covers are often present but are not dominant and include Lantana montevidensis and introduced grasses (Peck, 2003). • The most westerly records were made in E. populnea open woodland on alluvial plains (Brigalow Belt Reptiles Workshop 2010; Venz 2010 pers. comm.). • Suitable habitat on the Toowoomba Range was identified as ridgelines with a southwest to northwest aspect (Peck, 2003).	• Rocky areas on land zones 3, 9 and 10. • South east Queensland - sandy loams, grey and black cracking clays, stony lithosols and basalt derived Podzolics • Brisbane City – stony lithosols soil with exposed quartzite rock ridges typical of the Mt Crosby and Moggill State Forest sites and basalt derived podzolic soils with exposed basalt rocks typical of the Anstead and Pinjarra Hills sites (designated as MCk, in Soil Landscapes of Brisbane and South-eastern Environs; Peck 2003). • All specimens found at Mount Crosby were on the soil surface, suggesting the species is not adapted to digging and life underground (Porter 1998).	The presence of rocks, logs, bark and other coarse woody debris, and mats of leaf litter (typically 30–100 mm thick) appears to be an essential characteristic of the Collared Delma microhabitat and is always present where the species occurs (Brigalow Belt Reptiles Workshop 2010) At Mount Crosby, lizards showed a preference for larger than average rocks (preferred average 172 cm) and vegetation cover lower than that available (preferred average 31%). Pitfall trapping captured lizards in vegetation some distance from rocky outcrops, suggesting the species is not totally reliant on rocky habitat (Porter 1998).	Locations the species has been recorded include Mount Crosby (western suburbs of Brisbane) and the Toowoomba Range. Protected Areas where the species has been recorded includes the Bunya Mountains, D'Aguilar Range National Park, Blackdown Tableland National Park, Neumgna Forest Reserve, Lockyer Forest Reserve and Bullyard Conservation Park The species is active during the day (Porter 1998). Overgrazing is known to compact soil, making it difficult for the species to find suitable shelter. This means the soils are drier, making it harder for the species to access suitable habitat (Brigalow Belt Reptiles Workshop 2010). REs the species were collected in (Brigalow Belt Reptiles Workshop 2010): • *RE 11.3.2 Poplar Box woodland on alluvial plains.* • *RE 11.9.10 Poplar Box/Brigalow open-forest on fine-grained sedimentary rocks.* • *RE 11.10.1 Lemon-scented Gum open forest on coarse-grained sedimentary rocks* • *RE 11.10.4 Eucalyptus decorticans, Lysicarpus angustifolius +/- Eucalyptus spp., Corymbia spp., Acacia spp. woodland on coarse-grained sedimentary rocks.*
Habitat Descriptions for 12 Threatened Species Specific to Central Queensland (Kerswell et al., 2020)	Central Queensland	Eucalypt woodland and open forest comprised of a variety of canopy species depending on the location and with ground cover of predominantly native grasses including *Themeda triandra, Cymbopogon refractus, Aristida* sp. and *Lomandra* sp.	The species does not appear to have a preference for a specific soil type and has been observed on a variety of soils including sandy loams, grey and black cracking clays, stony lithosols and basalt derived Podzolics. Generally, the species occurs in Queensland Ecosystem land zones 3, 9 and 10.	The species has specific microhabitat requirements, whereby adequate groundcover is required via the presence of logs, bark, rocks, vegetation debris and leaf litter. It has been suggested that the species is not able to dig and burrow underground, therefore explaining its requirement for microhabitat which it can shelter beneath. The species is often associated with rocks (both large and small); however, the presence of rocks is not considered to be essential.	A large number of records are from the western suburbs of Brisbane as well as the following sites within south east and central Queensland: • Bunya Mountains; • Blackdown Tablelands National Park; • Expedition National Park; • Western Creek, near Millmerran; and • Toowoomba Range. The Collared Delma feeds on a variety of insects and spiders, with cockroaches appearing to be the most common food source. The species has also been observed within subterranean termite colonies (Porter 1998) REs the species were defined as 11.3.2, 11.9.10, 11.10.1 and 11.10.4 (as described above).
Toowoomba Second Range Crossing Collared Delma Register PENGE01	Toowoomba Range	-	Land zones 3, 8 and 9.	-	REs the species were collected in: • *RE12.8.17 Mixed woodland with combinations of E. crebra, E. melanophloia, E. tereticornis, Corymbia tessellaris, C intermedia woodland on Cainozoic igneous rocks* • *RE12.8.9 Lophostemon confertus open forest on Cainozoic igneous rocks* • *RE12.8.14 E. eugenioides, E. biturbinata, E. melliodora +/- E. tereticornis, Corymbia intermedia open forest on Cainozoic igneous rocks* • *RE12.3.7 E. tereticornis, C. cunninghamiana subsp. cunninghamiana +/- Melaleuca spp. fringing woodland* • *RE12.9-10.2 C. citriodora subsp. variegata +/- Eucalyptus crebra open forest on sedimentary rocks* • *RE12.9-10.7 E. crebra +/- E. tereticornis, C. tessellaris, Angophora spp. and E. melanophloia woodland on sedimentary rocks*

		Defined Habitat Values			
Literature	**Location**	**Vegetation Type**	**Land zone/Soils**	**Microhabitat features**	**Other useful information**
New distribution and habitat data for the vulnerable Pygopodid, *Delma torquata (Hines et al., 2000)*	Numerous study sites	E. crebra open forest with grassy understorey on ridges observed in Blackdown Tableland, Grongah and Yarraman localities. Bunya Mountains site differed with *E. tereticornis* woodland, and Western Creek site differed with A. harpophylla and *C. cristata* forest with *Geijera parviflora* dominant in the midstorey. Both sites were in low lying areas. Western Creek State Forest was rolling sandstone hills.	Mount Crosby soils were shallow, stony lithosols on ridges and texture contrast soils on slopes (Porter 1998). Some individuals were found in pitfall traps away from rock cover. Western Creek soils were fine grained, grey, cracking clay sediments. No significant rock components. Remaining sites were dark brown to black cracking clays.	usually associated with rocky outcrops on ridges. Most specimens found sheltering under stones at Mount Crosby (Porter 1988)	Records locations include Rockhampton, Bunya Mountains State Forest (single specimen), Brisbane western suburbs, Blackdown Tableland National Park (an isolated sand plateau. Specimen captured in pitfall trap), near Millmerran (one individual captured on rolling sandstone hills), Grongah State Forest (five specimens), Yarraman State Forest (single specimen) and Bullyard Conservation Park near Gin Gin (single specimen). REs the species were collected in: • *RE12.3.3 E. tereticornis open forest to woodland on Cainozoic alluvial plains including older floodplain complexes (Bunya Mountains)* • *RE11.9.5 A. harpophylla, C. cristata shrubby open forest on Cainozoic to Proterozoic consolidated, fine grained sediment. Lowlands. Deep texture contrast soils and cracking clays, often gilgaied (Western Creek State Forest).* • *RE12.12.7 E. crebra grassy woodland on Mesozoic to Proterozoic igneous rocks* (Grongah State Forest)
Observations on a large population of the vulnerable pygopodid, Delma torquata, Memoirs of the Queensland Museum (Porter, 1998b)	Mount Crosby, 30km west of Brisbane	East and west slopes parallel to a ridge with exposed bedrock outcrops, and the ridgeline. The area supported dry eucalypt woodland dominated by *E. crebra, C. intermedia* and *E. maculata* with an understorey of native and introduced ground covers particularly *Lantana montevidensis. Cymbopogon refractus, Heteropogon contortus* and *Themeda triandra.*	Substrate covered in 5-20mm layer of dry leaf litter. Soils were shallow and stony. Comprised poor quality lithosols on the ridges, with texture contract soils of the slopes. Rocks were mixed metamorphics.	All found on the surface of the soil. Most individuals found under rocks with one individual found moving amongst low grasses. Specimens located underneath rocks during all seasons of the year. Mean rock sized used was 172cm. Mean percentage rock cover was 27%. Mean vegetation cover was 42%.	
					Figure 1 Western slope site
Specimen Hill Wind Farm MNES Assessment Report (EMM, 2020)	Calliope Range 30km west of Biloela. Kroombit Tops National Park adjoins the project site to the southeast	Recorded five individuals associated with high points on the ridgeline with exposed small rocks. Recorded during a Spring survey following minor rainfall.	Heavier darker soils, either with basaltic or metamorphic geology. Recorded on land zones 8, 11 and 12.	Abundant small surface rocks. Recorded under rocks <300mm with a loose contact with the soil surface. In the project area, the species appeared to be linked to rocky patches, and was not observed in areas of solely thick leaf litter. Rocky microhabitat appears to be an essential habitat feature.	REs the species were collected in: *RE11.8.4 – E. melanophloia open woodland on Cainozoic igneous rocks.* *RE11.8.4a C. citriodora woodland.* *RE11.11.3 C. citriodora, E. crebra, E. acmenoides open forest on old sedimentary rocks with varying degrees of metamorphism and folding. Coastal ranges.* *RE11.11.4 E. crebra woodland on old sedimentary rocks with varying degrees of metamorphism and folding. Coastal ranges.* *RE12.11.5 C. citriodora subsp. variegata woodland to open forest +/- E. siderophloia/E. crebra, E. carnea, E. acmenoides, E. propinqua on metamorphics +/- interbedded volcanics.* *RE12.11.6 C. citriodora subsp. variegata, E. crebra woodland on metamorphics +/- interbedded volcanics.* *RE12.11.7 E. crebra woodland on metamorphics +/- interbedded volcanics.* *RE12.11.9 E. tereticornis subsp. tereticornis or E. tereticornis subsp. basaltica open forest on metamorphics +/- interbedded volcanics. Usually higher altitudes* *RE12.12.23 E. tereticornis subsp. tereticornis or E. tereticornis subsp. basaltica +/- E. eugenioides woodland to open forest on crests, upper slopes and elevated valleys and plains on Mesozoic to Proterozoic igneous rocks.*

		Defined Habitat Values			
Literature	**Location**	**Vegetation Type**	**Land zone/Soils**	**Microhabitat features**	**Other useful information**
Collared Delma Project – Property Surveys. Pullen Catchment and Kholo Creek Catchment April 2023. Priority Species Grants (ERFIP000263) (Dogwood Ecology, 2023)	Western suburbs of Brisbane	Species was confirmed on south, southwest and west facing slopes. Mixed forest of *C. variegata, E. major* and *E. propinqua*. Very open midstorey of mixed wattles and peas and dense groundcover of mixed grasses and forbs.	Scattered smaller rocks throughout.	Habitat rocks were 10-30 cm average diameter, with a flat base. These were not imbedded.	Assessed the following microhabitat features: Previous nearby records, soil type, rock type, exposed rocks, evidence of fire, evidence of other disturbance, remnant/regrowth vegetation, topography, native groundcover species, native midstory species, native canopy species, weed species, weed impact assessment-% of site.   **Figure 1 a** South, southwest slope – species confirmed **b** Western slope considered likely habitat but species not confirmed

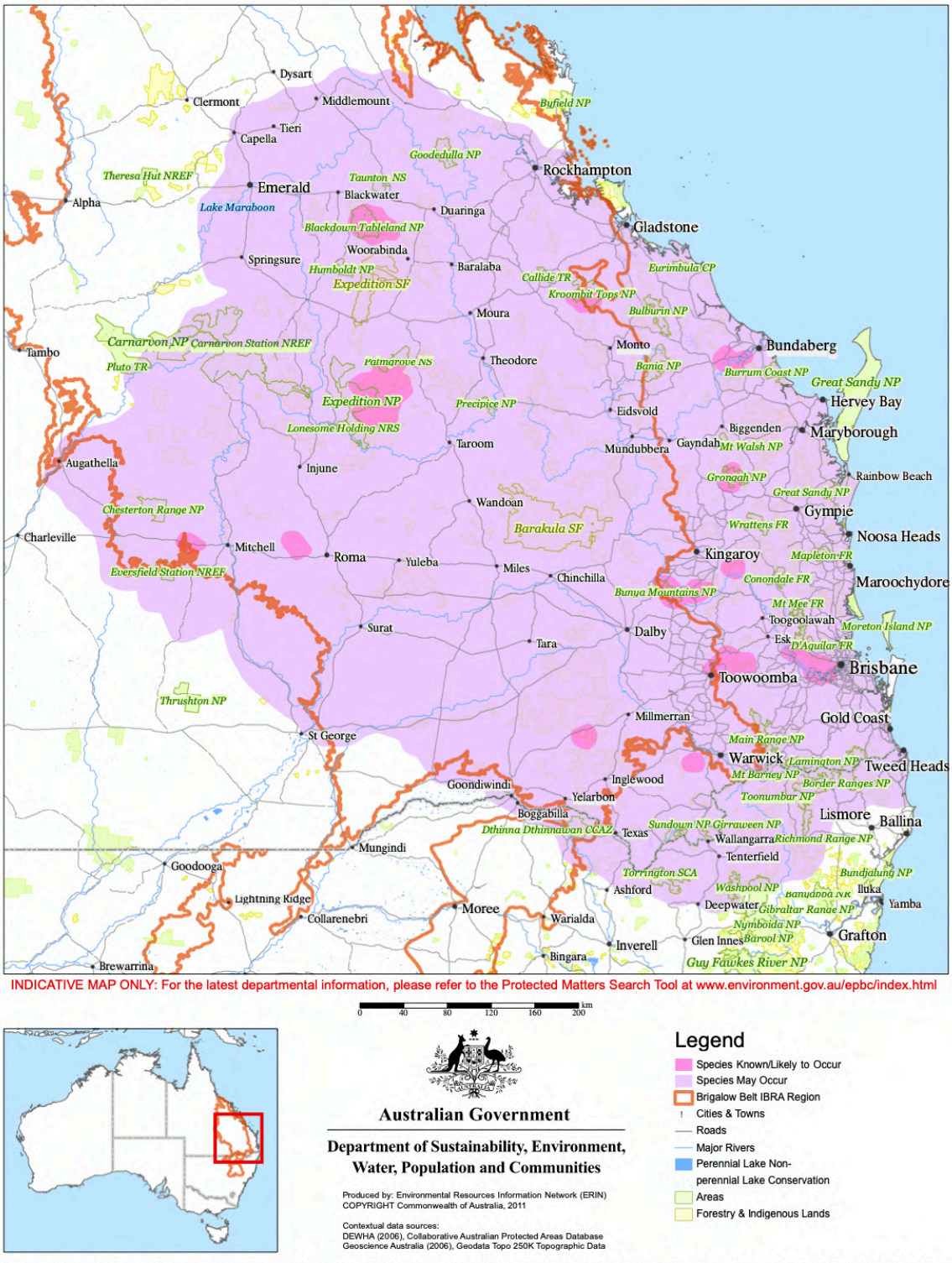
12.2 DEFINED HABITAT FOR THE PROJECT AREA

Table 62 details the habitat and microhabitat features that are typically present in important and marginal habitat types for the Collared Delma, based on the literature review undertaken in Table 61

Table 62 Revised definition of habitat for the Collared Delma based on all research

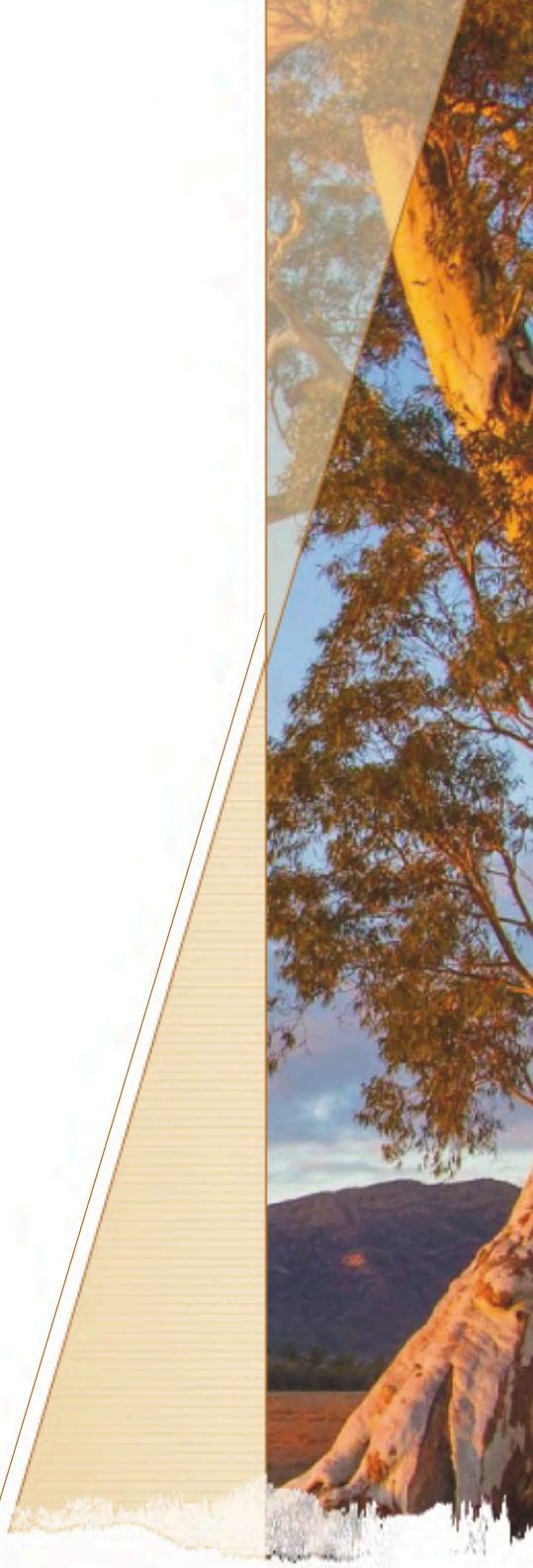
Habitat Type	Habitat and Microhabitat Features
Important Habitat	Where the species has been identified during a survey
	Land zones 3, 4, 5, 7, 8, 9, 10, 11, 12
	Large patches of contiguous, suitable habitat and viable landscape corridors, including non-disturbed areas that lack threats such as cattle grazing
	Within REs where the species has been recorded previously, especially if the species has been recorded within the region. For the Brigalow Belt Bioregion: • RE *11.3.2 Poplar Box woodland on alluvial plains.* • *RE11.8.4 E. melanophloia open woodland on Cainozoic igneous rocks.* • *RE11.8.4a C. citriodora woodland.* • *RE11.9.5 A. harpophylla, C. cristata shrubby open forest on Cainozoic to Proterozoic consolidated, fine grained sediment. Lowlands. Deep texture contrast soils and cracking clays, often gilgaied (Western Creek State Forest).* • *RE 11.9.10 Poplar Box/Brigalow open-forest on fine-grained sedimentary rocks.* • *RE 11.10.1 Lemon-scented Gum open forest on coarse-grained sedimentary rocks* • *RE 11.10.4 Eucalyptus decorticans, Lysicarpus angustifolius +/- Eucalyptus spp., Corymbia spp., Acacia spp. woodland on coarse-grained sedimentary rocks.* • *RE11.11.3 C. citriodora, E. crebra, E. acmenoides open forest on old sedimentary rocks with varying degrees of metamorphism and folding. Coastal ranges.* • *RE11.11.4 E. crebra woodland on old sedimentary rocks with varying degrees of metamorphism and folding. Coastal ranges.* • *South East Queensland bioregion:* • *RE12.3.3 E. tereticornis open forest to woodland on Cainozoic alluvial plains including older floodplain complexes (Bunya Mountains).* • *RE12.3.7 E. tereticornis, C. cunninghamiana subsp. cunninghamiana +/- Melaleuca spp. fringing woodland* • *RE12.8.17 Mixed woodland with combinations of E. crebra, E. melanophloia, E. tereticornis, Corymbia tessellaris, C intermedia woodland on Cainozoic igneous rocks* • *RE12.8.9 Lophostemon confertus open forest on Cainozoic igneous rocks* • *RE12.8.14 E. eugenioides, E. biturbinata, E. melliodora +/- E. tereticornis, Corymbia intermedia open forest on Cainozoic igneous rocks* • *RE12.9-10.2 C. citriodora subsp. variegata +/- Eucalyptus crebra open forest on sedimentary rocks* • *RE12.9-10.7 E. crebra +/- E. tereticornis, C. tessellaris, Angophora spp. and E. melanophloia woodland on sedimentary rocks* • *RE12.11.5 C. citriodora subsp. variegata woodland to open forest +/- E. siderophloia/E. crebra, E. carnea, E. acmenoides, E. propinqua on metamorphics +/- interbedded volcanics.* • *RE12.11.6 C. citriodora subsp. variegata, E. crebra woodland on metamorphics +/- interbedded volcanics.* • *RE12.11.7 E. crebra woodland on metamorphics +/- interbedded volcanics.* • *RE12.11.9 E. tereticornis subsp. tereticornis or E. tereticornis subsp. basaltica open forest on metamorphics +/- interbedded volcanics. Usually higher altitudes* • *RE12.12.7 E. crebra grassy woodland on Mesozoic to Proterozoic igneous rocks (Grongah State Forest)* • *RE12.12.23 E. tereticornis subsp. tereticornis or E. tereticornis subsp. basaltica +/- E. eugenioides woodland to open forest on crests, upper slopes and elevated valleys and plains on Mesozoic to Proterozoic igneous rocks.*
	Presence of suitable microhabitat - rocks, logs, bark and other coarse woody debris, and mats of leaf litter (typically 30 to 100 mm thick) or adjacent areas
	Typically, well-drained slopes or ridgelines, but sometimes in low lying areas that are well drained
	Near the limit of the species known range
Marginal Habitat	Land zones 3, 4, 5, 7, 8, 9, 10, 11, 12
	Non-disturbed areas that lack threats such as cattle grazing
	On REs where the species has not previously been recorded
	Presence of suitable microhabitat - rocks, logs, bark and other coarse woody debris, and mats of leaf litter (typically 30 to 100 mm thick) or adjacent areas

Map 6: The modelled distribution of the collared delma (*Delma torquata*)



CAVEAT: The information presented in this map has been provided by a range of groups and agencies. While every effort has been made to ensure accuracy and completeness, no guarantee is given, nor responsibility taken by the Commonwealth for errors or omissions, and the Commonwealth does not accept responsibility in respect of any information or advice given in relation to, or as a consequence of, anything containing herein. **INDICATIVE MAP ONLY:** This map has been compiled from datasets with a range of geographic scales and quality. Species or ecological community distributions are indicative only and not to be used for local assessment. Local knowledge and information should be sought to confirm the presence of the species, or species habitat, at the location of interest.

Figure 6
Modelled distribution of the Collared Delma from the *Draft Referral Guidelines for the Nationally Listed Brigalow Belt reptiles*



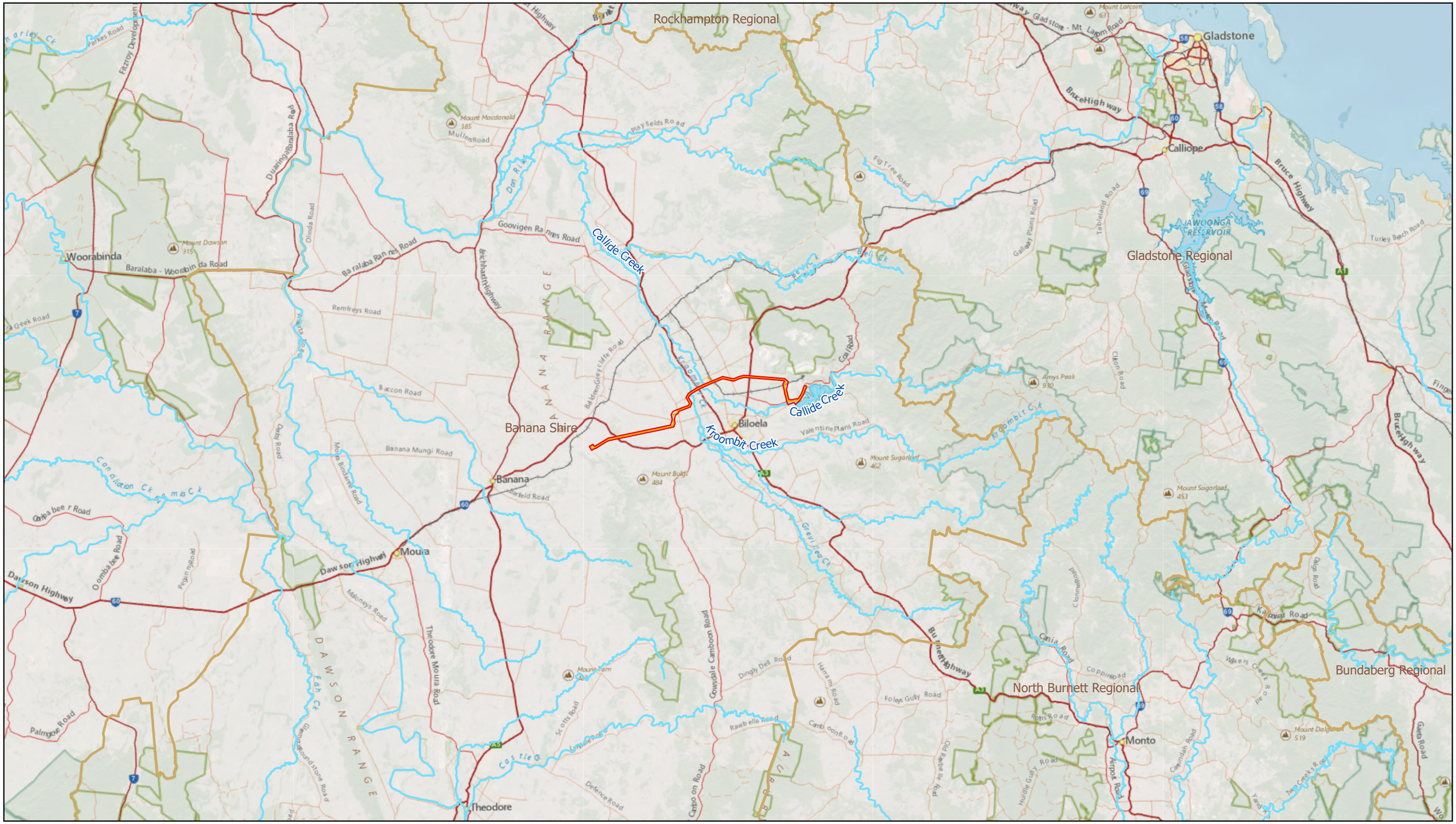
Map 1 Regional Context
Map 2 Land Tenure
Map 3 Water Act Watercourses and Drainage Features (Desktop)
Map 4 Digital Elevation Model
Map 5 Survey Effort
Map 6 Regulated Vegetation Management Map (Desktop)
Map 7 Vegetation Management Supporting Map (Desktop)
Map 8 High Ecological Significance Wetlands (Desktop and Field-verified)
Map 9 Waterway Barrier Works and Protected Flora Survey Trigger Mapping (Desktop)
Map 10 Prescribed Environmental Matters under the Environmental Offsets Act 2014 (Qld) – MSES (Desktop)
Map 11 Biodiversity Planning Assessment (Terrestrial; Desktop)
Map 12 Ground-truthed Regional Ecosystems and Threatened Species Records (Field-verified)
Map 13 Vegetation Communities (Field-verified)
Map Series 14 Threatened Species Habitat Context Maps (Field-verified)

APPENDIX G

MAPS

MAP 1

Regional Context

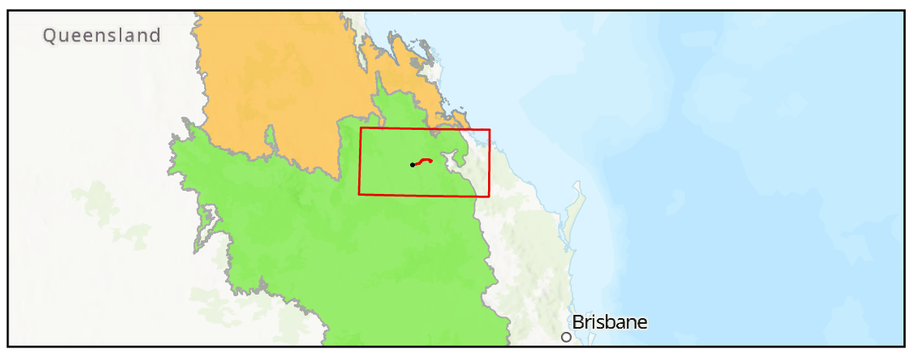


Legend

- Disturbance Footprint
- Project area
- Local government area
- Major watercourses

Interim Biogeographic Regionalisation for Australia (IBRA)

- Brigalow Belt North
- Brigalow Belt South



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 1 - Regional Context

N

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Metres

Scale: 1:568,434

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 01 Sep 2025

Source: © The State of Queensland (Department of Resource) 2022 Imagery copyright and imagery date

Coordinate System: GDA 1994 MGA Zone 56

MAP 2

Land Tenure

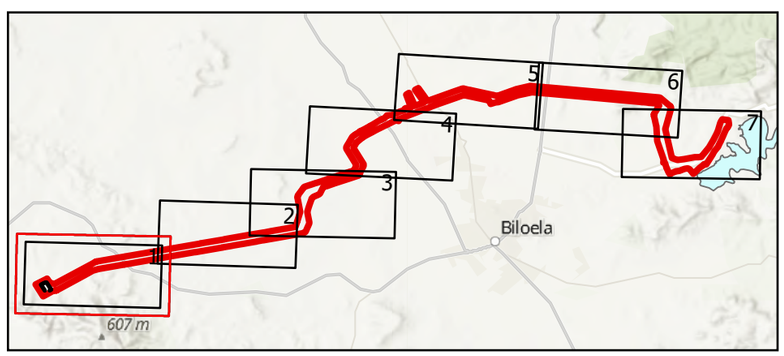
36SP224440
2PM321
37SP224440
23PM281
Dawson Highway
24PM374
EPM347
APM346
44PM396
Orange Creek
APM346
29PM280
Dawson Highway
Dawson Highway
GCP848651
43PM375
47SP232217
APM346
BPM434
39RP619229
DCP848652
AFN419
9FN319
BSP232217

Legend

- Disturbance Footprint
- Project area
- BRWF Substation

Tenure

- Easement
- Freehold
- Lands Lease



N

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Metres

BANANA RANGE WIND FARM CONNECTION PROJECT

Map 2 - Land Tenure

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Scale: 1:19,000

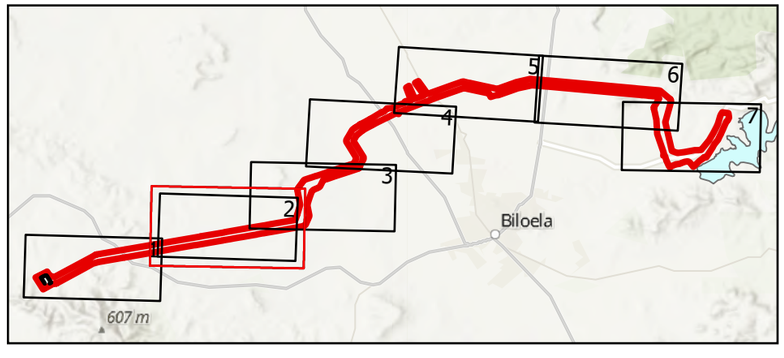
16PM219
14PM219
50SP251109
51SP251109
13PM211
10PM211
BXSP269180
21PM218
Orange Creek Road
Orange Creek School Bus Road
1RP617605
34PM212
52SP251109
2RP617605
BWSP269179
ARP609401
ARP611007
BPM347
24PM374
CPM347
33PM212
DPM347
EPM347
APM346
29PM280
30PM280
127PM835085
BVBSP269178
31PM285

Legend

- Disturbance Footprint
- Project area

Tenure

- Easement
- Freehold
- Lands Lease



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Metres

BANANA RANGE WIND FARM CONNECTION PROJECT

Map 2 - Land Tenure

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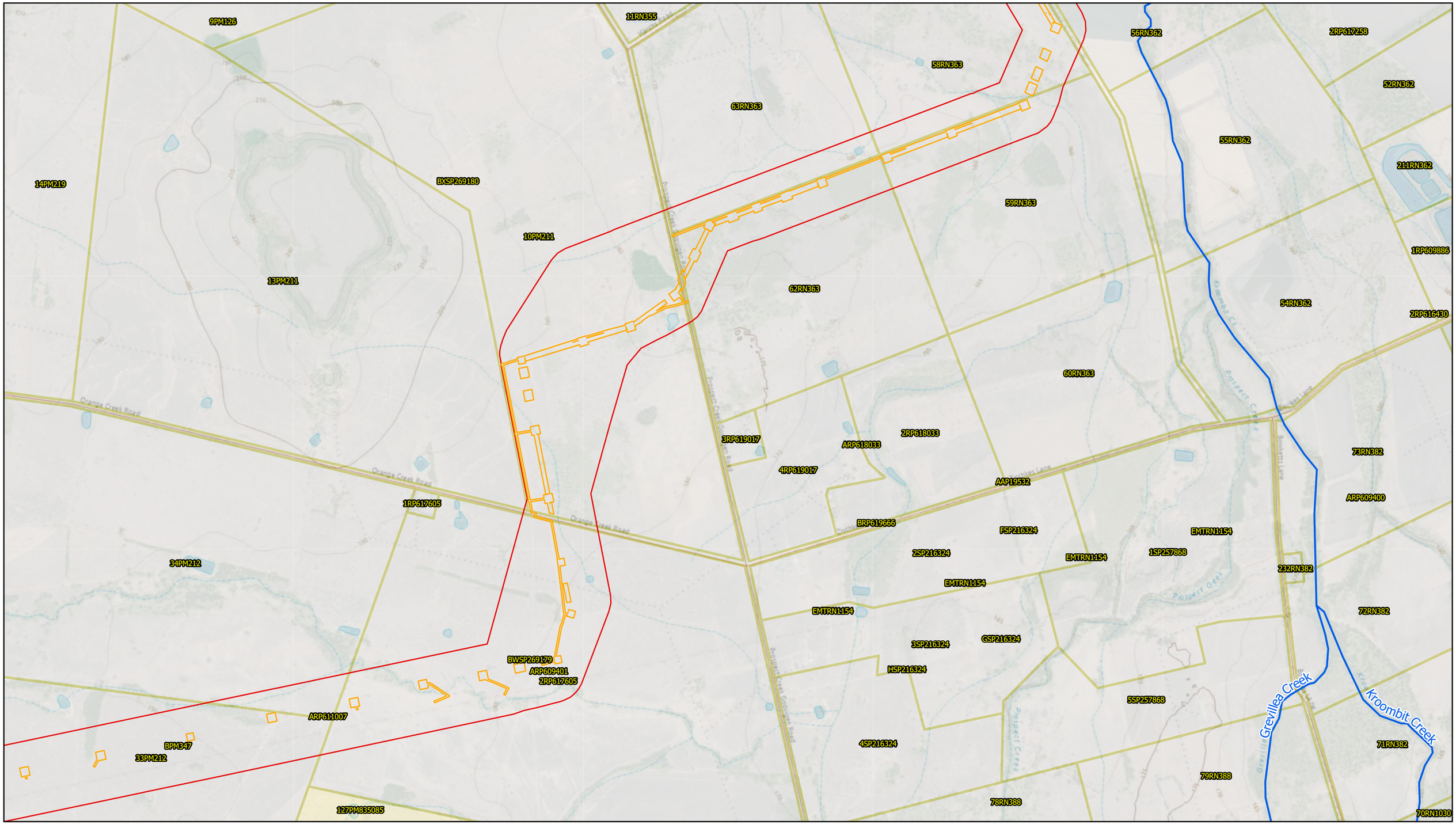
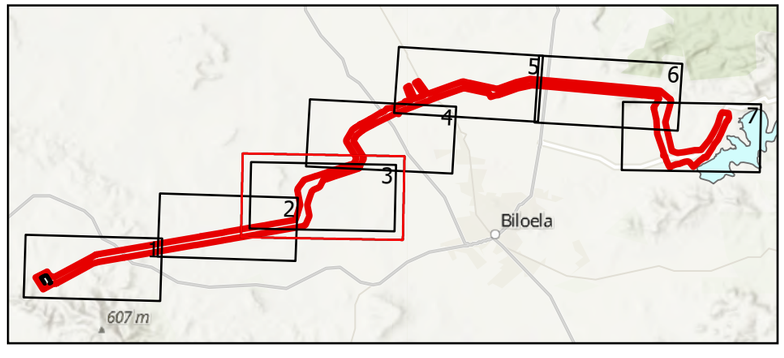


Legend

- Disturbance Footprint
- Project area

Tenure

- Easement
- Freehold
- Lands Lease



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 2 - Land Tenure

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Metres

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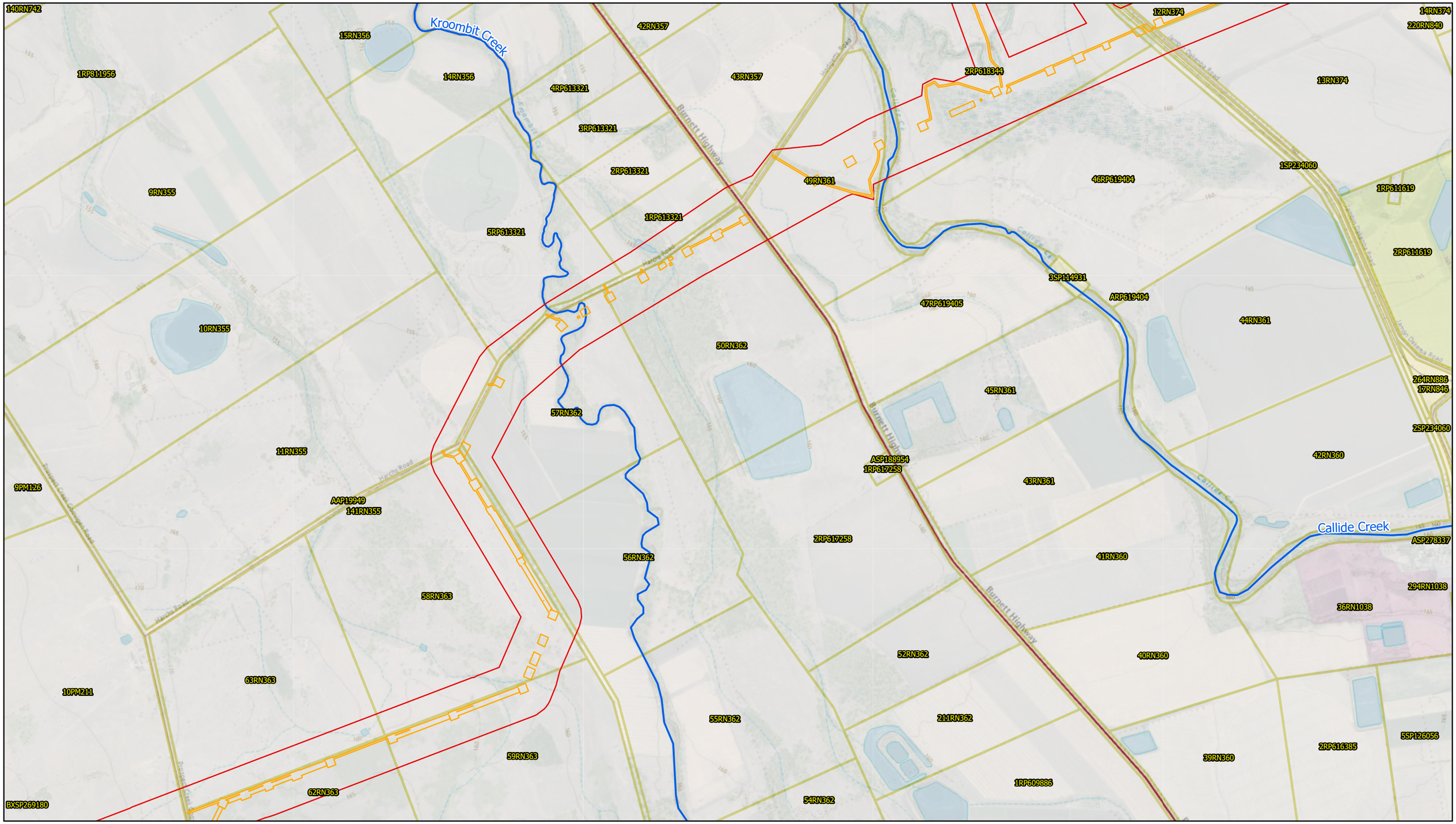
Scale: 1:20,000

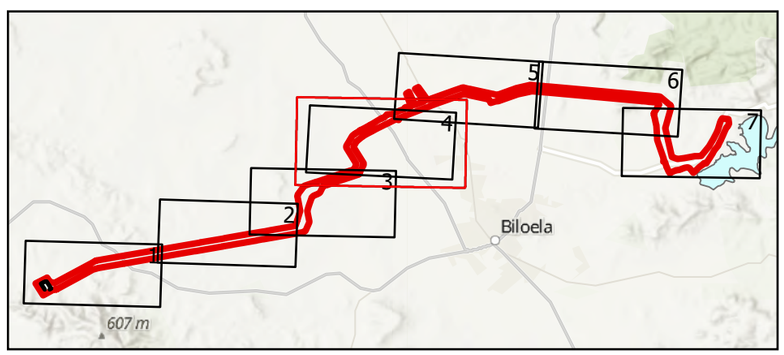


Legend

- Disturbance Footprint
- Project area

Tenure

- Easement
- Freehold
- Lands Lease
- State Land



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BANANA RANGE WIND FARM CONNECTION PROJECT

Map 2 - Land Tenure

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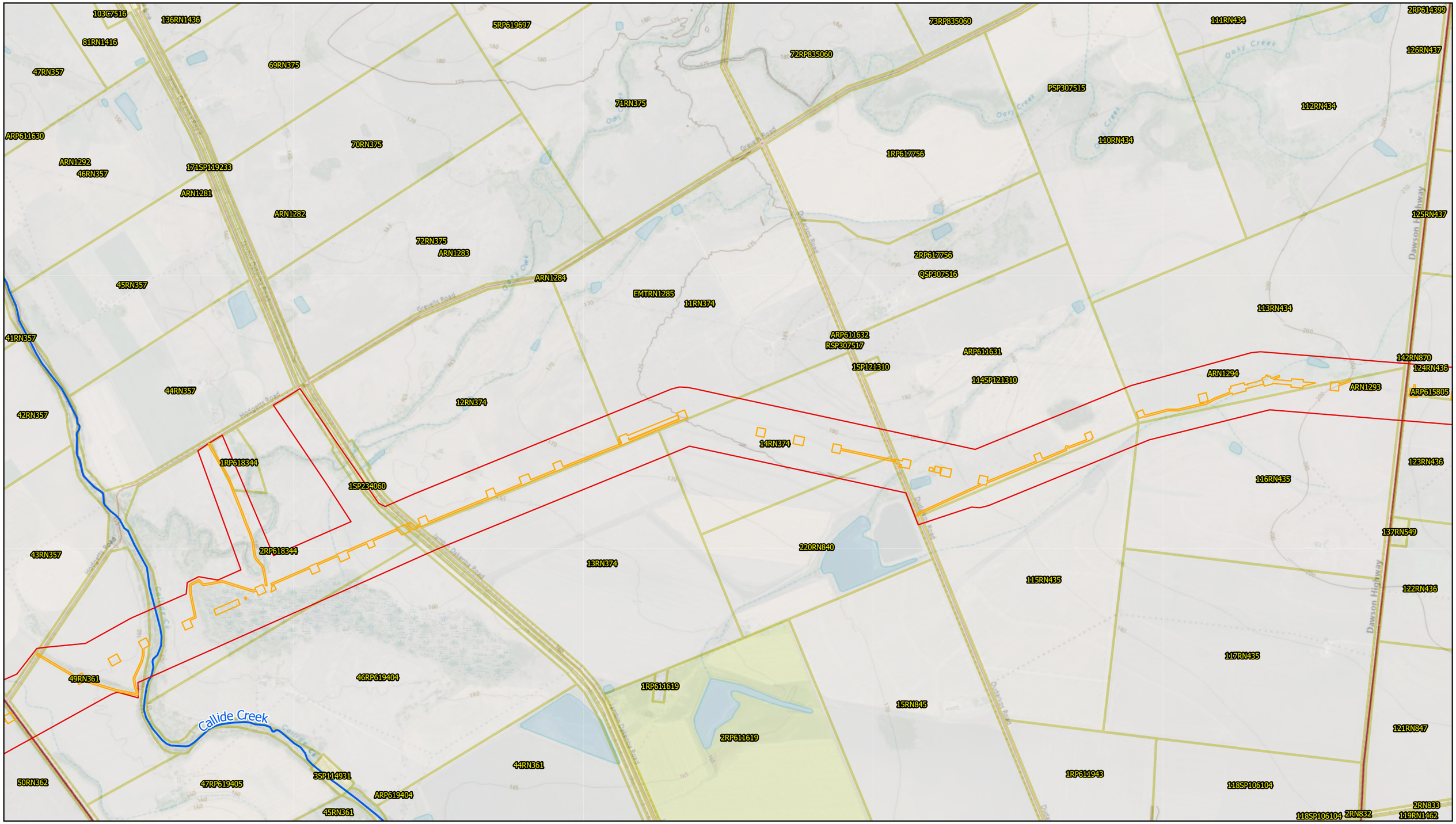

Legend

- Disturbance Footprint
- Project area

Tenure

- Easement
- Freehold
- Lands Lease

BANANA RANGE WIND FARM CONNECTION PROJECT

Map 2 - Land Tenure

Trend Environmental Consultants

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94 Kennedy Esplanade South Mission Beach, QLD 4852

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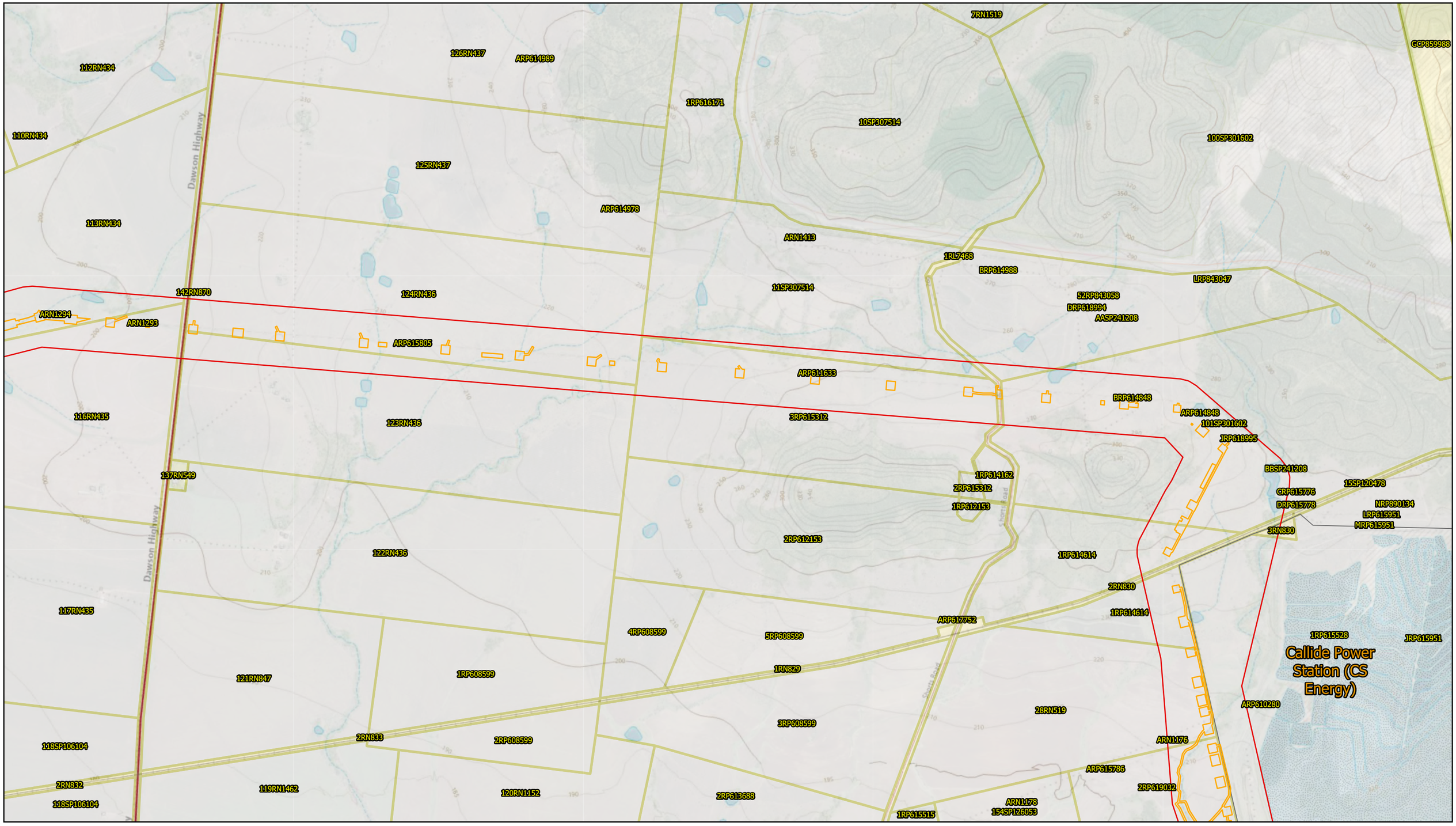
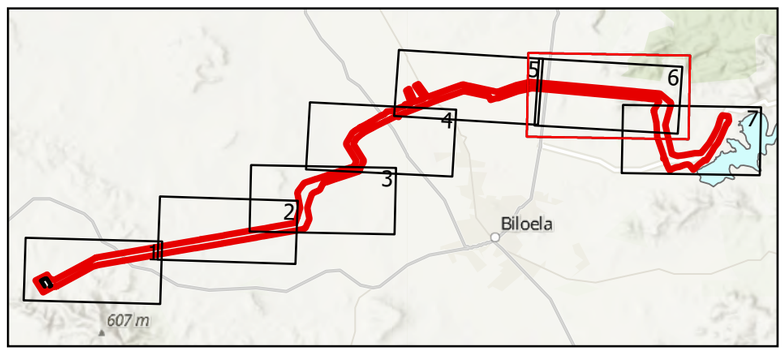


Legend

- Disturbance Footprint
- Project area

Tenure

- Easement
- Freehold
- Lands Lease



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BANANA RANGE WIND FARM CONNECTION PROJECT

Map 2 - Land Tenure

Trend Environmental Consultants

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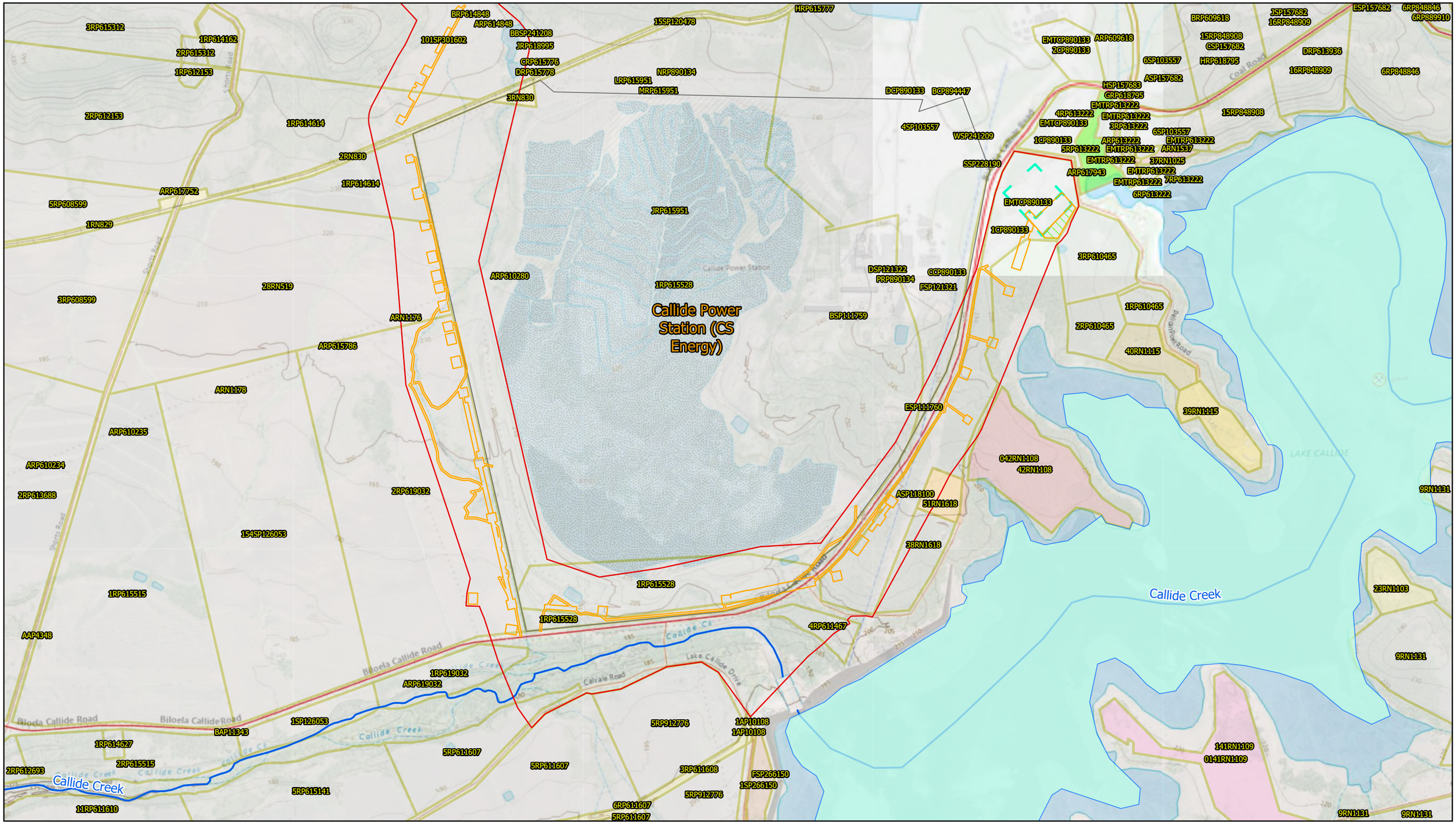
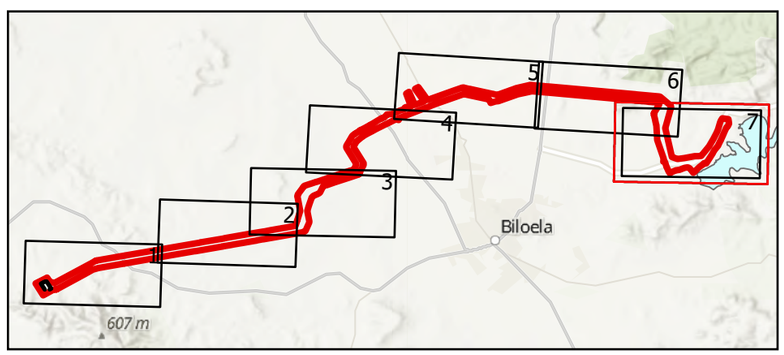


Legend

- Disturbance Footprint
- Project area
- Helipad Area
- Callide substation Expansion
- Lake Callide

Tenure

- Easement
- Freehold
- Lands Lease
- Reserve



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BANANA RANGE WIND FARM CONNECTION PROJECT

Map 2 - Land Tenure

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Scale: 1:19,000

MAP 3

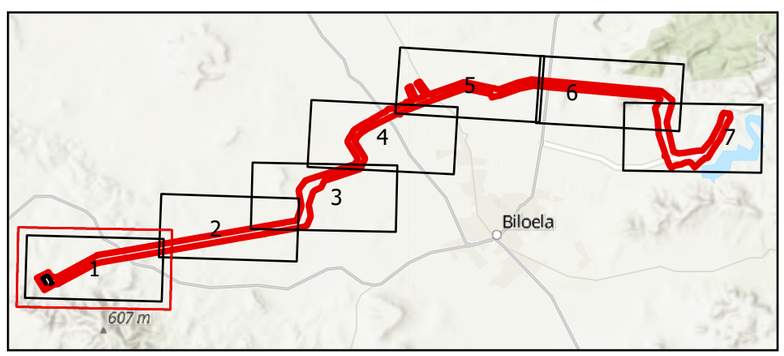
Water Act Watercourses and Drainage Features (Desktop)

Dawson Highway

Orange Creek

Legend

- Disturbance Footprint
- Project area
- BRWF Substation
- Unmapped



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 3 - Water Act and Vegetation Management Defined Watercourses(Stream Order)

N

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Metres

Trend Environmental Consultants

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94 Kennedy Esplanade South Mission Beach, QLD 4852

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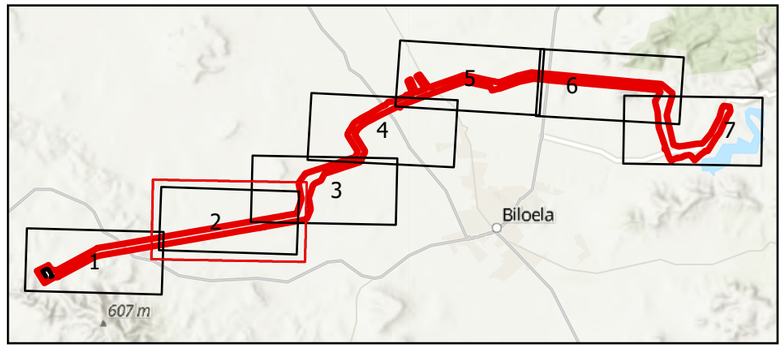
Scale: 1:19,000

Orange Creek Road

Orange Creek School Bus Road

Legend

- Disturbance Footprint
- Project area
- Unmapped



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 3 - Water Act and Vegetation Management Defined Watercourses(Stream Order)

N

0 487.5 975
Metres

Trend Environmental Consultants

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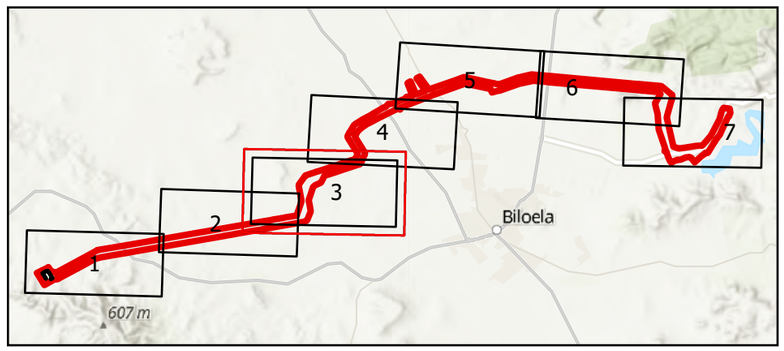
Scale: 1:19,000

Orange Creek Road
Zischkes Lane
Prospect Creek Googyan Road
Harchi Road
Back Creek
unnamed tributary of Prospect Creek
unnamed tributary of Prospect Creek
Prospect Creek
Grevillea Creek
Kroombit Creek
Bowketts Lane

Legend

- Disturbance Footprint
- Project area
- Watercourse identification map - watercourses
- Watercourse identification map - drainage features
- Unmapped



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 3 - Water Act and Vegetation Management Defined Watercourses(Stream Order)

N

0 500 1,000
Metres

Trend Environmental Consultants

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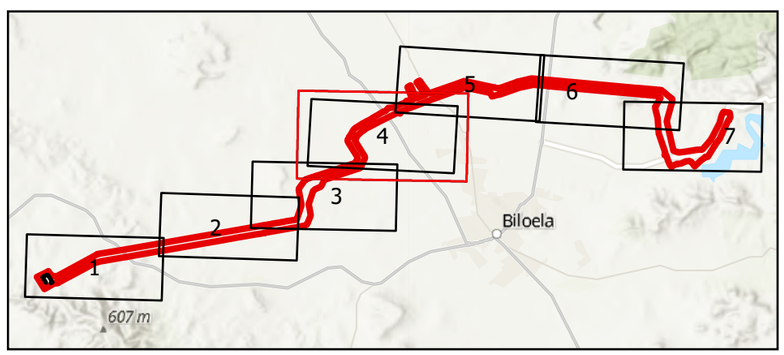
Scale: 1:20,000

Kroombit Creek
Burnett Highway
Callide Creek
Harchi Road
Hodgetts Road
Jambin Dakenba Road
Prospect Creek Goovigen Road

Legend

- Disturbance Footprint
- Project area
- Watercourse identification map - watercourses
- Unmapped



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 3 - Water Act and Vegetation Management Defined Watercourses(Stream Order)

N

0 500 1,000
Metres

Trend Environmental Consultants

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94 Kennedy Esplanade South Mission Beach, QLD 4852

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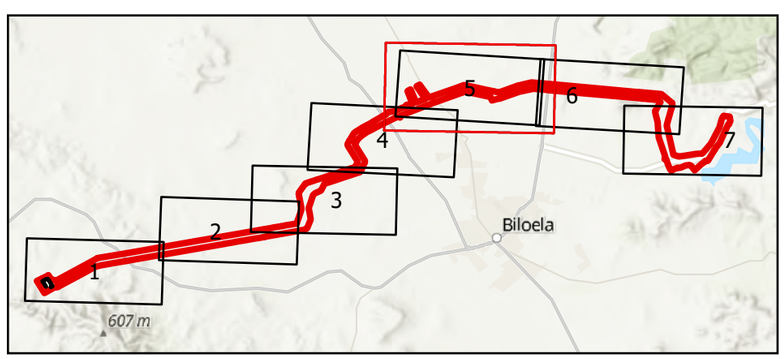
Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:21,000

Legend

- Disturbance Footprint
- Project area
- Watercourse identification map - watercourses
- Unmapped



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 3 - Water Act and Vegetation Management Defined Watercourses(Stream Order)

N

0 500 1,000
Metres

Trend Environmental Consultants

Prepared: MG Checked: EK

Date: 01 Sep 2025

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:21,000

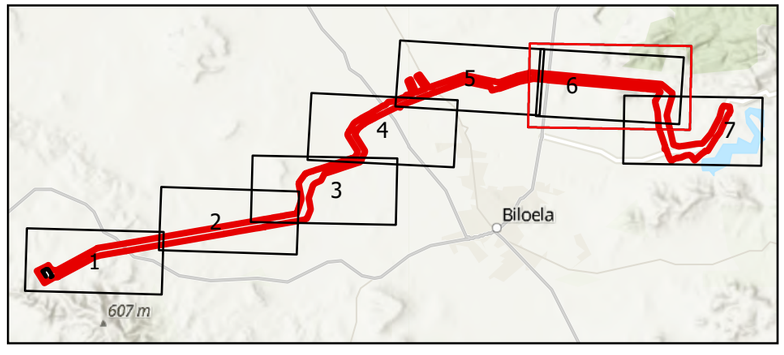
Dawson Highway

Shorts Road

Callide Power Station (CS Energy)

Legend

- Disturbance Footprint
- Project area
- Unmapped



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 3 - Water Act and Vegetation Management Defined Watercourses(Stream Order)

N

0 500 1,000
Metres

Trend Environmental Consultants

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94 Kennedy Esplanade South Mission Beach, QLD 4852

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Scale: 1:20,000

Callide Power Station (CS Energy)

Unnamed tributary of Callide Creek

Callide Creek

Biloela Callide Road

Shorts Road

Coal Road

Calvale Road

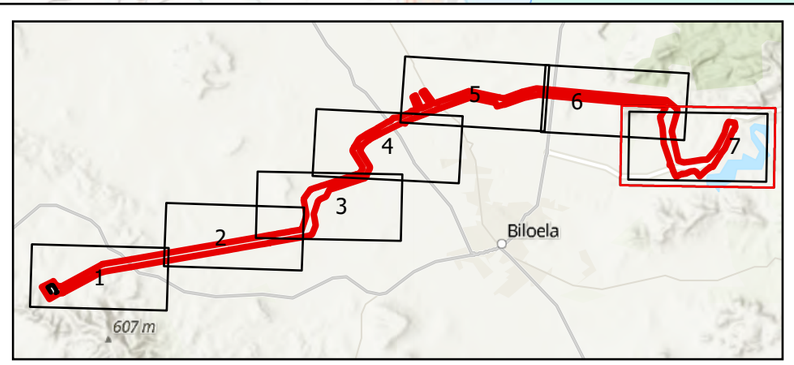
Lake Callide Drive

Pelican Point Road

LAKE CALLIDE

Legend

- Disturbance Footprint
- Project area
- Helipad Area
- Callide substation Expansion
- Lake Callide
- Watercourse identification map - watercourses
- Unmapped



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 3 - Water Act and Vegetation Management Defined Watercourses(Stream Order)

N

0 487.5 975
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:19,000

MAP 4

Digital Elevation Model

Overdeen State Forest
Greycliffe
Callide
Burnett Highway
A3
Dawson Highway
Callide Timber Reserve
Mount Murchison Nature Refuge
Callide Power Station (CS Energy)
Lake Callide
Dakenba
Mount Murchison
Callide Creek
Orange Creek
60
Biloela
Valentine Plains
Kroombit Creek
Kariboe Creek
Grevillea Creek
Thangool

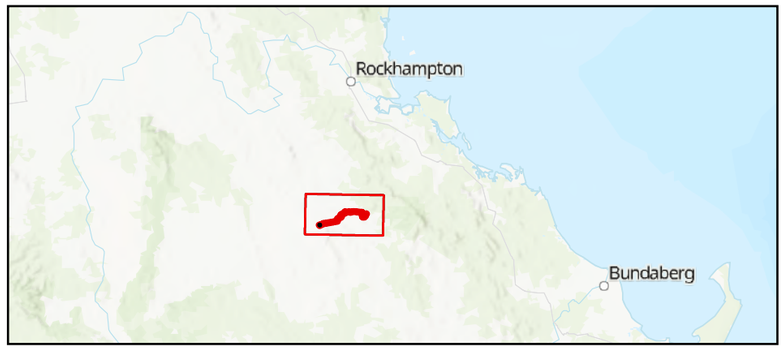
Legend

- Disturbance Footprint
- Project area
- BRWF Substation
- Callide substation Expansion
- Helipad Area

QLD Digital Elevation Model (mAHD)

255

0



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 4 - Digital Elevation Model

N

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Metres

Scale: 1:140,625

Trend Environmental Consultants

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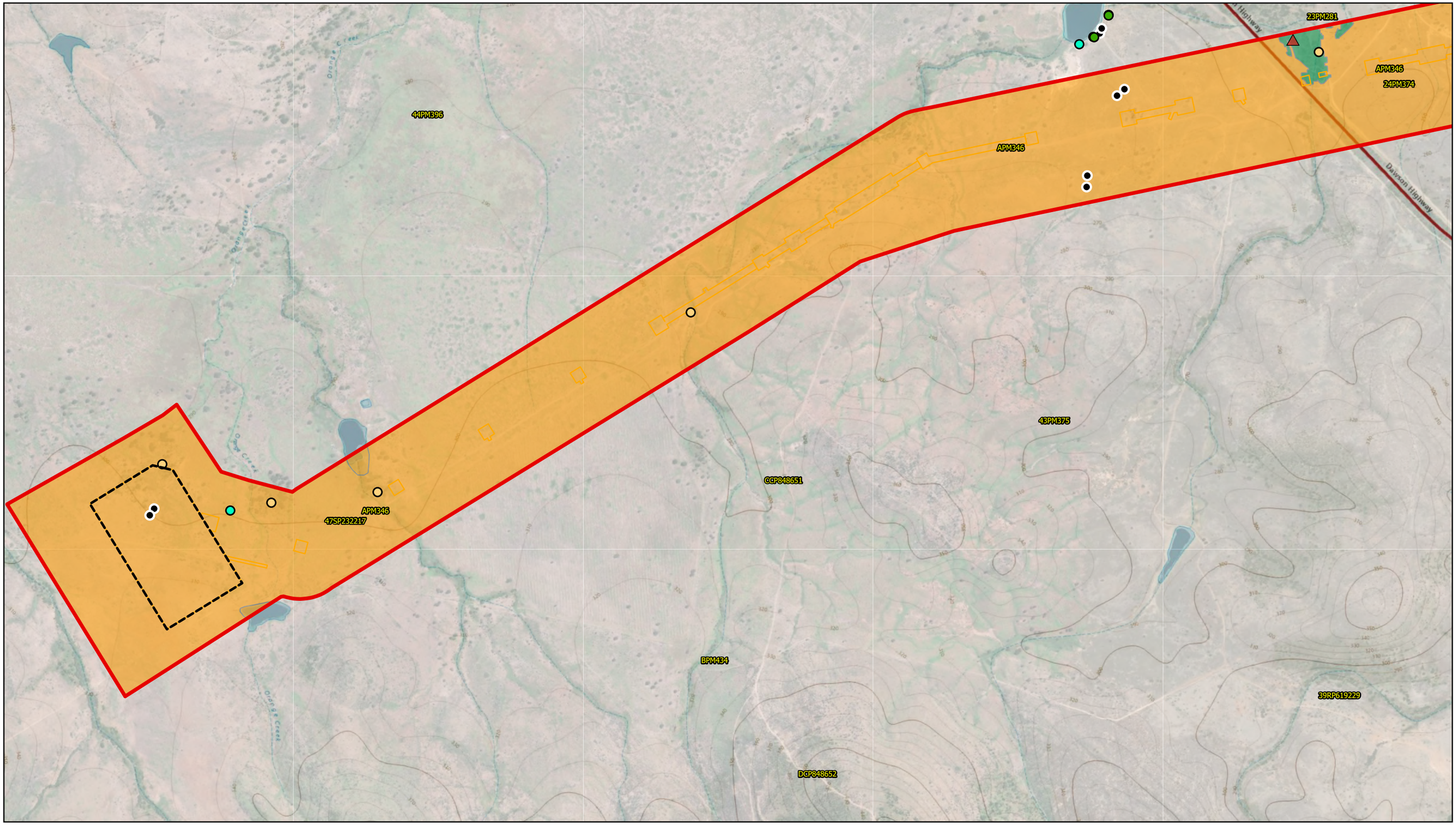
Coordinate System: GDA 1994 MGA Zone 56

MAP 5

Survey Effort



Legend

- Disturbance Footprint
- Project area
- BRWF Substation

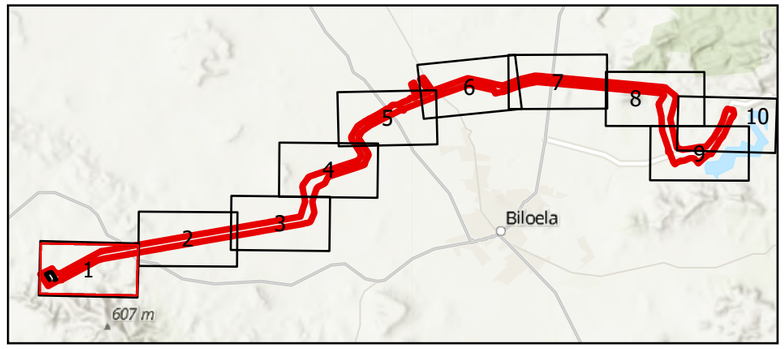
Habitat Survey AUs

- AU01
- non-rem

Habitat & Vegetation Assessment sites

Type

- Active searches
- Bird survey
- Fauna habitat assessment
- General vegetation assessment
- TEC Verification
- Microhabitat Assessments
- Timed meander tracks



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 5 - Survey effort and Assessment Units

N

0 310 620
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 18 Sep 2025

Source: © The State of Queensland (Department of Resources) 2022
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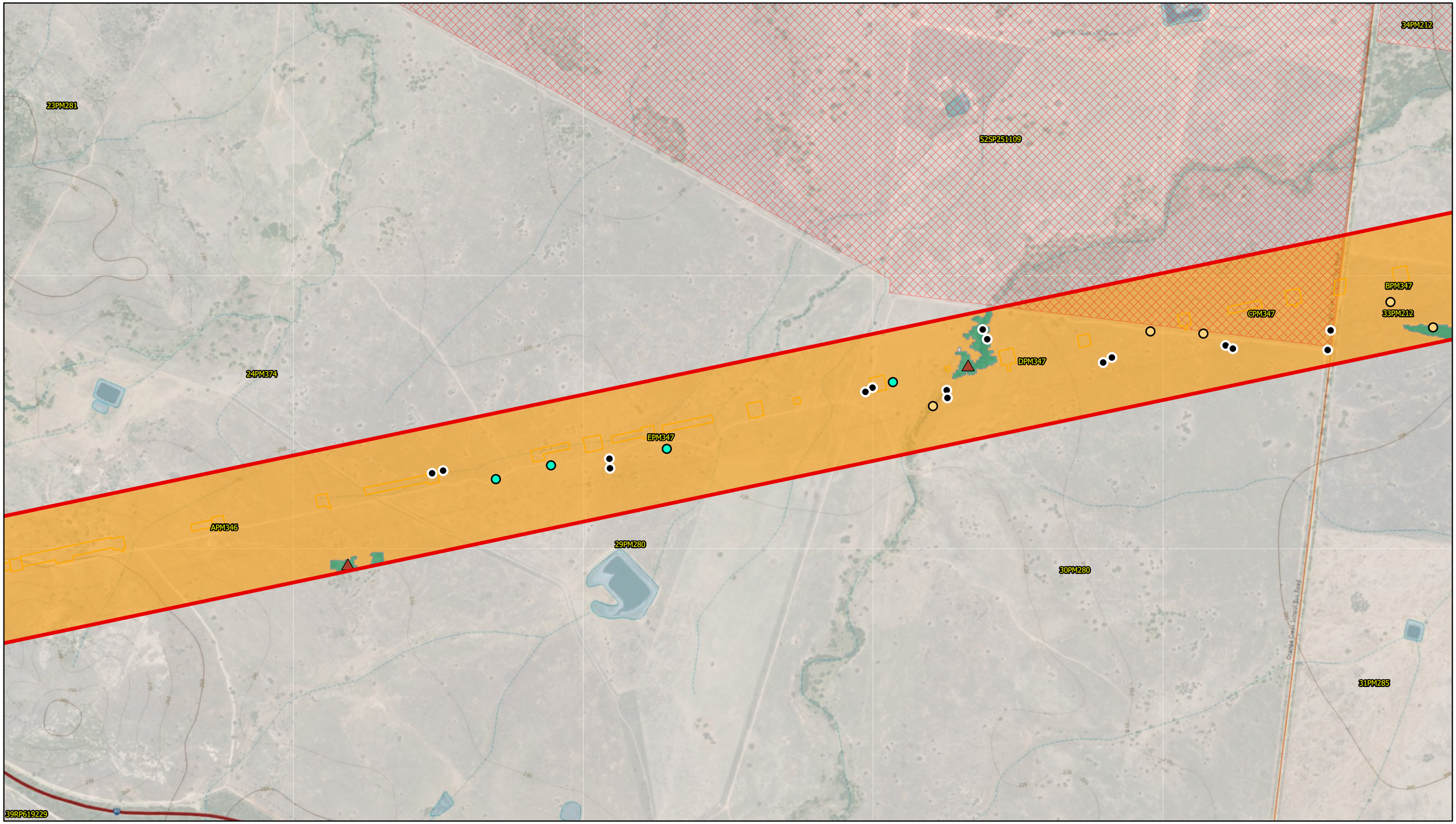
Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:12,000



Legend

- Disturbance Footprint
- Project area
- No access land parcel

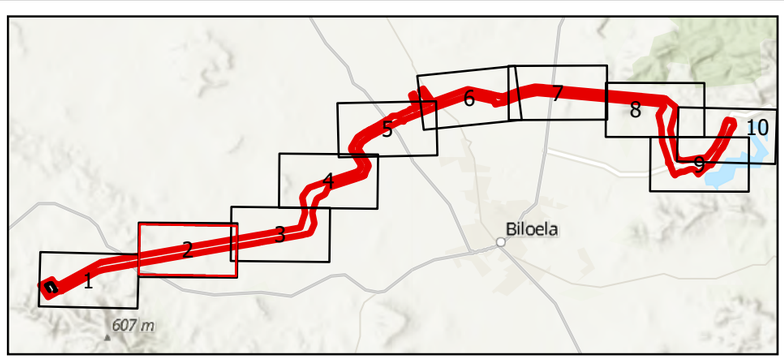
Habitat Survey AUs

- AU01
- non-rem

Habitat & Vegetation Assessment sites

Type

- Active searches
- Fauna habitat assessment
- General vegetation assessment
- TEC Verification
- Microhabitat Assessments
- Timed meander tracks



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 5 - Survey effort and Assessment Units

N

0 310 620
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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52SP251109
13PM211
4RP619017
BXSP269180
1RP617605
10PM211
Orange Creek Road
34PM212
BWSP269179
ARP609401
2RP617605
ARP611007
BPM347
33PM212
127PM835085
BVBSP269178
31PM285

Legend

- Disturbance Footprint
- Project area
- No access land parcel

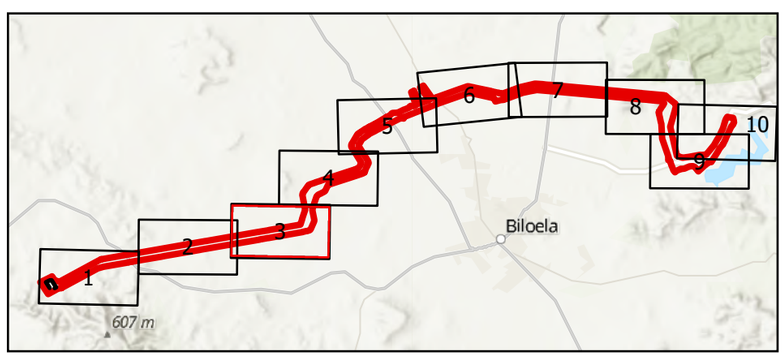
Habitat Survey AUs

- AU01
- non-rem

Habitat & Vegetation Assessment sites

Type

- Active searches
- Bird survey
- Fauna habitat assessment
- General vegetation assessment
- TEC Verification
- Microhabitat Assessments
- Timed meander tracks



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 5 - Survey effort and Assessment Units

N

0 310 620
Metres

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BYSP269181
9PM126
11RN355
56RN362
58RN363
Frombit Creek
63RN363
55RN362
10PM211
59RN363
BXSP269180
54RN362
13PM211
62RN363
60RN363
2RP618033
ARP618033
4RP619017
3RP619017

Legend

- Disturbance Footprint
- Project area

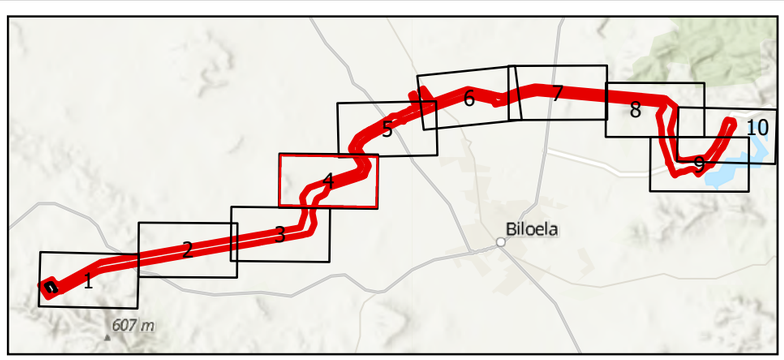
Habitat Survey AUs

- AU01
- AU04
- non-rem

Habitat & Vegetation Assessment sites

Type

- Active searches
- Bird survey
- Fauna habitat assessment
- General vegetation assessment
- TEC Verification
- Microhabitat Assessments
- Timed meander tracks



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 5 - Survey effort and Assessment Units

N

0 310 620
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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Scale: 1:12,000

15RN356
14RN356
9RN355
10RN355
11RN355
AAP19949
42RN357
4RP613321
43RN357
3RP613321
2RP613321
5RP613321
1RP613321
49RN361
2RP618344
46RP619404
Callide Creek
3SP114931
47RP619405
ARP619404
44RN361
50RN362
57RN362
Kroombit Creek
56RN362
58RN363
45RN361
ASP188954
1RP617258
2RP617258
43RN361
41RN360
Burnett Highway
Hodgens Road
Yarchi Road

Legend

- Disturbance Footprint
- Project area

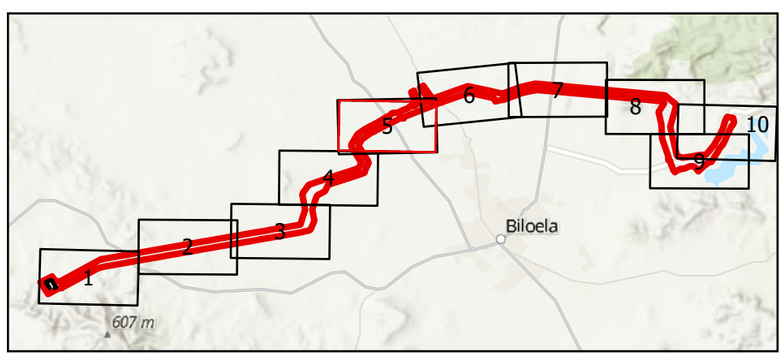
Habitat Survey AUs

- AU01
- AU03
- AU04
- AU05
- AU06
- non-rem

Habitat & Vegetation Assessment sites

Type

- Active searches
- Bird survey
- Fauna habitat assessment
- General vegetation assessment
- Turtle habitat evaluation
- Spotlighting
- Microhabitat Assessments
- Timed meander tracks



BANANA RANGE WIND FARM CONNECTION PROJECT

Trend Environmental Consultants

Map 5 - Survey effort and Assessment Units

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

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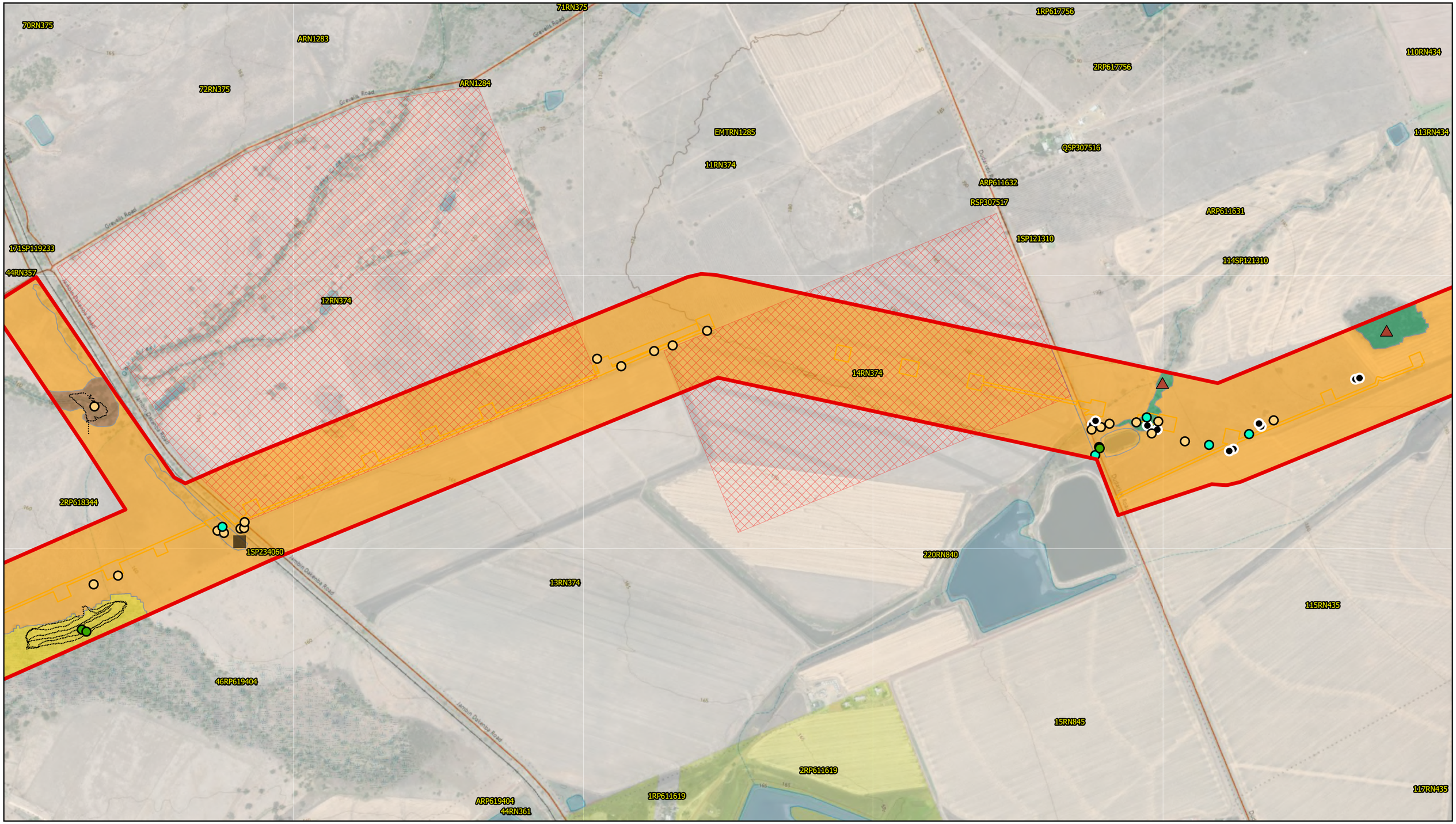
Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:12,000

N

0 160 320 640
Metres



Legend

- Disturbance Footprint
- Project area
- No access land parcel

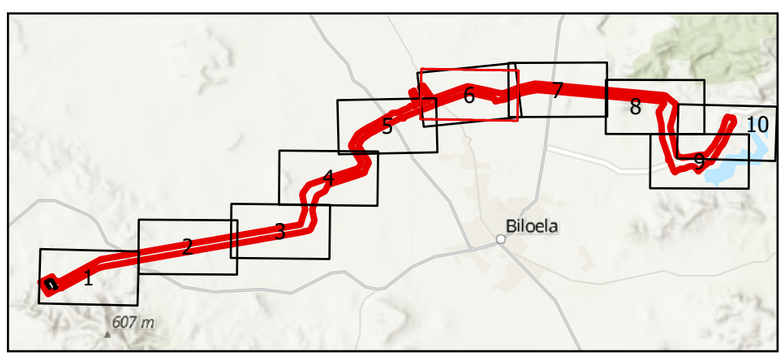
Habitat Survey AUs

- AU01
- AU04
- AU05
- non-rem

Habitat & Vegetation Assessment sites

Type

- Active searches
- Bird survey
- Fauna habitat assessment
- General vegetation assessment
- Spotlighting
- TEC Verification
- Microhabitat Assessments
- Timed meander tracks



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 5 - Survey effort and Assessment Units

N

0 160 320 640
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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Date: 18 Sep 2025

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Scale: 1:12,000

PSP307515
QSP307516
112RN434
2RP617756
110RN434
ARP614989
126RN437
1RP616171
125RN437
ARP614978
ARN1413
113RN434
Dawson Highway
ARP611631
114SP121310
142RN870
124RN436
11SP307514
ARN1294
ARN1293
ARP615805
ARP611633
3RP615312
116RN435
123RN436
137RN549
115RN435
2RP612153
122RN436
117RN435
4RP608599

Legend

- Disturbance Footprint
- Project area
- No access land parcel

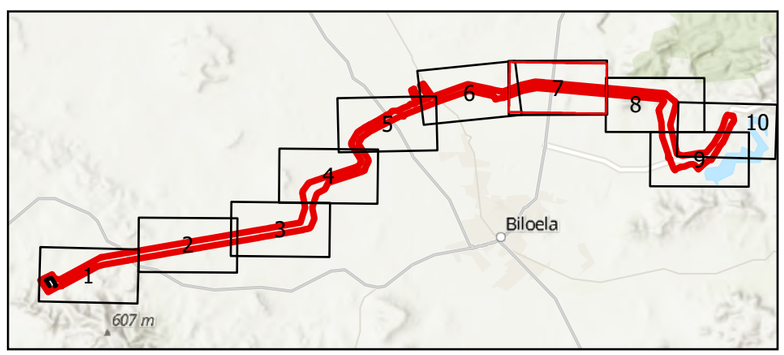
Habitat Survey AUs

- AU01
- non-rem

Habitat & Vegetation Assessment sites

Type

- Active searches
- Fauna habitat assessment
- General vegetation assessment
- TEC Verification
- Microhabitat Assessments
- Timed meander tracks



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 5 - Survey effort and Assessment Units

N

0 310 620
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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Scale: 1:12,000

ARN1413
1RL7468
BRP614988
GGP859988
LRP843047
100SP301602
11SP307514
DRP618994
52RP843058
AASP241208
HRP615777
ARP611633
BRP614848
BBSP241208
101SP301602
3RP615312
JRP618995
ARP614848
15SP120478
1RP614162
2RP615312
GRP615776
DRP615778
1RP612153
NRP890134
LRP615951
MRP615951
DGP890133
3RN830
2RP612153
1RP614614
4SP103557
4RP608599
ARP617752
2RN830
1RP614614
1RP615528
Callide Power Station (CS Energy)
JRP615951
5RP608599
1RN829
28RN519
ARP610280
3RP608599
ARN1176
2RP619032

Legend

- Disturbance Footprint
- Project area
- No access land parcel

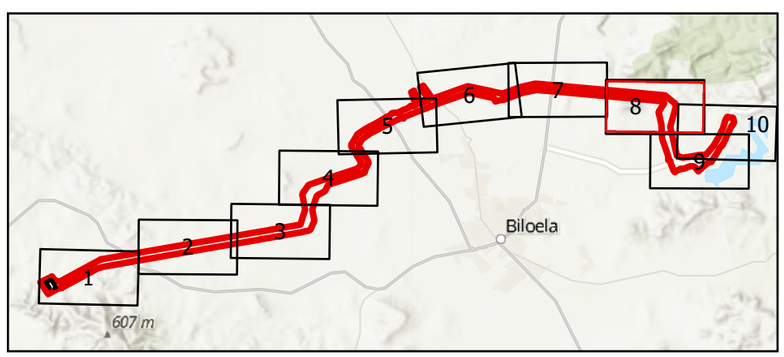
Habitat Survey AUs

- AU01
- AU06
- non-rem

Habitat & Vegetation Assessment sites

Type

- Active searches
- Bird survey
- Fauna habitat assessment
- General vegetation assessment
- TEC Verification
- Microhabitat Assessments
- Timed meander tracks



BANANA RANGE WIND FARM CONNECTION PROJECT

Trend Environmental Consultants

Map 5 - Survey effort and Assessment Units

N

0 160 320 640
Metres

Prepared: MG Checked: EK

Date: 18 Sep 2025

Source: © The State of Queensland (Department of Resources) 2022
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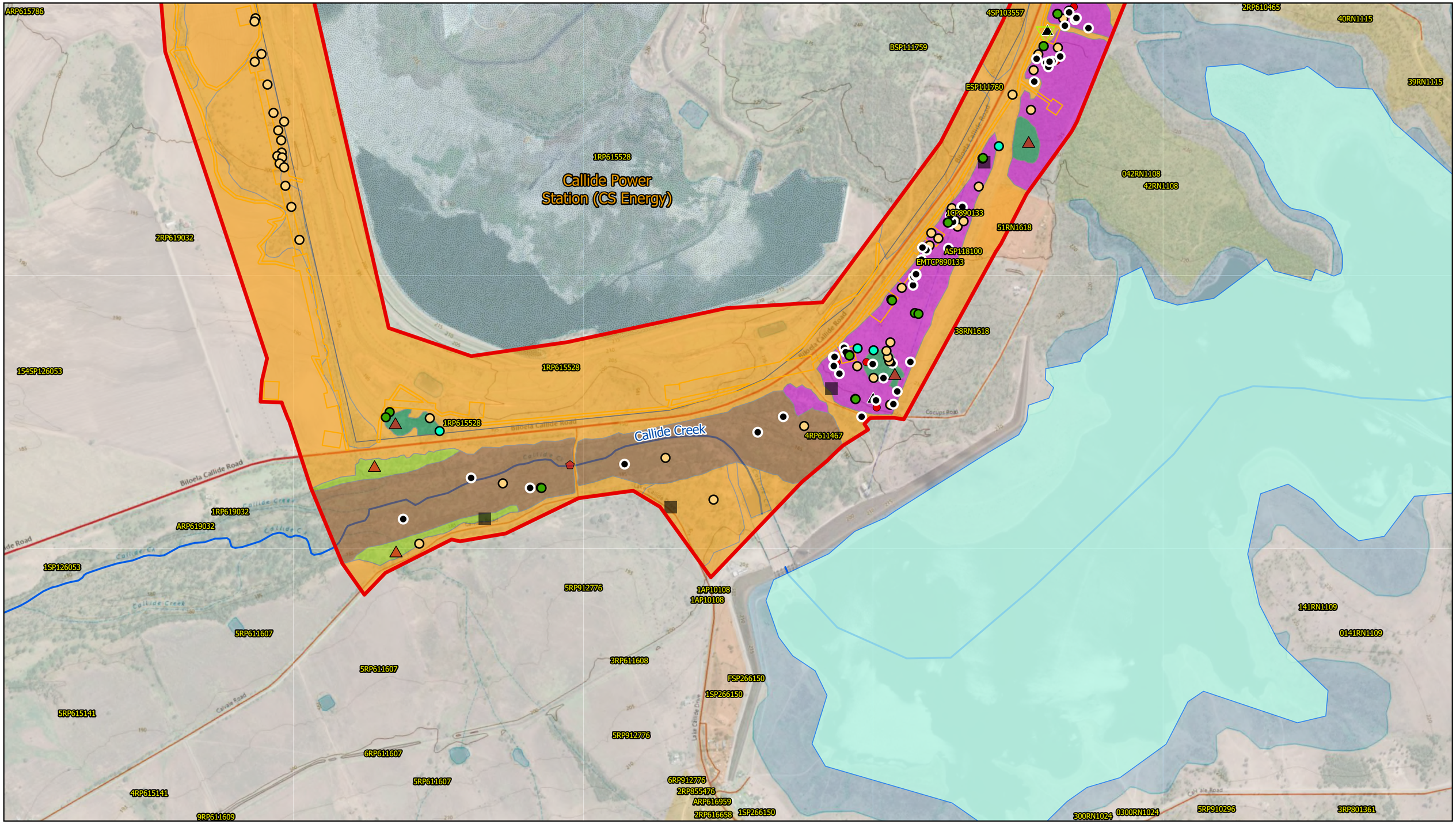
Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:12,000



Legend

- Disturbance Footprint
- Project area

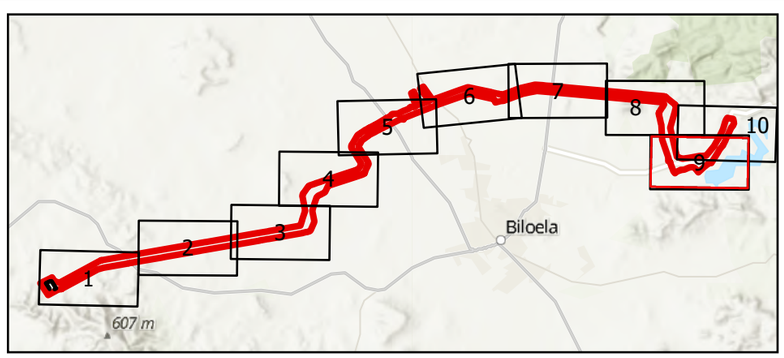
Habitat Survey AUs

- AU01
- AU02
- AU05
- AU06
- non-rem

Habitat & Vegetation Assessment sites

Type

- Anabat device
- Active searches
- Bird survey
- Fauna habitat assessment
- General vegetation assessment
- Turtle habitat evaluation
- Infared Camera
- Spotlighting
- TEC Verification
- Microhabitat Assessments
- Timed meander tracks



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 5 - Survey effort and Assessment Units

N

0 160 320 640

Metres

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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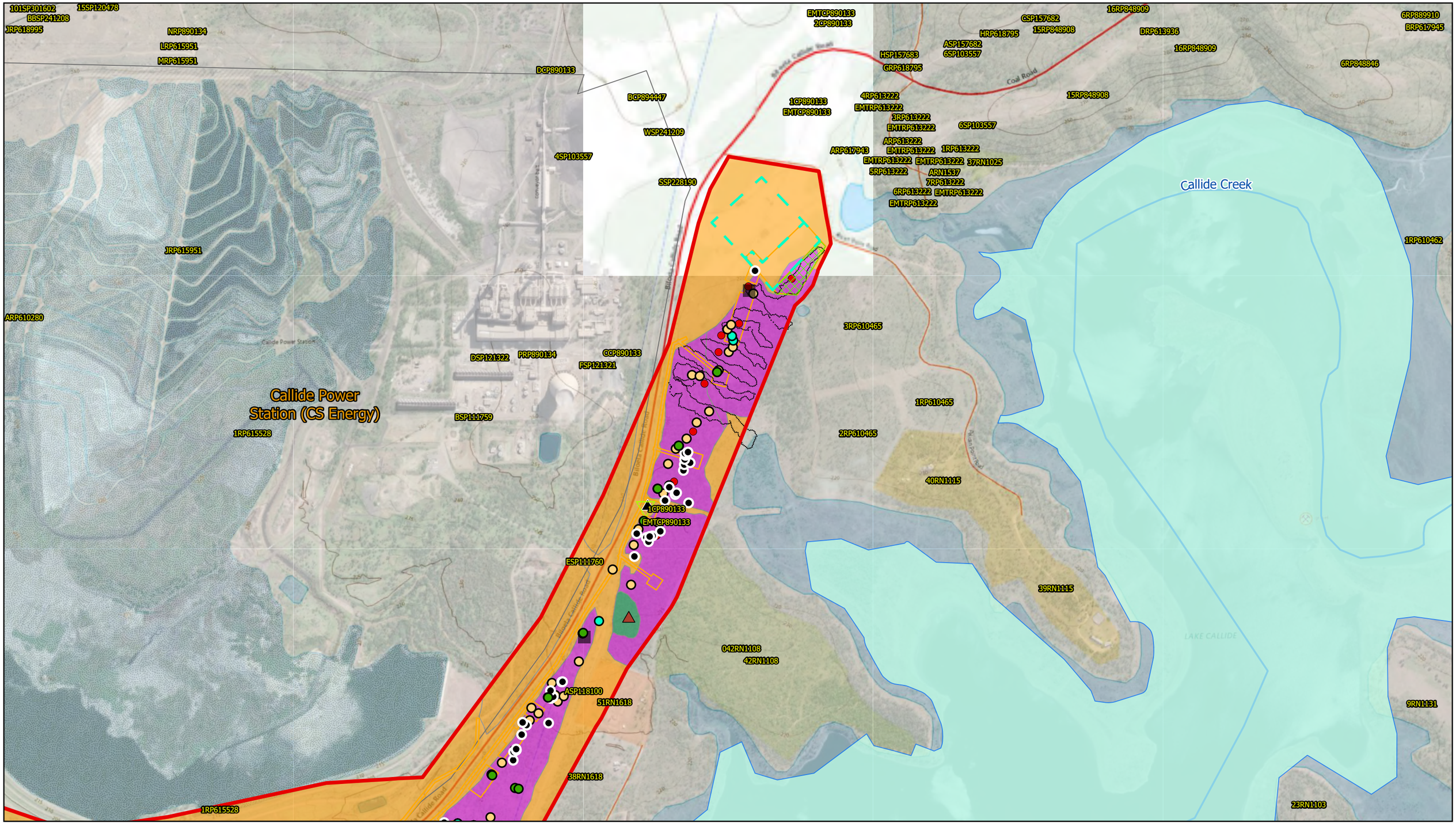


Legend

- Disturbance Footprint
- Project area
- Helipad Area
- Callide substation Expansion

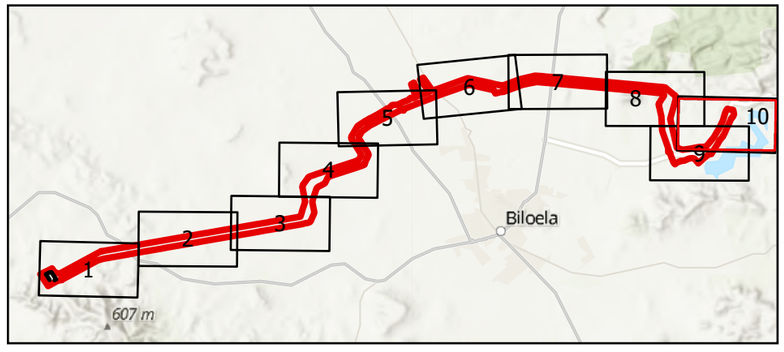
Habitat Survey AUs

- AU01
- AU02
- non-rem

Habitat & Vegetation Assessment sites

Type

- Anabat device
- Active searches
- Bird survey
- Fauna habitat assessment
- General vegetation assessment
- Infared Camera
- Spotlighting
- TEC Verification
- Microhabitat Assessments
- Timed meander tracks



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 5 - Survey effort and Assessment Units

N

0 310 620
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

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Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:12,000

MAP 6

Regulated Vegetation Mapping (Desktop)

Dawson Highway

Dawson Highway

Dawson Highway

Orange Creek

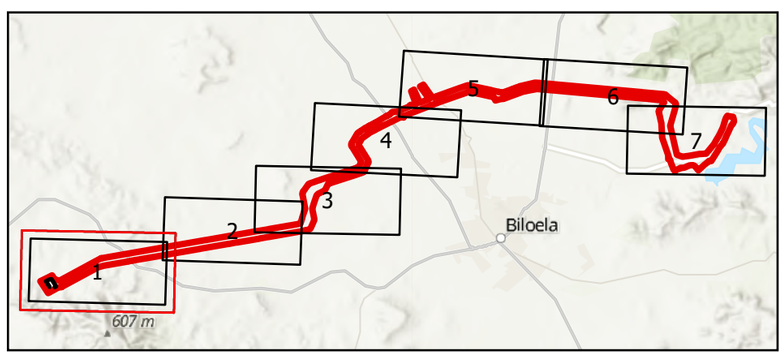
Legend

- Disturbance Footprint
- Project area
- BRWF Substation

Regulated vegetation management map

RVM Category

- C
- R



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 6 - Regulated Vegetation Management Map

N

0 487.5 975

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

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Scale: 1:19,000

Orange Creek Road

Orange Creek School Bus Road

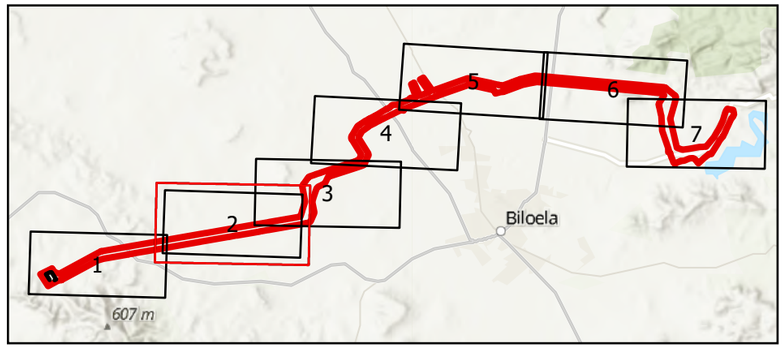
Legend

- Disturbance Footprint
- Project area

Regulated vegetation management map

RVM Category

- R



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 6 - Regulated Vegetation Management Map

N

0 487.5 975

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:19,000

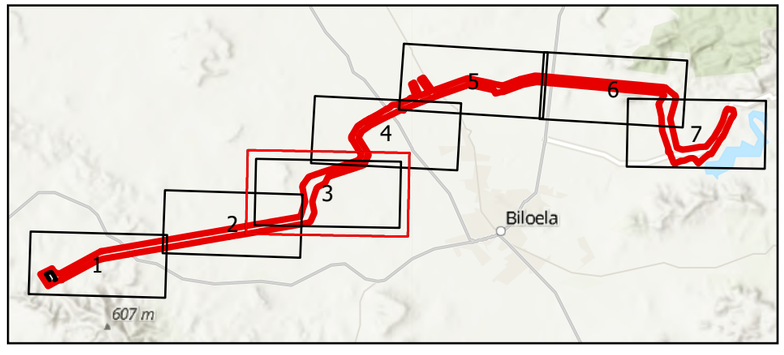
Legend

- Disturbance Footprint
- Project area

Regulated vegetation management map

RVM Category

- B
- C
- R



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 6 - Regulated Vegetation Management Map

N

0 500 1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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Date: 01 Sep 2025

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Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:20,000

Kroombit Creek

Callide Creek

Burnett Highway

Harchs Road

Prospect Creek Goovigen Road

Jambin Dakenba Road

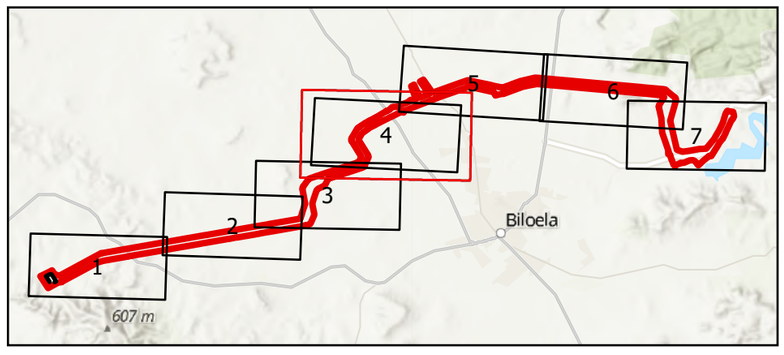
Legend

- Disturbance Footprint
- Project area

Regulated vegetation management map

RVM Category

- B
- C
- R



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 6 - Regulated Vegetation Management Map

N

0 500 1,000

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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Scale: 1:21,000

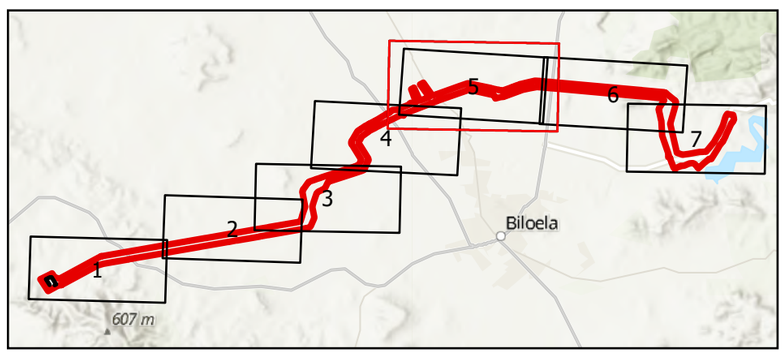
Legend

- Disturbance Footprint
- Project area

Regulated vegetation management map

RVM Category

- B
- C
- R



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 6 - Regulated Vegetation Management Map

N

0 500 1,000

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 01 Sep 2025

Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:21,000

Dawson Highway

Shorts Road

Callide Power Station (CS Energy)

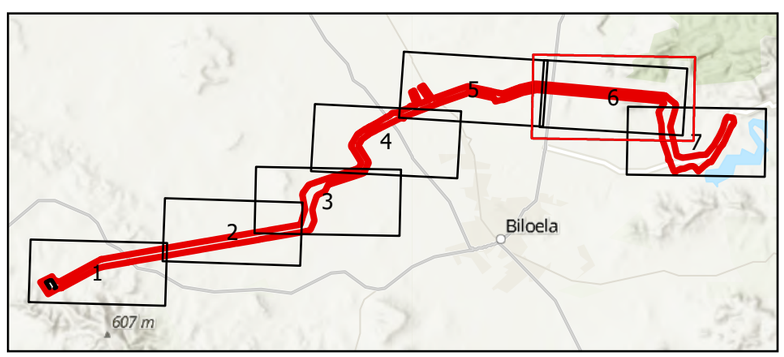
Legend

- Disturbance Footprint
- Project area

Regulated vegetation management map

RVM Category

- B
- C
- R



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 6 - Regulated Vegetation Management Map

N

0 500 1,000

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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Scale: 1:20,000

Callide Power Station (CS Energy)

Callide Power Station

Shorts Road

Biloela Callide Road

Callide Creek

Coal Road

LAKE CALLIDE

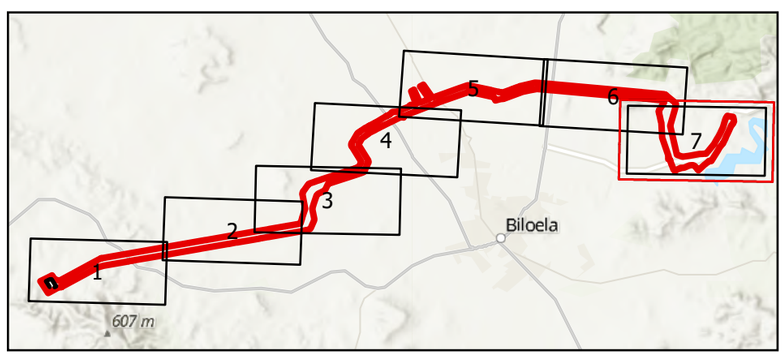
Legend

- Disturbance Footprint
- Project area
- Helipad Area
- Callide substation Expansion
- Lake Callide

Regulated vegetation management map

RVM Category

- B
- C
- R
- Water



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 6 - Regulated Vegetation Management Map

N

0 487.5 975

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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Scale: 1:19,000

MAP 7

Vegetation Management Supporting Map (Desktop)

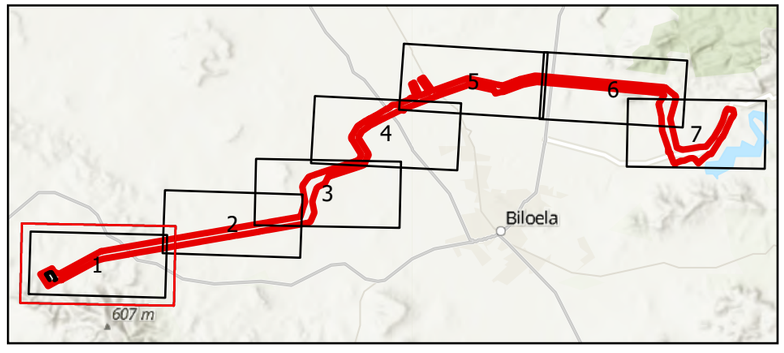
11.12.2/11.12.1
11.12.2/11.12.1
11.12.2/11.12.1
11.12.2/11.12.1
11.12.21
11.12.21
11.12.21
11.12.2/11.12.1
11.12.21
11.3.1
11.3.1
11.12.21
11.3.1
11.12.21
non-rem
11.3.1
11.12.1
11.12.1
11.12.21
11.12.1
11.12.21
11.12.1
11.12.1
11.12.1
Dawson Highway
Dawson Highway
Dawson Highway
Orange Creek

Legend

- Disturbance Footprint
- Project area
- BRWF Substation
- MSES Regulated vegetation intersecting a watercourse

Vegetation management regional ecosystem map

- Category C or R containing endangered
- Category C or R that is of least concern



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 7 - Vegetation Management Support Map

N

0 487.5 975
Metres

Trend Environmental Consultants

ABN 43 622 414 046
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Scale: 1:19,000

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11.9.1/11.9.5/11.7.1/11.9.4a
non-rem
non-rem
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11.3.1/11.3.11
11.3.1/11.3.11
11.3.1/11.3.11
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11.3.1/11.3.11
11.3.4/11.3.2
non-rem
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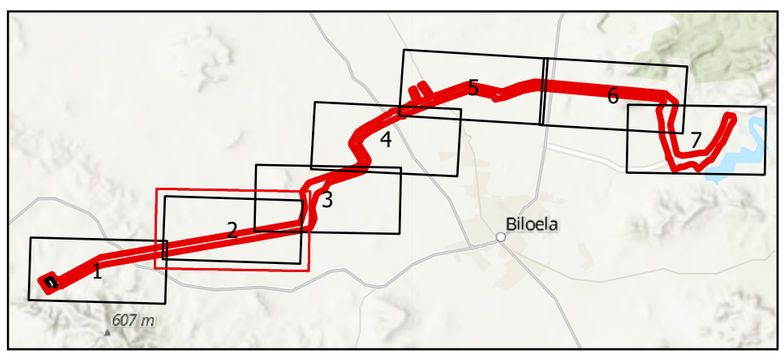
11.3.4/11.3.2
11.3.1/11.3.11
11.3.1/11.3.11
11.3.1/11.3.11
11.3.1/11.3.11
11.3.1/11.3.11
11.3.1/11.3.11
11.3.1/11.3.11
Orange Creek Road
Orange Creek Road
Orange Creek School Bus Road
Orange Creek School Bus Road

Legend

- Disturbance Footprint
- Project area
- MSES Regulated vegetation intersecting a watercourse

Vegetation management regional ecosystem map

- Category C or R containing endangered
- Category C or R containing of concern



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 7 - Vegetation Management Support Map

N

0 487.5 975
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 01 Sep 2025

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Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:19,000

11.9.4a
11.9.4a
11.9.4a
11.3.1/11.3.11
11.7.1/11.7.2
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11.9.1/11.9.5/11.7.1/11.9.4a
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11.3.4/11.3.2
11.3.25/11.3.4
11.3.4/11.3.25/11.3.2
11.3.4/11.3.25/11.3.2
11.3.2/11.3.4
11.3.4/11.3.25/11.3.2
Orange Creek Road
Orange Creek Road
Orange Creek Road
Zischkes Lane
Zischkes Lane
Prospect Creek Goovigen Road
Prospect Creek Goovigen Road
Prospect Creek Goovigen Road
Prospect Creek
Kroombit Creek
Grevillea Creek
Biloela
607 m

Legend

- Disturbance Footprint
- Project area
- MSES Regulated vegetation intersecting a watercourse

Vegetation management regional ecosystem map

- Category A or B containing endangered
- Category A or B containing of concern
- Category A or B that is of least concern
- Category C or R containing endangered
- Category C or R containing of concern

BANANA RANGE WIND FARM CONNECTION PROJECT

Map 7 - Vegetation Management Support Map

N

0 500 1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 01 Sep 2025

Source: © The State of Queensland (Department of Resources) 2022
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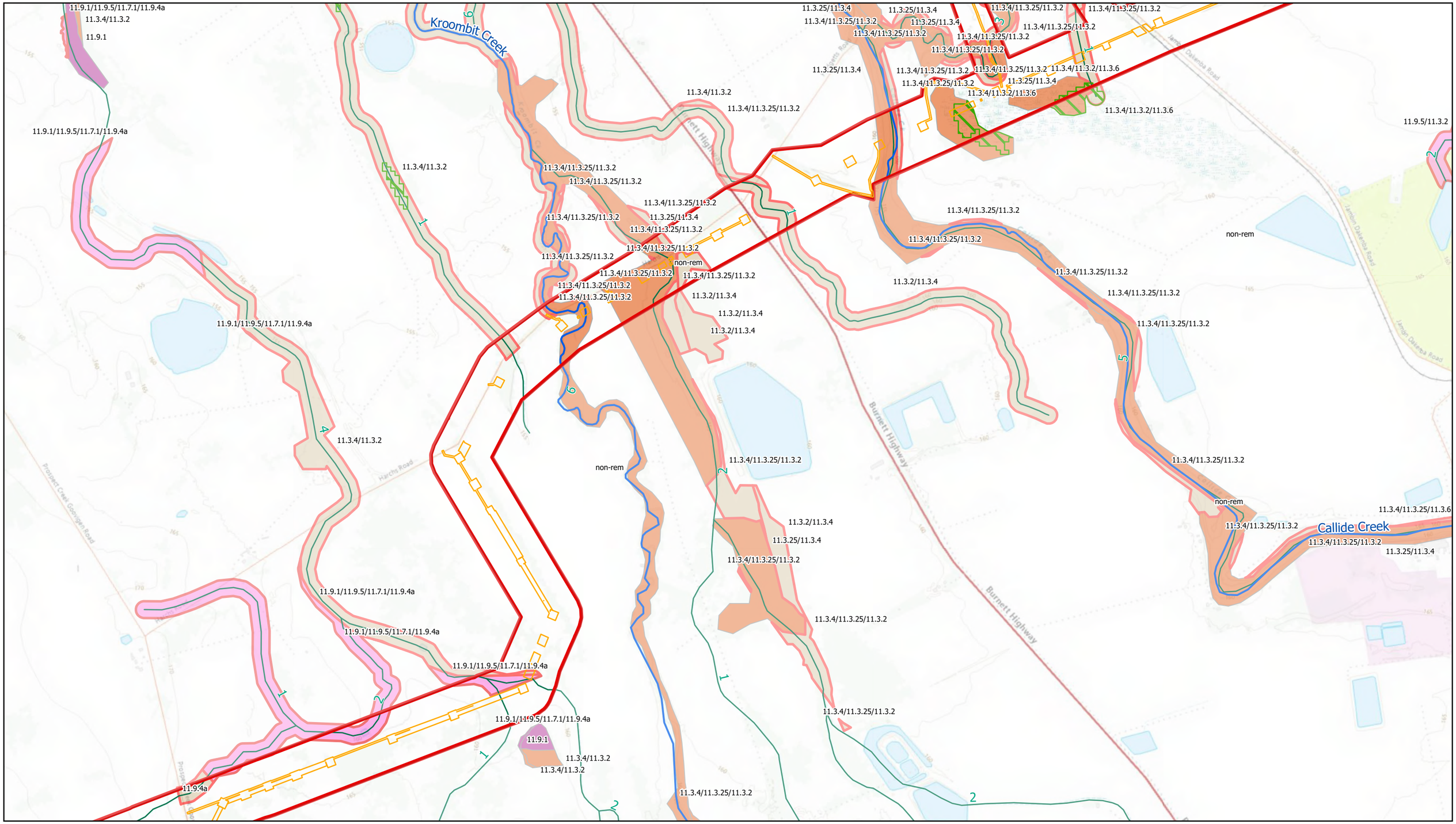
Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:20,000

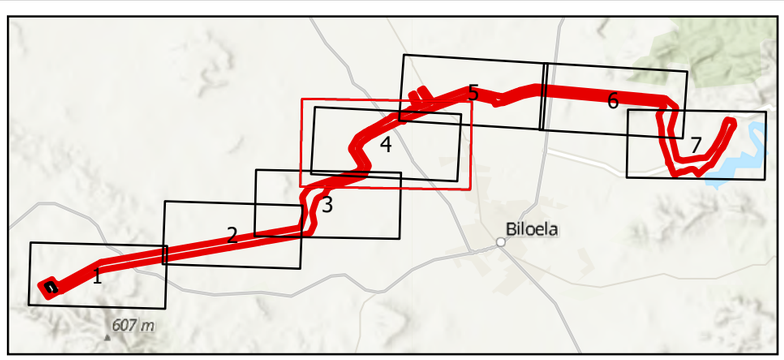


Legend

- Disturbance Footprint
- Project area
- Vegetation management wetlands map
- MSES Regulated vegetation intersecting a watercourse

Vegetation management regional ecosystem map

- Category A or B containing endangered
- Category A or B containing of concern
- Category C or R containing endangered
- Category C or R containing of concern



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 7 - Vegetation Management Support Map

N

0 500 1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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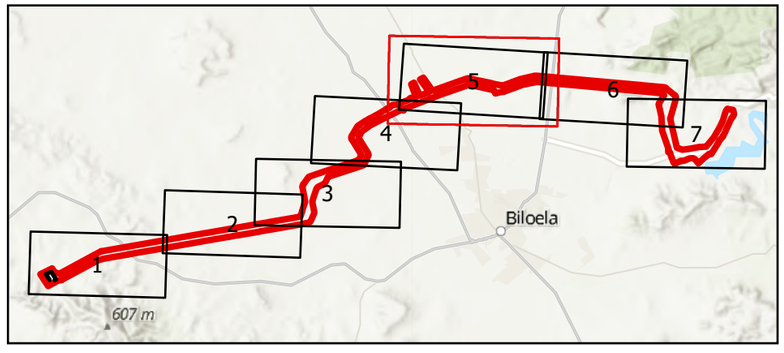
Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:21,000

Legend

- Disturbance Footprint
- Project area
- Vegetation management wetlands map
- MSES Regulated vegetation intersecting a watercourse

Vegetation management regional ecosystem map

- Category A or B containing of concern
- Category C or R containing endangered
- Category C or R containing of concern



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 7 - Vegetation Management Support Map

N

0 500 1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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Scale: 1:21,000

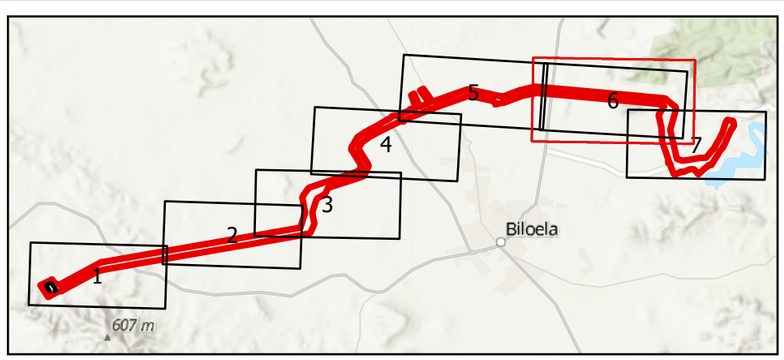
non-rem
11.3.4/11.3.25/11.3.6
11.9.5/11.3.2
11.9.1/11.9.5
11.8.3/11.8.4
11.8.4
11.10.13/11.10.1
11.10.7/11.10.1
11.8.3/11.9.5
Dawson Highway
Shorts Road
water

Legend

- Disturbance Footprint
- Project area
- Essential habitat
- MSES Regulated vegetation intersecting a watercourse

Vegetation management regional ecosystem map

- Category A or B containing endangered
- Category A or B containing of concern
- Category A or B that is of least concern
- Category C or R containing endangered
- Category C or R containing of concern
- Category C or R that is of least concern
- Water



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 7 - Vegetation Management Support Map

N
0
500
1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
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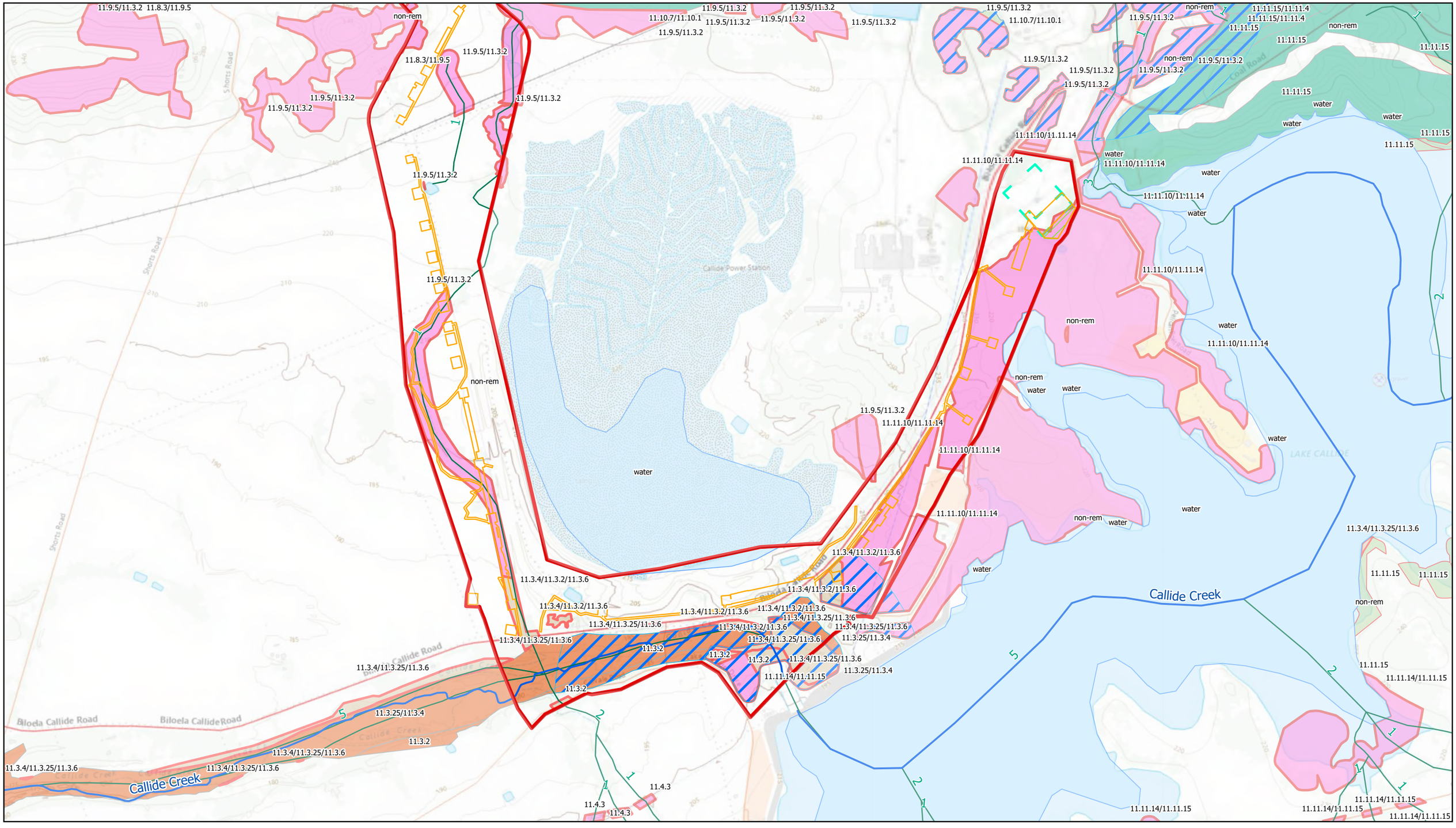
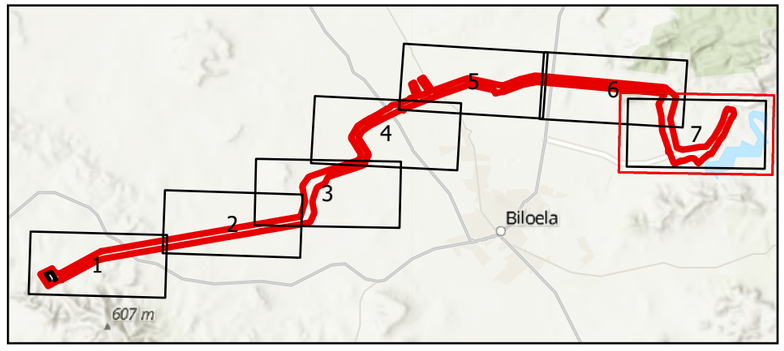


Legend

- Disturbance Footprint
- Project area
- Callide substation Expansion
- Helipad Area
- Essential habitat
- MSES Regulated vegetation intersecting a watercourse

Vegetation management regional ecosystem map

- Category A or B containing of concern
- Category A or B that is of least concern
- Category C or R containing endangered
- Category C or R containing of concern
- Category C or R that is of least concern
- Water



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 7 - Vegetation Management Support Map

N

0 487.5 975

Metres

Trend Environmental Consultants

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94 Kennedy Esplanade South Mission Beach, QLD 4852

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Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:19,000

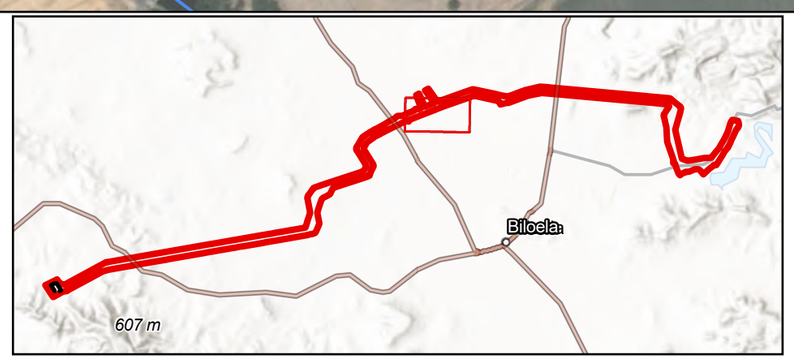
MAP 8

High Ecologically Significant (HES) Wetlands and Wetland Protection Areas (Desktop and Field-verified)

Callide Creek

Legend

- Disturbance Footprint
- Project area
- MSES High Ecological Significance Wetlands
- Wetland Protection Trigger Area



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 8 - High Ecological Significance Wetland & Wetland Protection Area

N

0 205 410
Metres

Trend Environmental Consultants

ABN 43 622 414 046
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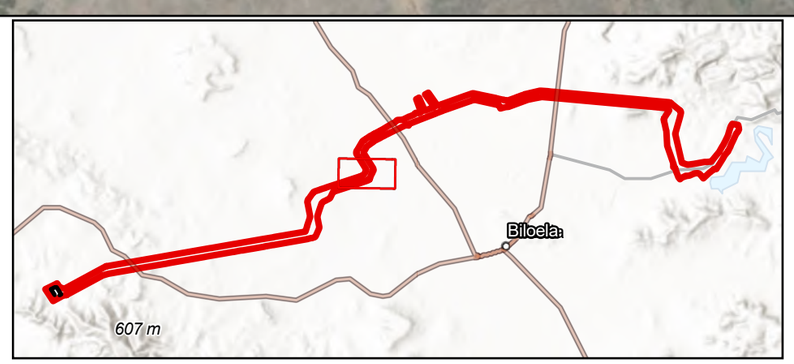
Scale: 1:8,000

Legend

- Disturbance Footprint
- Project area
- Potential MSES HES Wetland
- Wetland Protection Area



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 8 - High Ecological Significance Wetland & Wetland Protection Area

N

0 180 360
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:7,000

MAP 9

Waterway Barrier Works and Protected Flora Survey Trigger Mapping (Desktop)

Dawson Highway

Dawson Highway

Dawson Highway

Orange Creek

Orange Creek

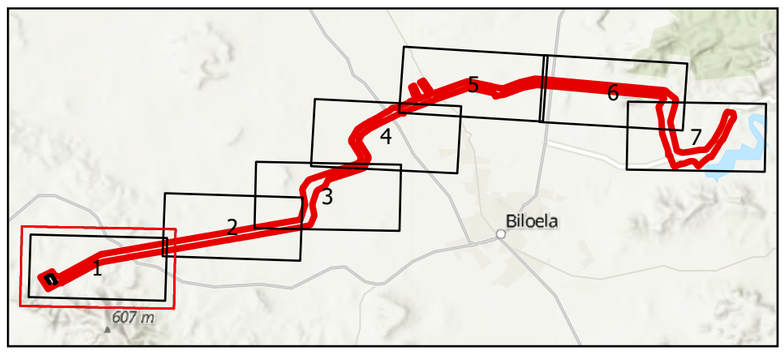
Legend

- Disturbance Footprint
- Project area
- BRWF Substation

QLD WWBWs

Category

- 1 - Low
- 2 - Moderate
- 3 - High



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 9 - Waterway Barrier Works and Protected Flora Survey Trigger Map

N

0 487.5 975

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:19,000

Orange Creek Road

Orange Creek School Bus Road

Orange Creek School Bus Road

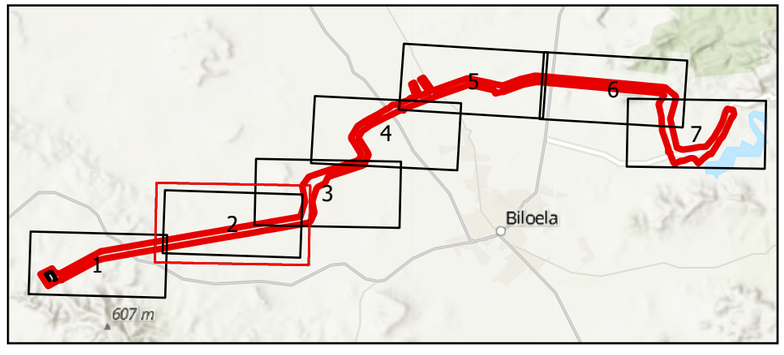
Legend

- Disturbance Footprint
- Project area

QLD WWBWs

Category

- 1 - Low
- 2 - Moderate
- 3 - High



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 9 - Waterway Barrier Works and Protected Flora Survey Trigger Map

N

0 487.5 975

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 01 Sep 2025

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:19,000

Orange Creek Road
Orange Creek Road
Orange Creek Road
Zischkes Lane
Prospect Creek Goovigen Road
Prospect Creek Goovigen Road
Harchs Road
Kroombit Creek
Grevillea Creek
Bowketts Lane

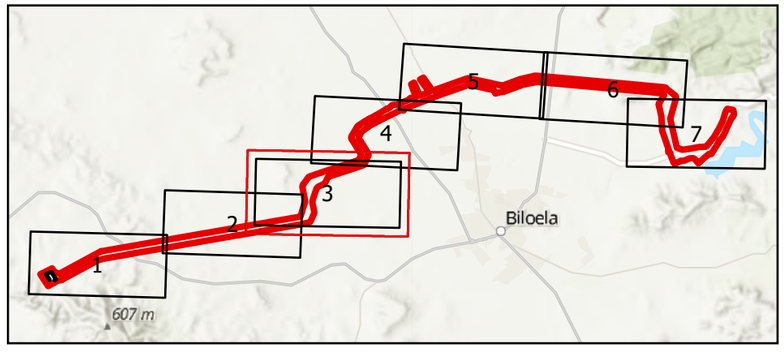
Legend

- Disturbance Footprint
- Project area

QLD WWBWs

Category

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 9 - Waterway Barrier Works and Protected Flora Survey Trigger Map

N

0 500 1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 01 Sep 2025

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:20,000

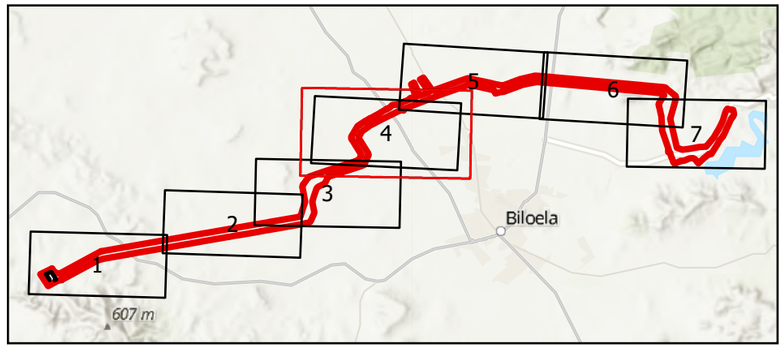
Legend

- Disturbance Footprint
- Project area

QLD WWBWs

Category

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 9 - Waterway Barrier Works and Protected Flora Survey Trigger Map

N

0 500 1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:21,000

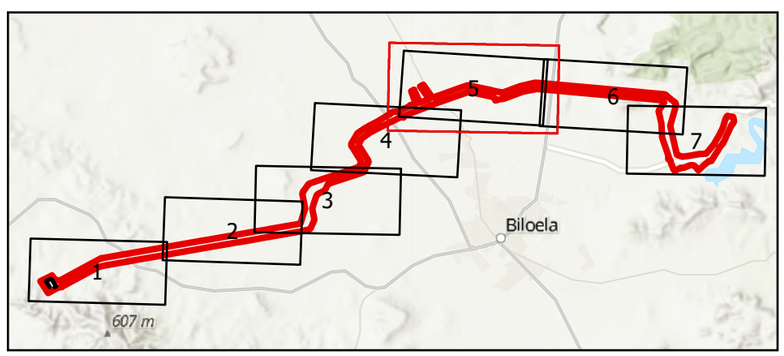
Legend

- Disturbance Footprint
- Project area

QLD WWBWs

Category

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 9 - Waterway Barrier Works and Protected Flora Survey Trigger Map

N

0 500 1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 01 Sep 2025

Source: © The State of Queensland (Department of Resources) 2022
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Scale: 1:21,000

Dawson Highway

Sports Road

Callide Power Station (CS Energy)

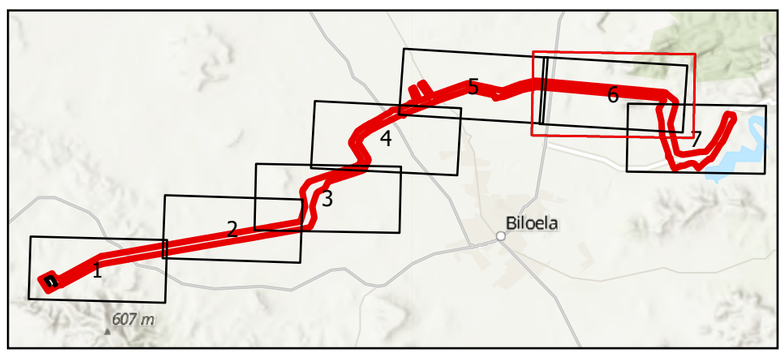
Legend

- Disturbance Footprint
- Project area
- Flora Survey Trigger Map

QLD WWBWs

Category

- 1 - Low
- 2 - Moderate
- 3 - High



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 9 - Waterway Barrier Works and Protected Flora Survey Trigger Map

N

0 500 1,000

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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Date: 01 Sep 2025

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:20,000

Callide Power Station (CS Energy)

Callide Power Station

Shorts Road

Biloela Callide Road

Coal Road

Pelham Park Road

Callide Creek

Calvale Road

Lake Callide Drive

Callide Ck

Callide Creek

Biloela Callide Road

Biloela Callide Road

Callide Creek

Callide Creek

Callide Creek

Callide Ck

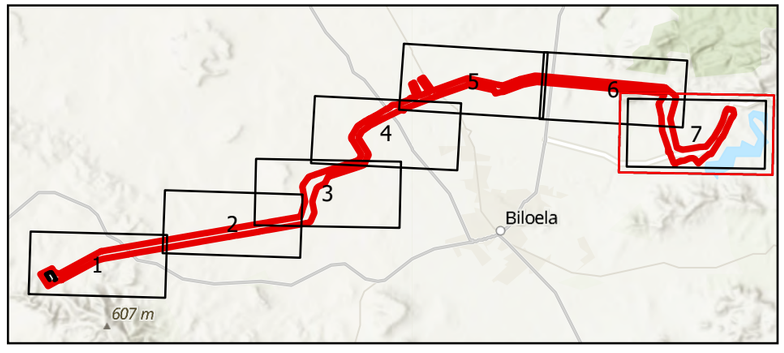
Legend

- Disturbance Footprint
- Project area
- Callide substation Expansion
- Helipad Area
- Lake Callide
- Flora Survey Trigger Map

QLD WWBWs

Category

- 1 - Low
- 2 - Moderate
- 3 - High
- 4 - Major



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 9 - Waterway Barrier Works and Protected Flora Survey Trigger Map

N

0 487.5 975

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 01 Sep 2025

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:19,000

MAP 10

Prescribed Environmental Matters under the Environmental Offsets Act 2014 (Qld) – MSES (Desktop)

Dawson Highway

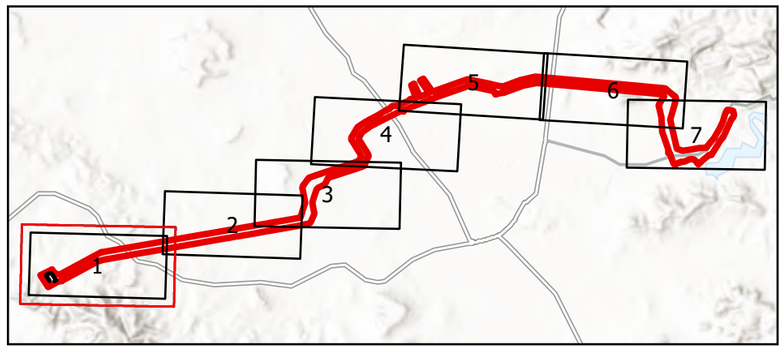
Dawson Highway

Dawson Highway

Orang e Creek

Legend

- Disturbance Footprint
- Project area
- BRWF Substation
- VM Watercourses
- MSES Regulated vegetation - category R GBR riverine



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 10 - Prescribed Environmental Matters - MSES under the Environmental Offsets Act 2014 (QLD)

N

0 487.5 975

Metres

Trend Environmental Consultants

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94 Kennedy Esplanade South Mission Beach, QLD 4852

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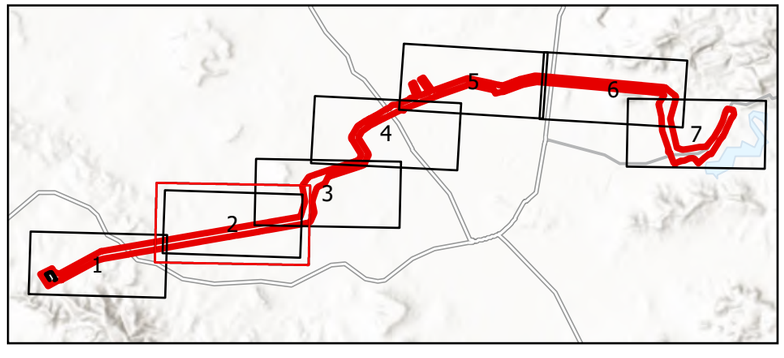
Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:19,000

Orange Creek Road

Orange Creek School Bus Road

Legend

- Disturbance Footprint
- Project area
- VM Watercourses
- MSES Regulated vegetation - category R GBR riverine



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 10 - Prescribed Environmental Matters - MSES under the Environmental Offsets Act 2014 (QLD)

N

0 487.5 975

Metres

Trend Environmental Consultants

© EMILY KRUNES PTY LTD (trading as Trend Environmental)
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94 Kennedy Esplanade South Mission Beach, QLD 4852

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Date: 01 Sep 2025

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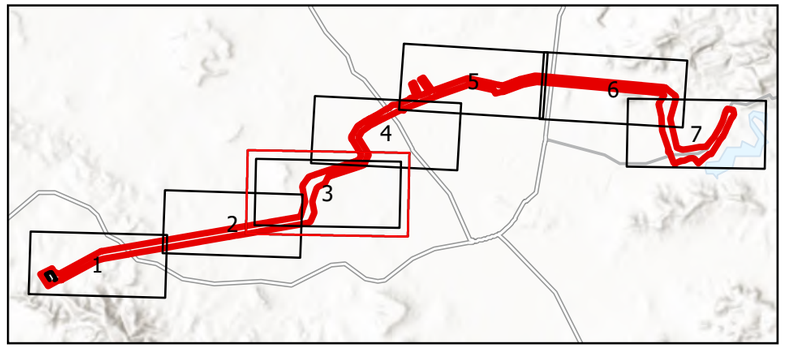
Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:19,000

Legend

- Disturbance Footprint
- Project area
- VM Watercourses
- Potential MSES HES Wetland
- Prescribed REs - MSES Regulated vegetation category B endangered or of concern
- Prescribed REs - MSES Regulated vegetation within a defined distance of watercourse
- MSES Regulated vegetation - category R GBR riverine



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 10 - Prescribed Environmental Matters - MSES under the Environmental Offsets Act 2014 (QLD)

N

0 500 1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

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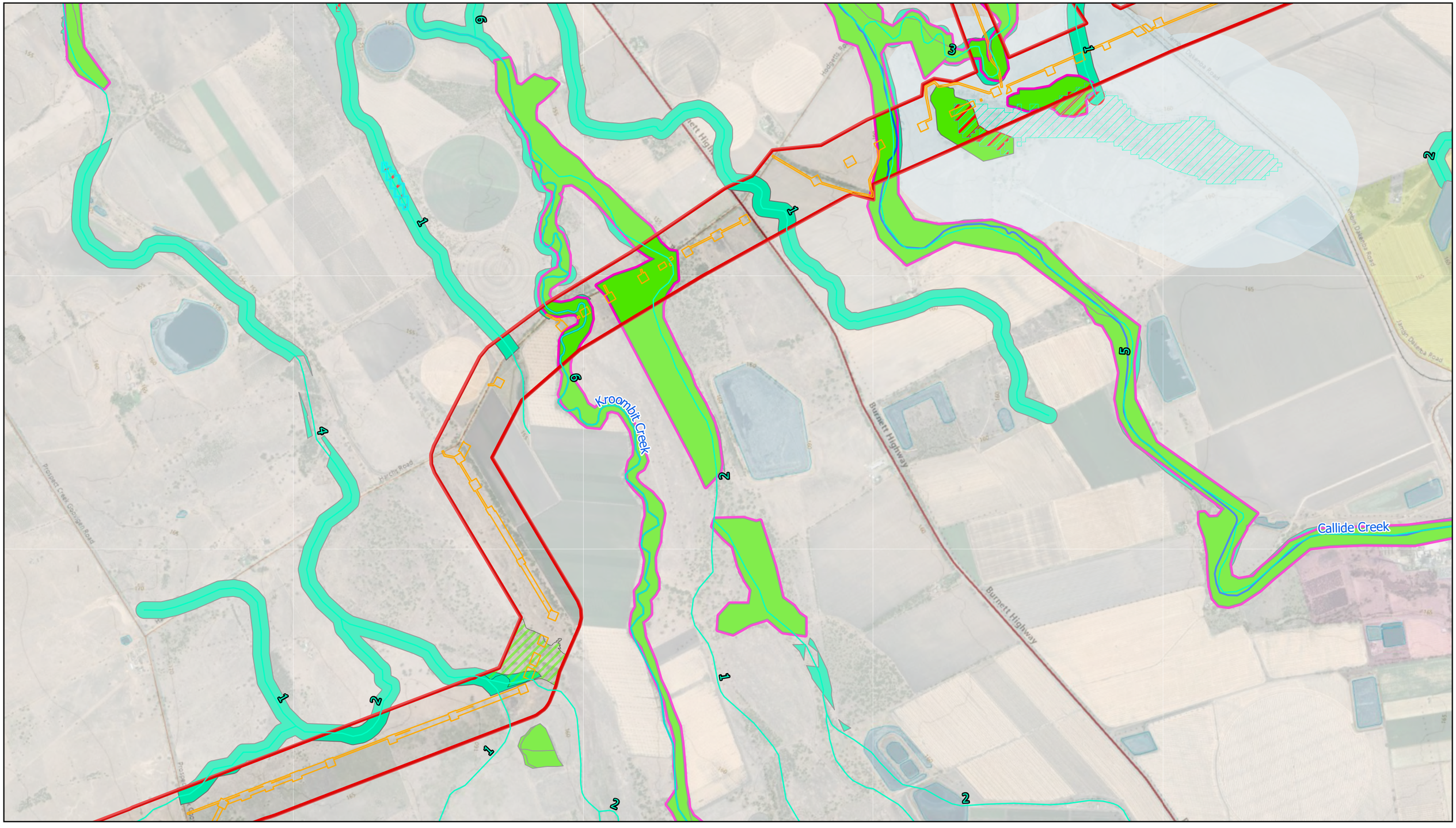
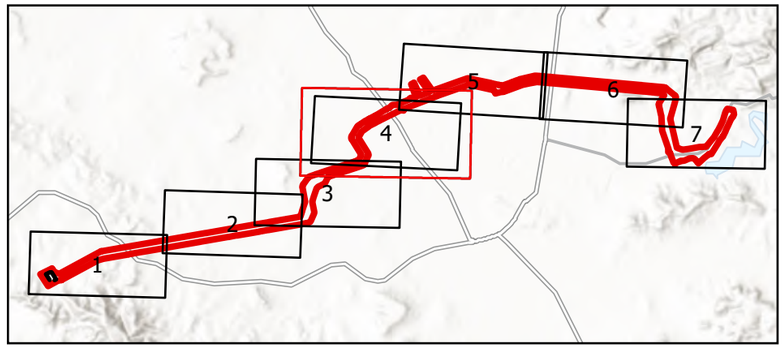
Scale: 1:20,000



Legend

- Disturbance Footprint
- Project area
- VM Watercourses
- Potential MSES HES Wetland
- Wetland Protection Trigger Area
- Prescribed REs - MSES Regulated vegetation category B endangered or of concern
- Prescribed REs - MSES Regulated vegetation within a defined distance of watercourse
- MSES Regulated vegetation - category R GBR riverine
- Prescribed REs - MSES Regulated vegetation that intersect with a wetland



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 10 - Prescribed Environmental Matters - MSES under the Environmental Offsets Act 2014 (QLD)

N

0 500 1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 01 Sep 2025

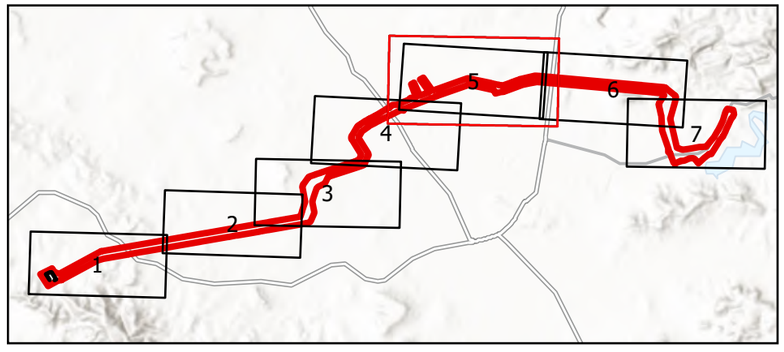
Source: © The State of Queensland (Department of Resources) 2022
Imagery Copyright and Imagery Date

Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:21,000

Grevells Road
Hodgetts Road
Jindin Daleska Road
Callide Creek
Dawson Highway
Dudleys Road

Legend

- Disturbance Footprint
- Project area
- VM Watercourses
- Wetland Protection Trigger Area
- Prescribed REs - MSES Regulated vegetation category B endangered or of concern
- Prescribed REs - MSES Regulated vegetation within a defined distance of watercourse
- MSES Regulated vegetation - category R GBR riverine
- Prescribed REs - MSES Regulated vegetation that intersect with a wetland



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 10 - Prescribed Environmental Matters - MSES under the Environmental Offsets Act 2014 (QLD)

N

0 500 1,000
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 01 Sep 2025

Source: © The State of Queensland (Department of Resources) 2022
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Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:21,000

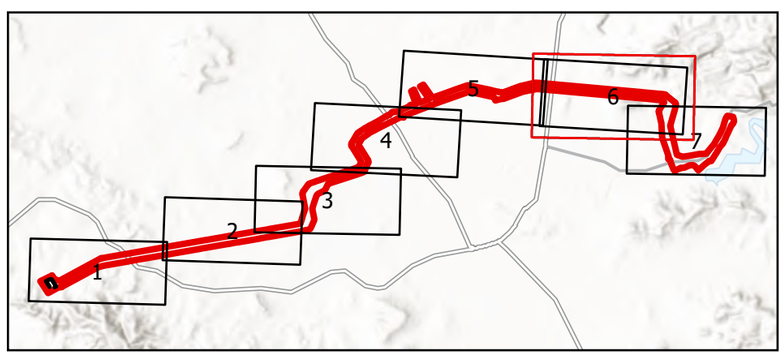
Dawson Highway

Sports Road

Callide Power Station (CS Energy)

Legend

- Disturbance Footprint
- Project area
- VM Watercourses
- MSES wildlife habitat special least concern animal
- MSES wildlife habitat endangered or vulnerable wildlife
- Prescribed REs - MSES Regulated vegetation category B endangered or of concern
- Prescribed REs - MSES Regulated vegetation - Essential habitat
- Prescribed REs - MSES Regulated vegetation within a defined distance of watercourse
- MSES Regulated vegetation - category R GBR riverine



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 10 - Prescribed Environmental Matters - MSES under the Environmental Offsets Act 2014 (QLD)

N

0 500 1,000
Metres

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ABN 43 622 414 046
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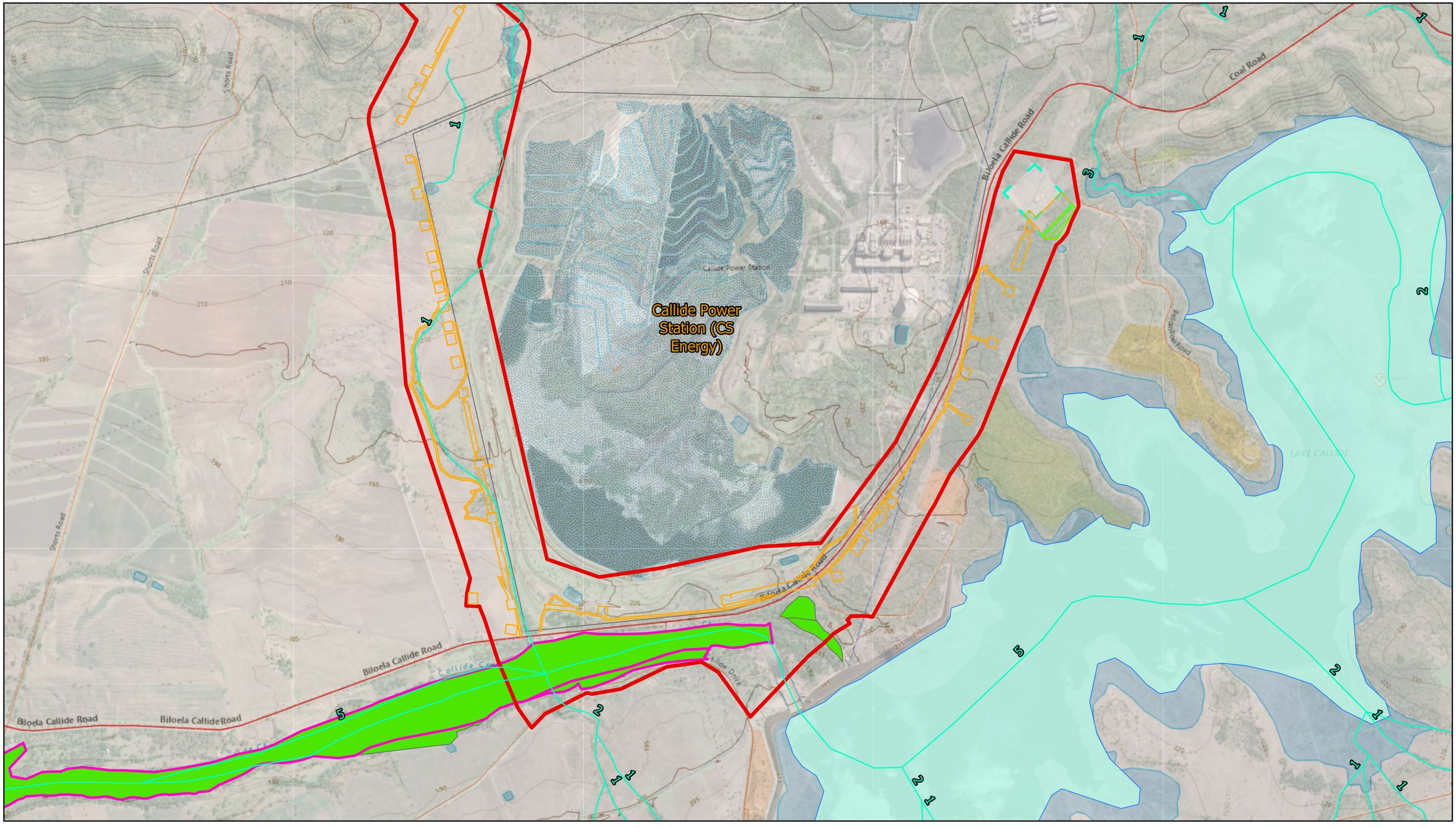
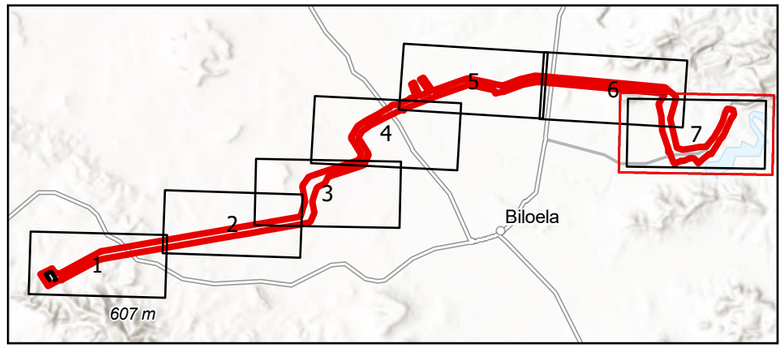
Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:20,000



Legend

- Disturbance Footprint
- Project area
- Callide substation Expansion
- Helipad Area
- Lake Callide
- VM Watercourses
- Prescribed REs - MSES Regulated vegetation category B endangered or of concern
- Prescribed REs - MSES Regulated vegetation within a defined distance of watercourse



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 10 - Prescribed Environmental Matters - MSES under the Environmental Offsets Act 2014 (QLD)

N

0 487.5 975
Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG Checked: EK

Date: 03 Sep 2025

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Scale: 1:19,000

MAP 11

Biodiversity Planning Assessment (Terrestrial; Desktop)

Dawson Highway

Dawson Highway

Dawson Highway

Orange Creek

Orange Creek

Legend

- Disturbance Footprint
- Project area
- BRWF Substation

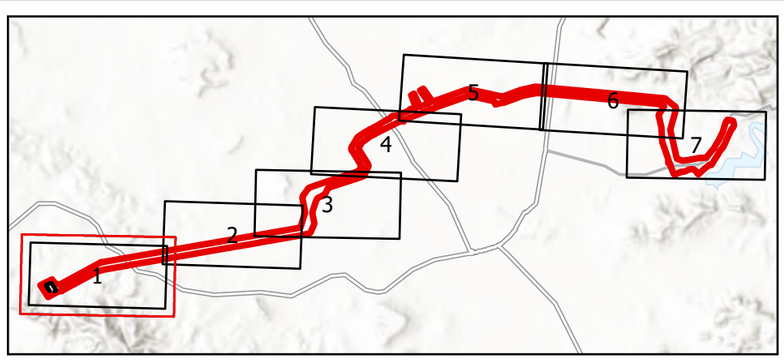
Brigalow Belt Biodiversity Planning Assessment

Biodiversity Significance

- Local or Other Values

Statewide Corridors

- Regional
- State



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 11 - Corridors and Connectivity - Biodiversity Planning Assessment

N

0 487.5 975

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG
Checked: EK

Date: 01 Sep 2025
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Scale: 1:19,000

Orange Creek Road

Orange Creek School Bus Road

Orange Creek Road

Orange Creek School Bus Road

Orange Creek School Bus Road

Orange Creek Road

Legend

Disturbance Footprint

Project area

Brigalow Belt Biodiversity Planning Assessment

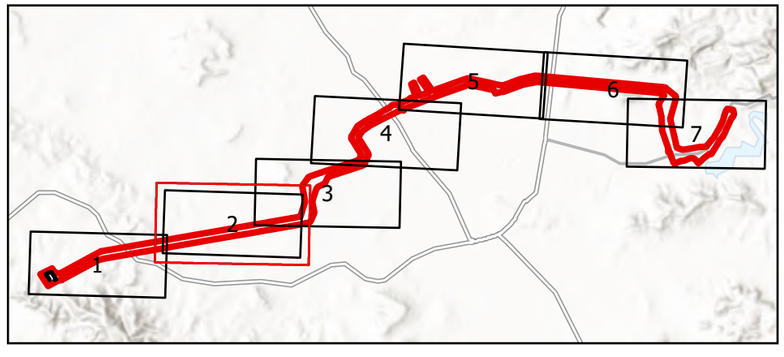
Biodiversity Significance

Local or Other Values

Statewide Corridors

Regional

State



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 11 - Corridors and Connectivity - Biodiversity Planning Assessment

N

0 487.5 975

Metres

Trend Environmental Consultants

ABN 43 622 414 046
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Date: 01 Sep 2025

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Scale: 1:19,000

Harchi Road

Orange Creek Road

Orange Creek Road

Orange Creek Road

Prospect Creek Goovigen Road

Prospect Creek Goovigen Road

Zischkes Lane

Zischkes Lane

Bowketts Lane

Grevillea Creek

Kroombit Creek

Legend

- Disturbance Footprint
- Project area

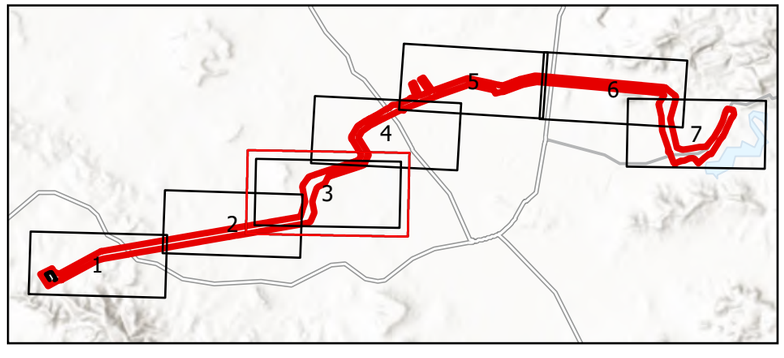
Brigalow Belt Biodiversity Planning Assessment

Biodiversity Significance

- State
- Regional
- Local or Other Values

Statewide Corridors

- Regional
- State



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 11 - Corridors and Connectivity - Biodiversity Planning Assessment

N

0 500 1,000

Metres

Trend Environmental Consultants

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94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG
Checked: EK

Date: 01 Sep 2025

Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:20,000

Kroombit Creek
Burnett Highway
Callide Creek
Harchi Road
Prospect Creek Goovigen Road
James Dakenba Road

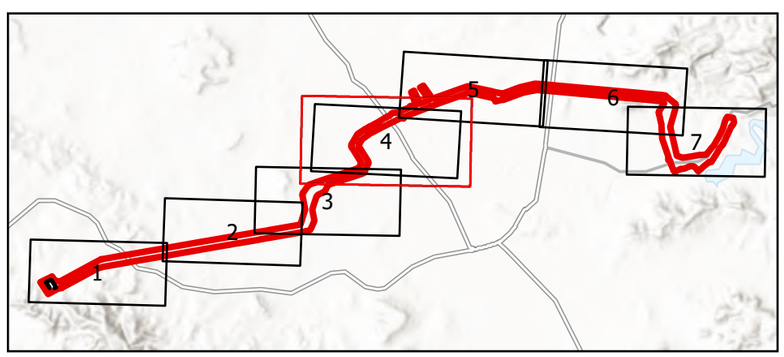
Legend

- Disturbance Footprint
- Project area

Brigalow Belt Biodiversity Planning Assessment

Biodiversity Significance
- State
- Regional
- Local or Other Values

Statewide Corridors
- Regional
- State



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 11 - Corridors and Connectivity - Biodiversity Planning Assessment

N

0 500 1,000
Metres

Trend Environmental Consultants

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Scale: 1:21,000

Oaky Creek
Grevells Road
Dulcinea Road
Dawson Highway
Jambin-Dakenba Road
Hodgetts Road
Callide Creek

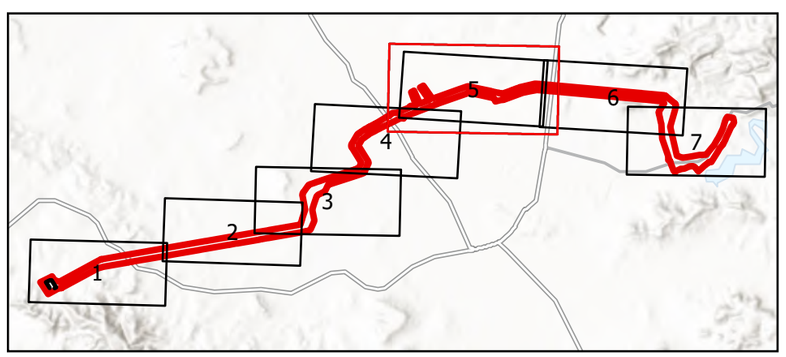
Legend

- Disturbance Footprint
- Project area

Brigalow Belt Biodiversity Planning Assessment

Biodiversity Significance
- State
- Regional

Statewide Corridors
- Regional
- State



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 11 - Corridors and Connectivity - Biodiversity Planning Assessment

N

0 500 1,000
Metres

Trend Environmental Consultants

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Scale: 1:21,000

Dawson Highway

Dawson Highway

Sports Road

Callide Power Station (CS Energy)

Legend

- Disturbance Footprint
- Project area

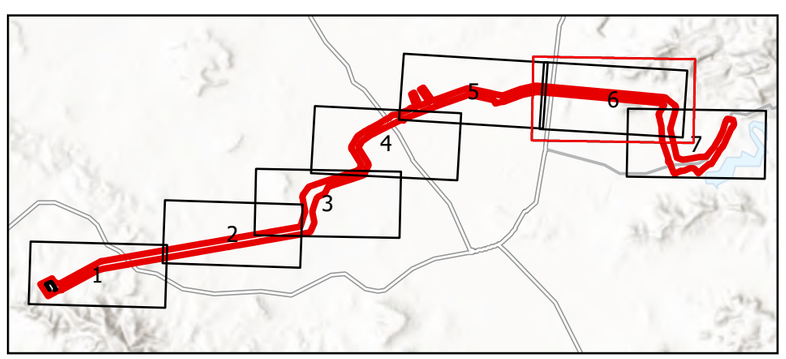
Brigalow Belt Biodiversity Planning Assessment

Biodiversity Significance

- State
- Regional

Statewide Corridors

- Regional
- State



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 11 - Corridors and Connectivity - Biodiversity Planning Assessment

N

0 500 1,000

Metres

Trend Environmental Consultants

ABN 43 622 414 046
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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:20,000

Legend

- Disturbance Footprint
- Project area
- Helipad Area
- Callide substation Expansion
- Lake Callide

Brigalow Belt Biodiversity Planning Assessment

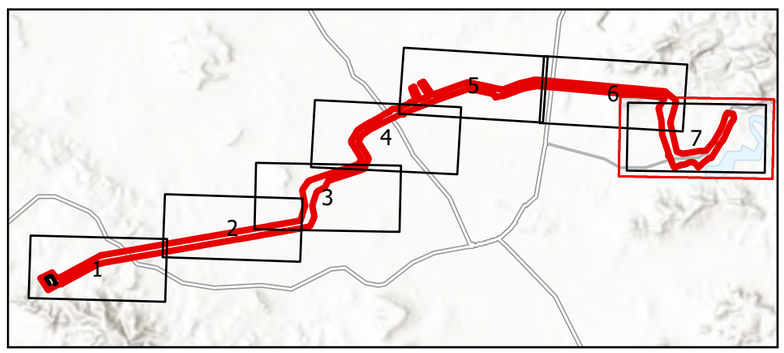
Biodiversity Significance

- State Habitat for EVNT taxa

- State
- Regional
- Local or Other Values

Statewide Corridors

- Regional
- State



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 11 - Corridors and Connectivity - Biodiversity Planning Assessment

N

0 487.5 975

Metres

Trend Environmental Consultants

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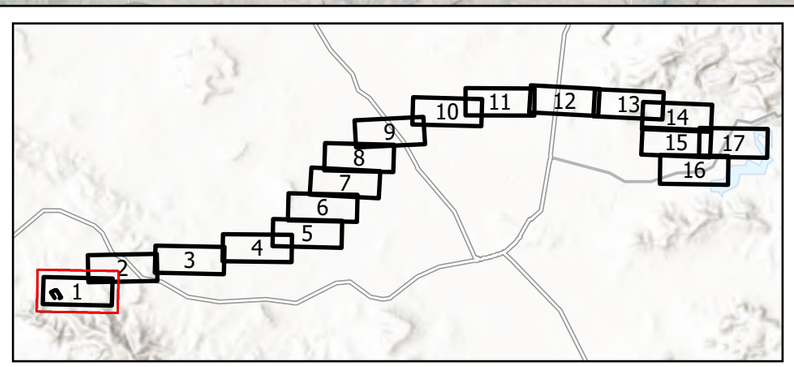
Scale: 1:19,000

MAP 12

Ground-truthed Regional Ecosystems and Threatened Species Records (Field-verified)

Legend

- Disturbance Footprint
- Project area
- BRWF Substation



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

Trend Environmental Consultants

Prepared: MG
Checked: EK

Date: 02 Sep 2025

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:10,000

Dawson Highway

Dawson Highway

Dawson Highway

11.3.1

11.3.1

11.3.1

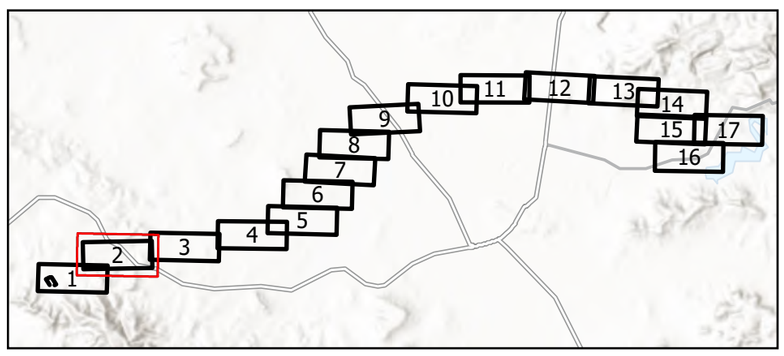
Legend

Disturbance Footprint

Project area

Ground truthed Regional Ecosystems

Category C or R containing endangered



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG
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Date: 02 Sep 2025
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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:10,000

11.3.1

11.3.1

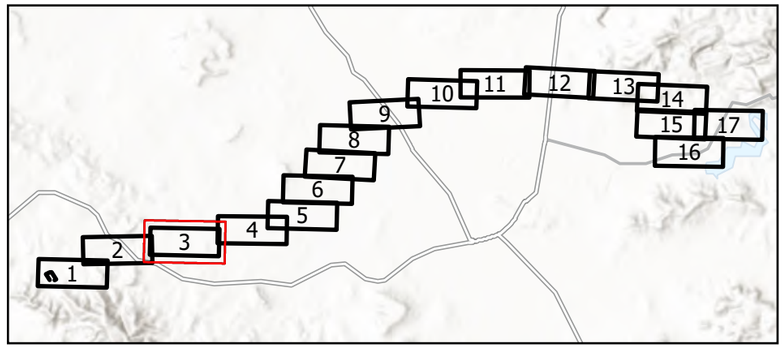
11.3.1

Legend

- Disturbance Footprint
- Project area
- Brigalow (Acacia harpophylla dominant and co-dominant)

Ground truthed Regional Ecosystems

- Category C or R containing endangered



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG
Checked: EK

Date: 02 Sep 2025

Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:10,000

Orange Creek School Bus Road

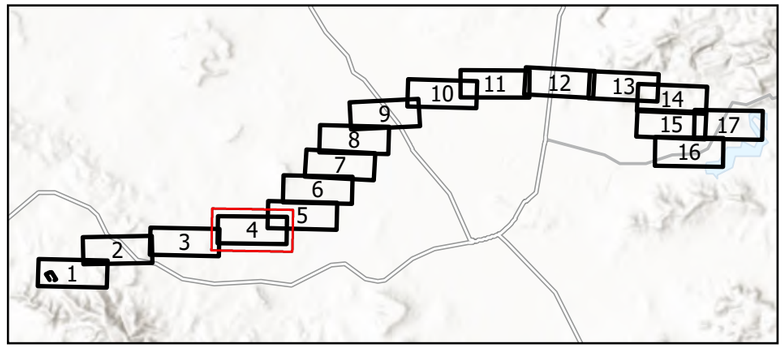
11.3.1

Legend

- Disturbance Footprint
- Project area
- Brigalow (Acacia harpophylla dominant and co-dominant)

Ground truthed Regional Ecosystems

- Category A or B containing endangered
- Category C or R containing endangered



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510
Metres

Trend Environmental Consultants

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Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:10,000

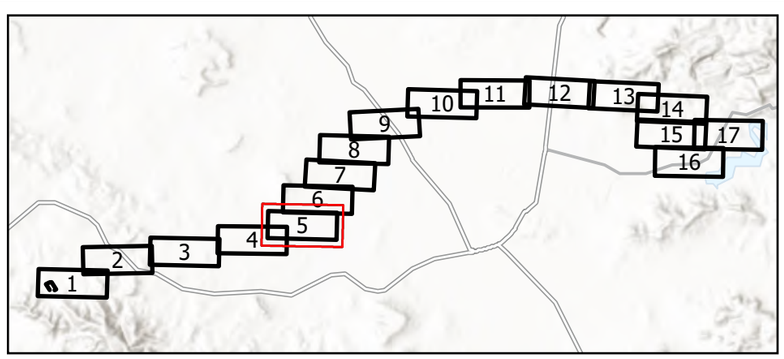
Orange Creek Road
Orange Creek Road
Orange Creek Road
Orange Creek Road
Zischkes Lane
Prospect Creek Goorgeen Road
Prospect Creek Goorgeen Road
190
180
170
160
150
11.3.1
11.3.1
11.3.1
11.3.1
11.3.1
11.3.1
11.3.1
11.3.1
11.3.1

Legend

- Disturbance Footprint
- Project area
- Brigalow (Acacia harpophylla dominant and co-dominant)

Ground truthed Regional Ecosystems

- Category A or B containing endangered
- Category C or R containing endangered



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

Trend Environmental Consultants

ABN 43 622 414 046
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Scale: 1:10,000

11.9.1

11.4.9b

Prospect Creek Goovigen Road

Orange Creek Road

Zischkes Lane

Legend

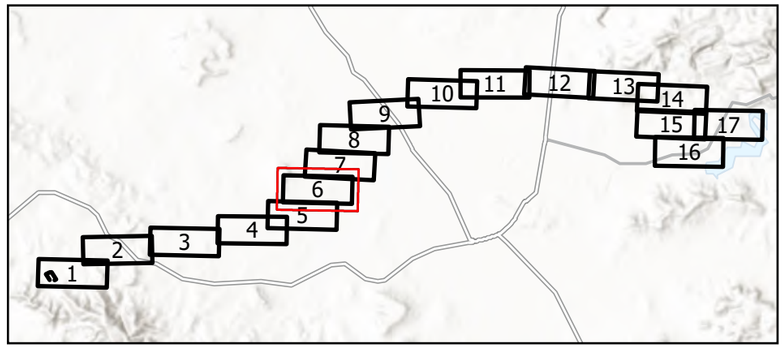
- Disturbance Footprint
- Project area
- Brigalow (Acacia harpophylla dominant and co-dominant)

Threatened species observations

- Painted honeyeater

Ground truthed Regional Ecosystems

- Category A or B containing endangered
- Category C or R containing endangered



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510
Metres

Trend Environmental Consultants

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Scale: 1:10,000

Harden Road

Prospect Creek Golligen Road

11.3.27/11.3.4

11.3.1

Kroombit Creek

11.9.1

11.4.9b

Legend

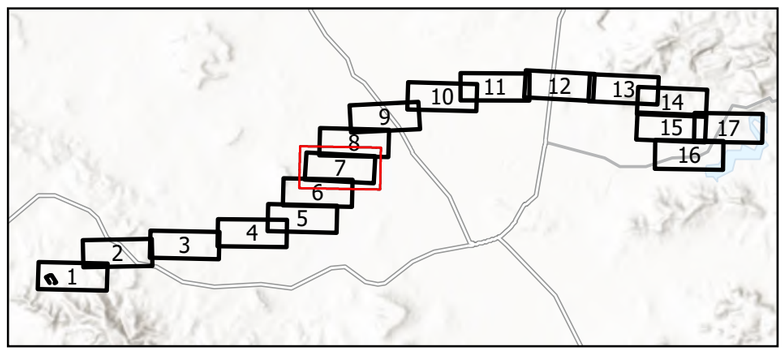
- Disturbance Footprint
- Project area
- Brigalow (Acacia harpophylla dominant and co-dominant)

Threatened species observations

- Painted honeyeater

Ground truthed Regional Ecosystems

- Category A or B containing endangered
- Category C or R containing endangered
- Category C or R that is of least concern



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG
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Date: 02 Sep 2025

Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:10,000

11.3.4/11.3.25
11.3.4/11.3.25
11.3.4/11.3.25
11.3.4/11.3.25
11.3.4/11.3.25
11.3.2
11.3.27/11.3.4
Kroombit Creek
Harchs Road
Harchs Road
Harchs Road
Kroombit Creek Googlegan Road

Legend

Disturbance Footprint

Project area

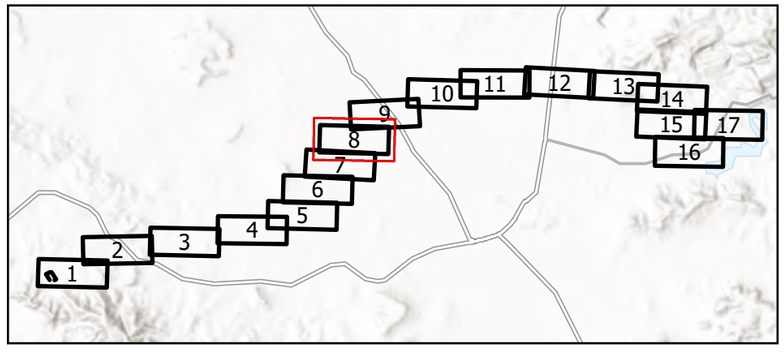
Threatened species observations

Koala (scratches)

Ground truthed Regional Ecosystems

Category A or B containing of concern

Category C or R that is of least concern



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

Trend Environmental Consultants

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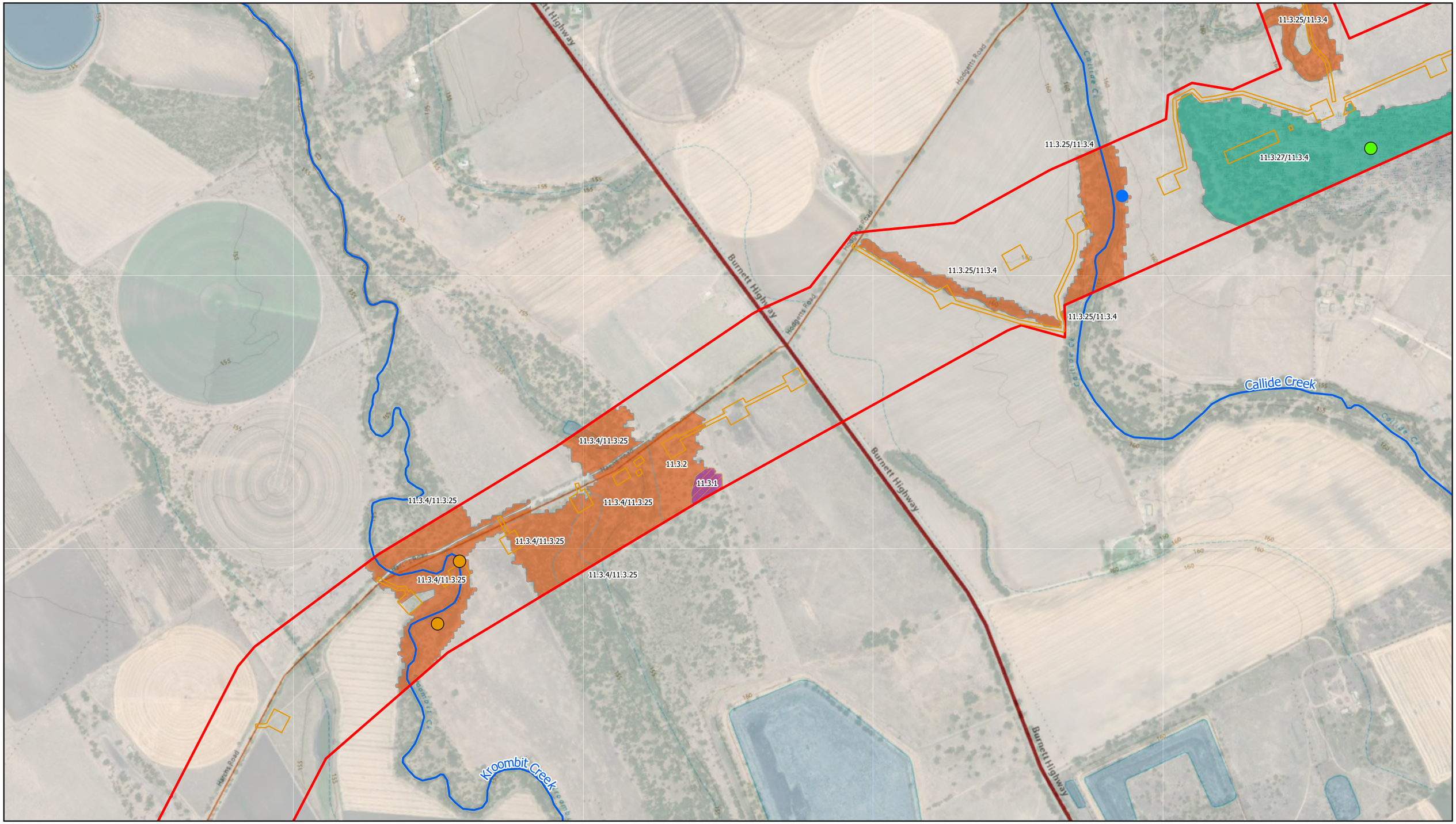
Scale: 1:10,000



Legend

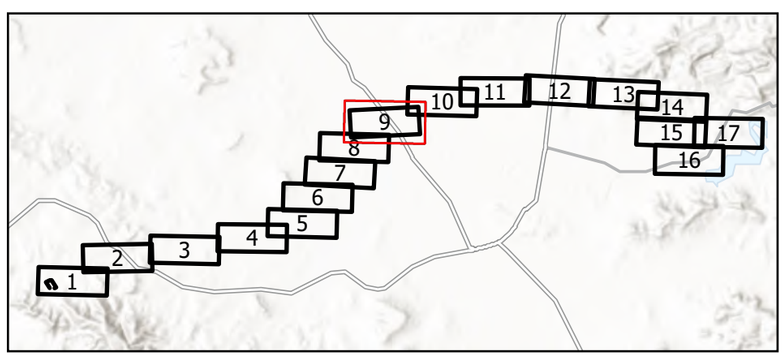
- Disturbance Footprint
- Project area
- Brigalow (Acacia harpophylla dominant and co-dominant)

Threatened species observations

- Koala (scratches)
- Painted honeyeater
- Short-beakled Echidna

Ground truthed Regional Ecosystems

- Category A or B containing endangered
- Category A or B containing of concern
- Category A or B that is of least concern



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

Trend Environmental Consultants

Prepared: MG
Checked: EK

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:10,000

Hodgetts Road
Grevells Road
Jambin Dakenba Road
Oaky Creek
Callide Creek
11.3.25/11.3.4
11.3.27/11.3.4

Legend

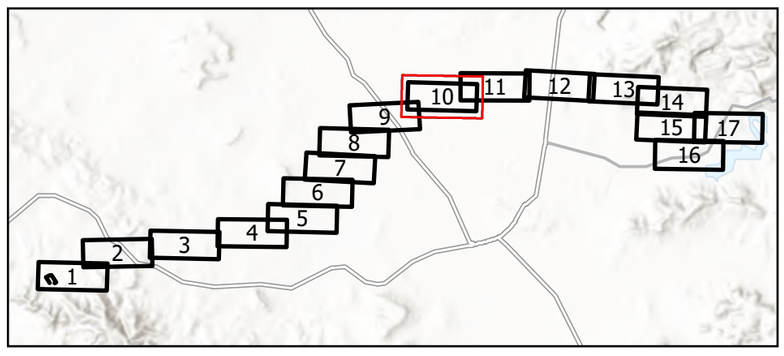
- Disturbance Footprint
- Project area

Threatened species observations

- Koala (scat)
- Painted honeyeater
- Short-beakled Echidna

Ground truthed Regional Ecosystems

- Category A or B containing of concern
- Category A or B that is of least concern



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510
Metres

Trend Environmental Consultants

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94 Kennedy Esplanade South Mission Beach, QLD 4852

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Checked: EK

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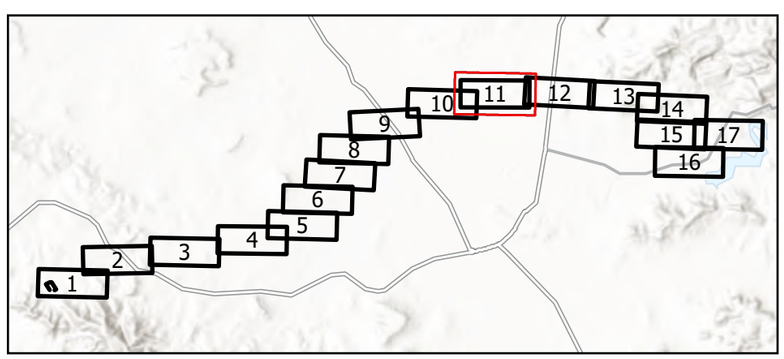
Coordinate System: GDA 1994 MGA Zone 56
Scale: 1:10,000

Legend

- Disturbance Footprint
- Project area
- Brigalow (Acacia harpophylla dominant and co-dominant)

Ground truthed Regional Ecosystems

- Category A or B containing endangered
- Category C or R containing endangered



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

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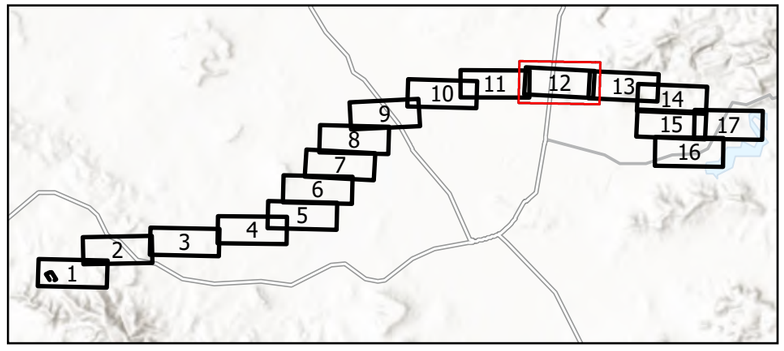
Dawson Highway

Dawson Highway

Legend

- Disturbance Footprint
- Project area



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

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11.9.1

11.9.1

11.9.1

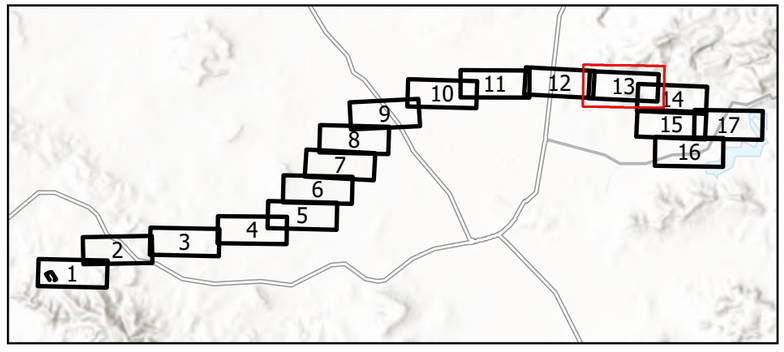
Callide Power Station (CS Energy)

Legend

- Disturbance Footprint
- Project area
- Brigalow (Acacia harpophylla dominant and co-dominant)

Ground truthed Regional Ecosystems

- Category A or B containing endangered



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

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Scale: 1:10,000

11.9.1

11.9.1

11.3.2

11.9.5/11.3.2

Sports Road

Sports Road

Sports Road

Callide Power Station (CS Energy)

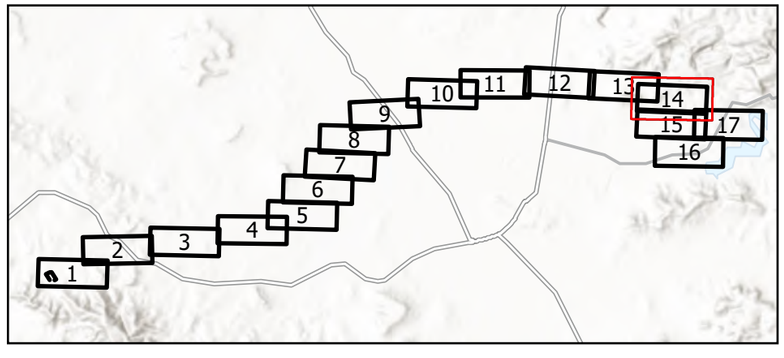
Callide Power Station

Legend

- Disturbance Footprint
- Project area
- Brigalow (Acacia harpophylla dominant and co-dominant)

Ground truthed Regional Ecosystems

- Category A or B containing endangered
- Category C or R containing endangered
- Category C or R containing of concern



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

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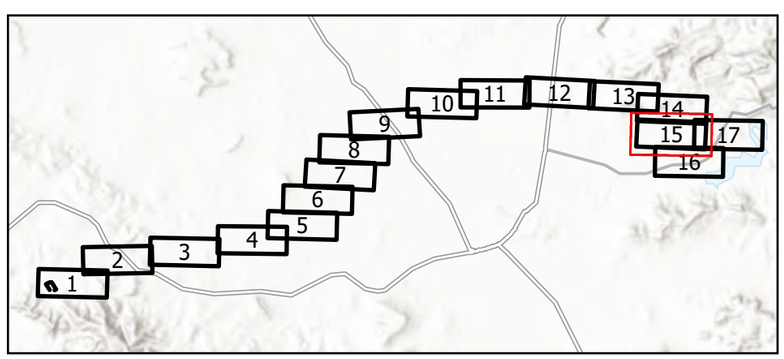
Legend

- Disturbance Footprint
- Project area

Ground truthed Regional Ecosystems

- Category A or B containing of concern
- Category C or R containing endangered



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

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Callide Power Station (CS Energy)

Biloela Callide Road

Callide Creek

Calvale Road

Lake Callide Drive

Corups Road

11.11.10

11.11.14

11.3.6/11.3.1

11.3.1

11.3.25/11.3.4

11.3.2/11.3.4/11.3.1

Water

Legend

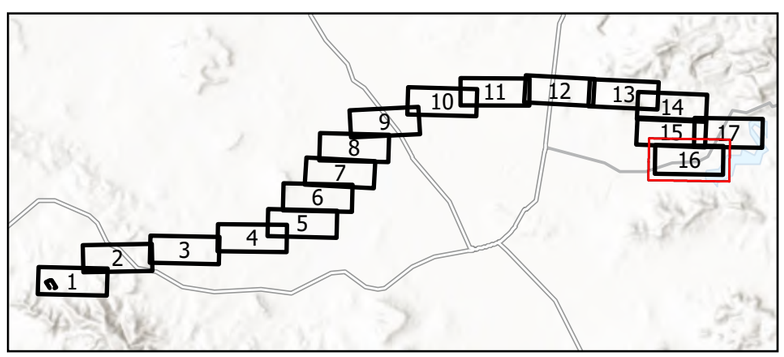
- Disturbance Footprint
- Project area
- Brigalow (Acacia harpophylla dominant and co-dominant)

Threatened species observations

- Koala (scat)
- Squatter Pigeon

Ground truthed Regional Ecosystems

- Category A or B containing endangered
- Category A or B containing of concern
- Category C or R containing endangered
- Water



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

Trend Environmental Consultants

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Coordinate System: GDA 1994 MGA Zone 56

Scale: 1:10,000

Callide Power Station (CS Energy)

Callide Power Station

Biloela Callide Road

Biloela Callide Road

Pelican Point Road

Pelican Point Road

Coal Road

conveyor belt

Callide Creek

LAKE CALLIDE

11.11.10/11.11.14

11.3.6/11.3.4

11.11.10

11.11.10

11.11.14

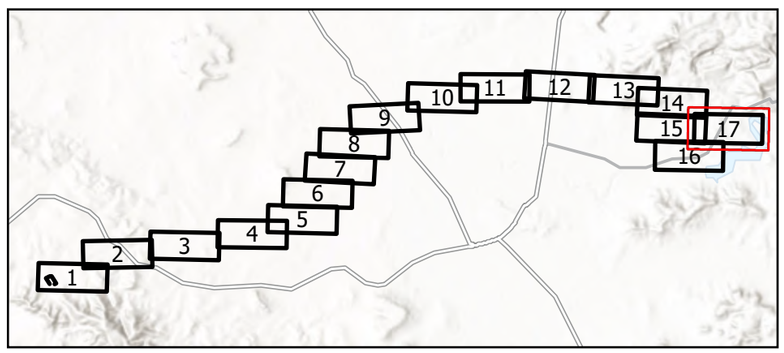
11.11.10

Legend

- Disturbance Footprint
- Project area
- Helipad Area
- Callide substation Expansion
- Brigalow (Acacia harpophylla dominant and co-dominant)

Ground truthed Regional Ecosystems

- Category A or B containing endangered
- Category A or B containing of concern
- Category A or B that is of least concern



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 12 - Ground-truthed Regional Ecosystems and Threatened Species Records

N

0 255 510

Metres

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MAP 13

Vegetation Communities (Field-verified)

Dawson Highway

Dawson Highway

Dawson Highway

Orang e Creek

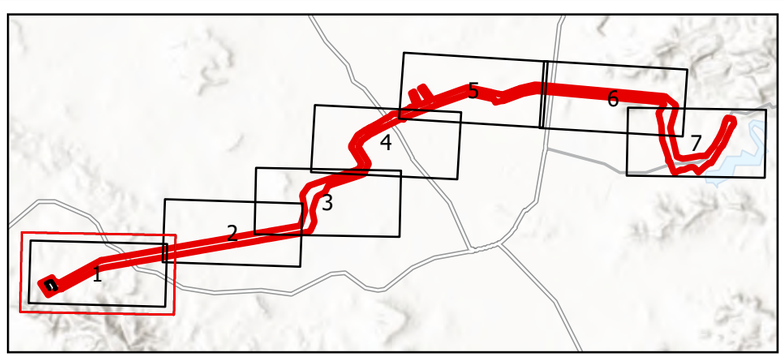
Orang e Creek

Legend

- Disturbance Footprint
- Project area
- BRWF Substation

Field Verified Vegetation Communities

- Brigalow dominant open forest to woodland
- Farm Dams & Water Areas
- Cleared areas/ exotic grasslands



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 13 - Vegetation Communities (Field-verified)

N

0 487.5 975

Metres

Scale: 1:19,000

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Orange Creek Road

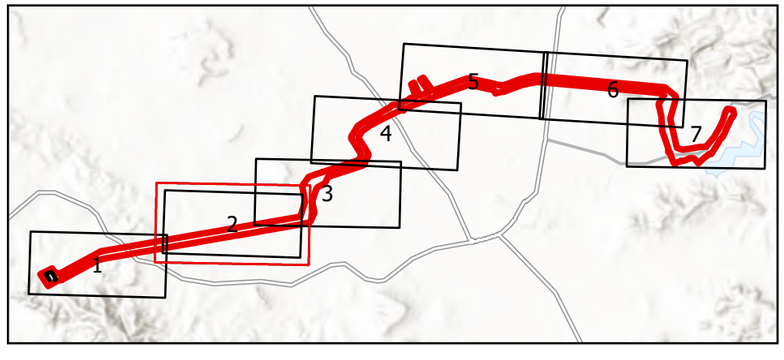
Orange Creek School Bus Road

Legend

- Disturbance Footprint
- Project area

Field Verified Vegetation Communities

- Brigalow dominant open forest to woodland
- Cleared areas/ exotic grasslands



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 13 - Vegetation Communities (Field-verified)

N

0 487.5 975
Metres

Scale: 1:19,000

Trend Environmental Consultants

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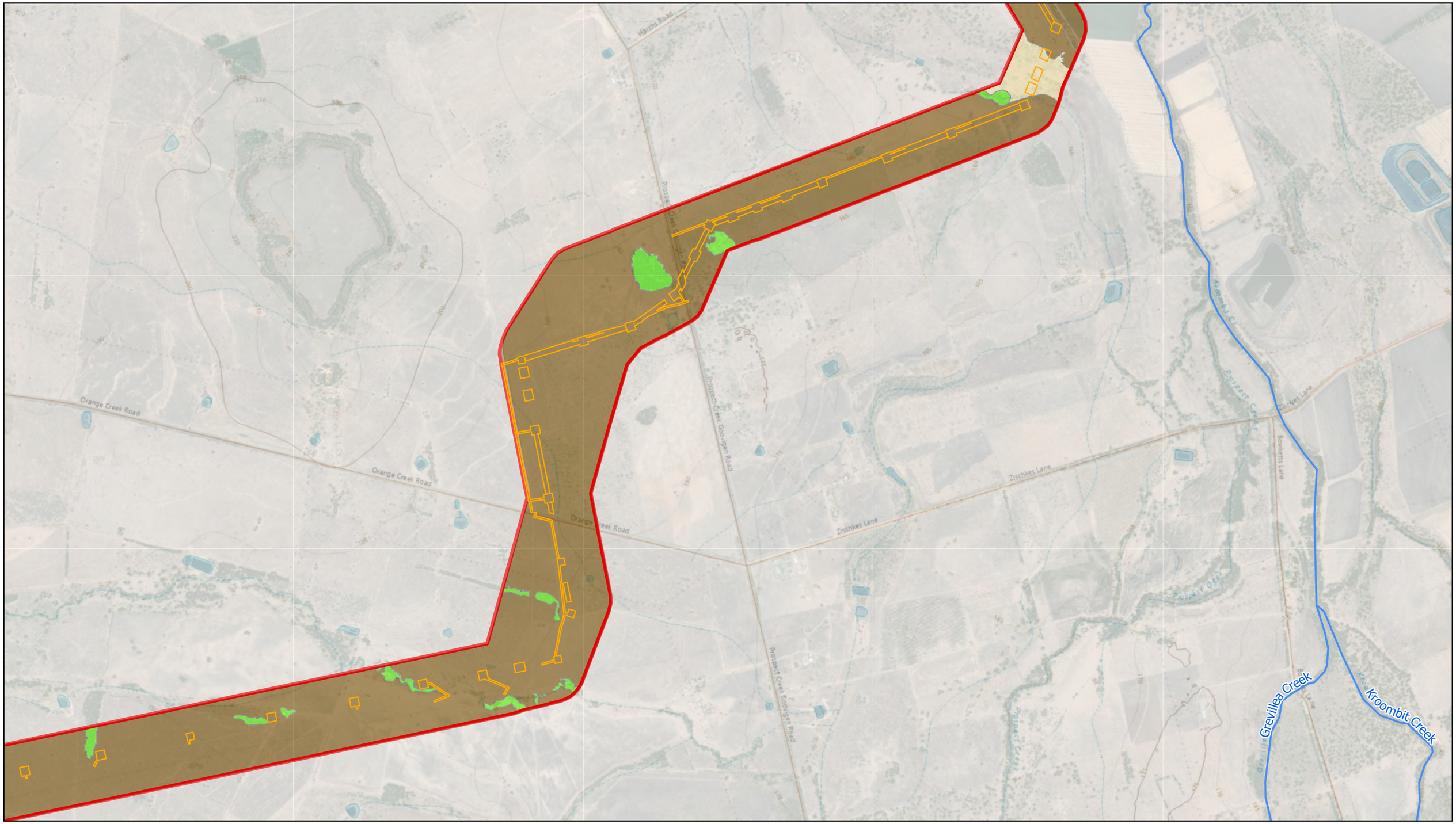
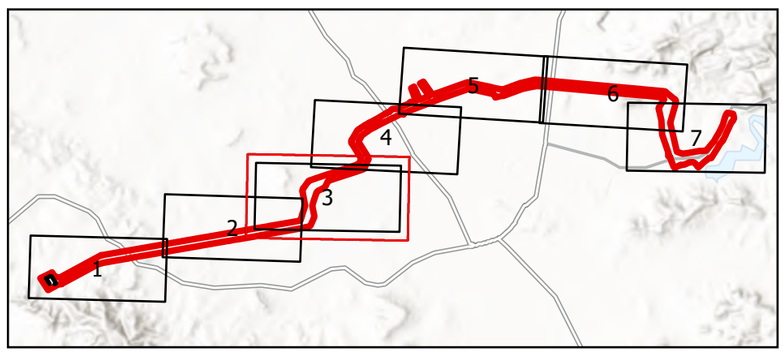


Legend

- Disturbance Footprint
- Project area

Field Verified Vegetation Communities

- Brigalow dominant open forest to woodland
- Ephemeral wetlands
- Cleared areas/ exotic grasslands



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 13 - Vegetation Communities (Field-verified)

N

0 500 1,000
Metres

Scale: 1:20,000

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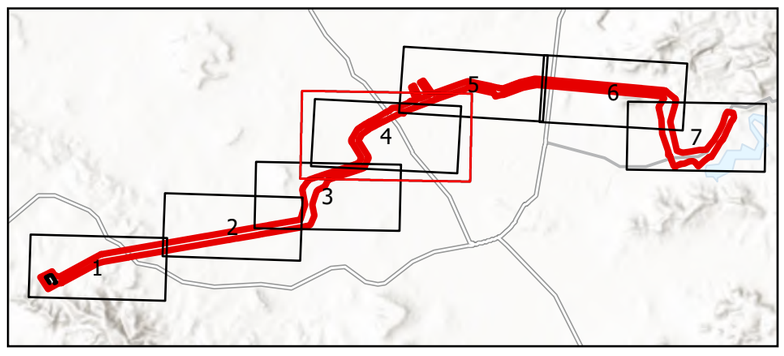
Kroombit Creek
Burnett Highway
Hodgetts Road
Jarvis Dakenba Road
Harchi Road
Prospect Creek Goovigen Road
Callide Creek

Legend

- Disturbance Footprint
- Project area

Field Verified Vegetation Communities

- Eucalypt dominant riparian associated woodland
- Brigalow dominant open forest to woodland
- Ephemeral wetlands
- Cleared areas/ exotic grasslands



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 13 - Vegetation Communities (Field-verified)

N

0 500 1,000
Metres

Scale: 1:21,000

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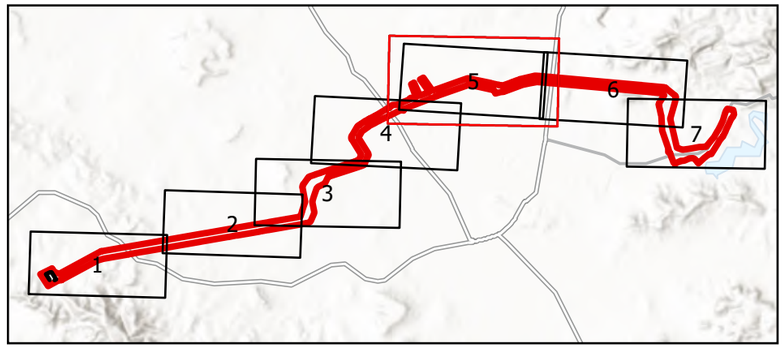
Legend

- Disturbance Footprint
- Project area

Field Verified Vegetation Communities

- Eucalypt dominant riparian associated woodland
- Brigalow dominant open forest to woodland
- Ephemeral wetlands
- Farm Dams & Water Areas
- Cleared areas/ exotic grasslands



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 13 - Vegetation Communities (Field-verified)

N

0 500 1,000
Metres

Scale: 1:21,000

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Dawson Highway

Shorts Road

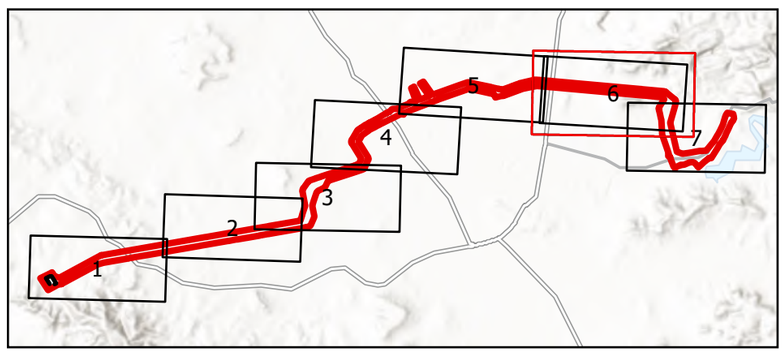
Callide Power Station (CS Energy)

Legend

- Disturbance Footprint
- Project area

Field Verified Vegetation Communities

- Eucalypt dominant riparian associated woodland
- Brigalow dominant open forest to woodland
- Farm Dams & Water Areas
- Cleared areas/ exotic grasslands



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 13 - Vegetation Communities (Field-verified)

N

0 500 1,000
Metres

Scale: 1:20,000

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Callide Power Station (CS Energy)

Callide Power Station

Shorts Road

Biloela Callide Road

Coal Road

Peria Park Road

Callide Creek

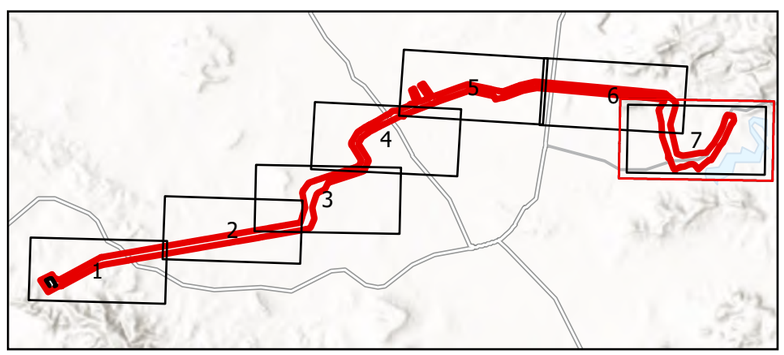
LAKE CALLIDE

Legend

- Disturbance Footprint
- Project area
- Callide substation expansion
- Lake Callide

Field Verified Vegetation Communities

- Eucalypt dominant riparian associated woodland
- Brigalow dominant open forest to woodland
- Eucalypt dominant woodland to open forest
- Farm Dams & Water Areas
- Cleared areas/ exotic grasslands



BANANA RANGE WIND FARM CONNECTION PROJECT

Map 13 - Vegetation Communities (Field-verified)

N

0 487.5 975
Metres

Scale: 1:19,000

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MAP 14

Threatened Species Habitat Context Maps

White-throated Needletail

Callide Timber Reserve

Callide Power Station (CS Energy)

Callide Creek

Kroombit Creek

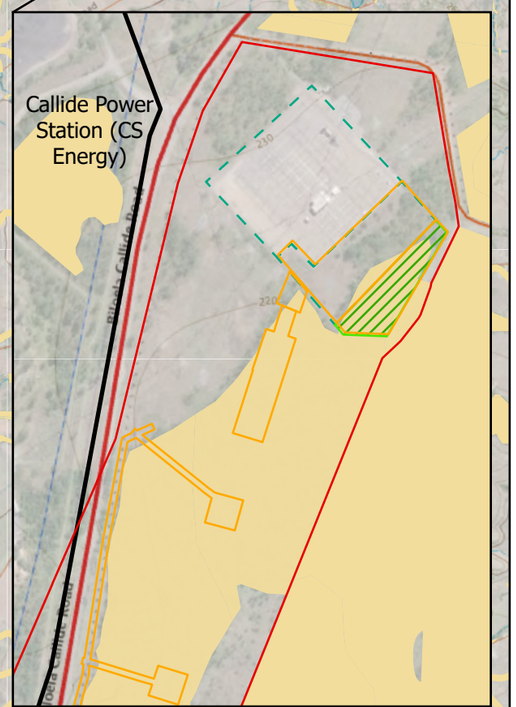
Burnett Highway

Dawson Highway

Biloela

2021

1955



Legend

- Disturbance Footprint
- Project area
- Area of Interest (20km buffer)
- BRWF Substation
- Helipad area
- Callide substation expansion
- Lake Callide

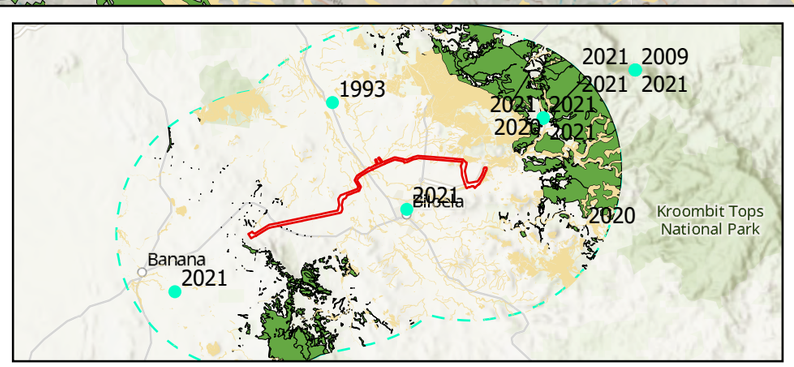
Historic records

- White-throated Needletail

Species and Context Habitat

White-throated Needle tail

- Roosting and foraging
- Foraging and dispersal



BANANA RANGE WIND FARM CONNECTION PROJECT

White-throated Needletail Habitat and Context Map

N

0 2,000 4,000
Metres

Scale: 1:91,671

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Prepared: MG
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Squatter Pigeon

Callide Timber Reserve

1993 NR

2017

2021

2017

2024

1953

1993

2024

2022

Callide Creek

Kroombit Creek

Biloela

Banana

Kroombit Tops National Park

Legend

- Disturbance Footprint
- Project area
- Area of Interest (20km buffer)
- Helipad area
- Callide substation expansion
- BRWF Substation
- CS Energy
- Lake Callide

Threatened species observations

- Squatter Pigeon

Historic species observations (ALA)

- Squatter Pigeon

Species and Context Habitat

Squatter Pigeon

- Breeding habitat
- Dispersal habitat
- Foraging habitat

BANANA RANGE WIND FARM CONNECTION PROJECT

Squatter Pigeon Habitat and Context Map

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N

0 2,000 4,000
Metres

Scale: 1:91,671

Painted Honeyeater

Callide Timber Reserve

Kroombit Creek

Callide Creek

Burnett Highway

Dawson Highway

Biloela Callide Road

Shepherdson Road

Davis Road

Orange Creek Road

Zischkes Lane

Tognolini Baldwin Road

Calvale Road

Biloela

2017

Kroombit Creek

Callide Creek

Callide Creek

Legend

- Disturbance Footprint
- Project area
- Helipad area
- Area of Interest (20km buffer)
- Callide substation expansion
- BRWF Substation
- CS Energy
- Lake Callide

Threatened species observations

- Painted honeyeater

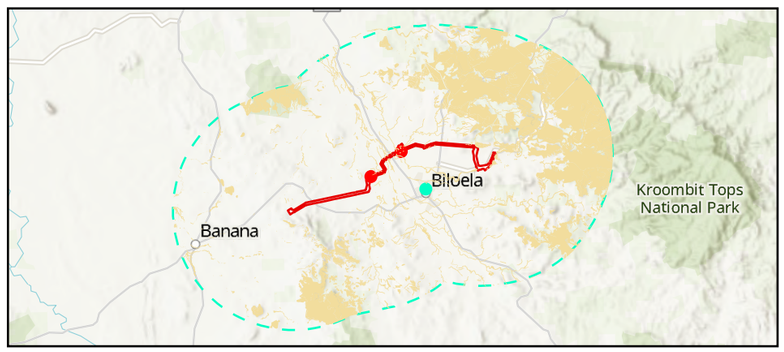
Historic species observations (ALA)

- Painted Honeyeater

Species and Context Habitat

Painted Honeyeater

- Foraging and dispersal habitat



BANANA RANGE WIND FARM CONNECTION PROJECT

Painted Honeyeater Habitat and Context Map

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N

0 2,000 4,000
Metres

Scale: 1:91,671

Sharp-tailed Sandpiper

Callide Timber Reserve

Callide Power Station (CS Energy)

Callide Creek

Kroombit Creek

Burnett Highway

Dawson Highway

2023

2005

1993

1993

Bilo e a

Banana

Kroombit Tops National Park

Legend

- Disturbance Footprint
- Project area
- Area of Interest (20km buffer)
- Callide substation expansion
- BRWF Substation
- Helipad area

Historic records

- Sharp-tailed Sandpiper

Species and Context Habitat

Sharp-tailed sandpiper

- Suitable habitat

BANANA RANGE WIND FARM CONNECTION PROJECT

Sharp-tailed Sanpiper Habitat and Context Map

Trend Environmental Consultants

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N

0 2,000 4,000
Metres

Scale: 1:91,671

Northern Quoll

Kroombit Creek
Callide Creek
Callide Power Station (CS Energy)
Callide Creek
Kroombit Creek
Callide Power Station (CS Energy)
Callide Creek

Legend

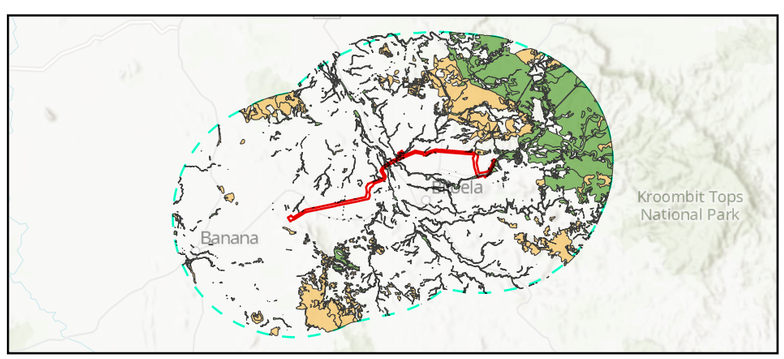
- Disturbance Footprint
- Project area
- Area of Interest (20km buffer)
- BRWF Substation
- Lake Callide

Species and Context Habitat

Northern Quoll

- Denning and refuge
- Foraging and dispersal

* No historic records within the Area of interest



BANANA RANGE WIND FARM CONNECTION PROJECT

Northern Quoll Habitat and Context Map

N

0 2,000 4,000
Metres

Scale: 1:91,671

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Koala

Legend

- Disturbance Footprint
- Project area
- Area of Interest (20km buffer)
- Callide substation expansion
- Helipad area
- BRWF Substation
- Lake Callide

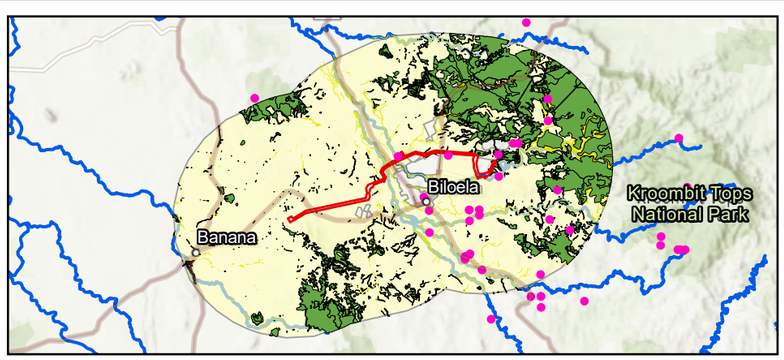
Threatened species observations

- Koala (scratches)
- Koala (scat)
- Historic Koala records (Year Recorded)

Species habitat

Koala

- Climate Refugia
- Breeding foraging and dispersal
- Dispersal



BANANA RANGE WIND FARM CONNECTION PROJECT

Koala Habitat and Context Map

N

0 2,000 4,000
Metres

Scale: 1:91,671

Trend Environmental Consultants

Prepared: MG
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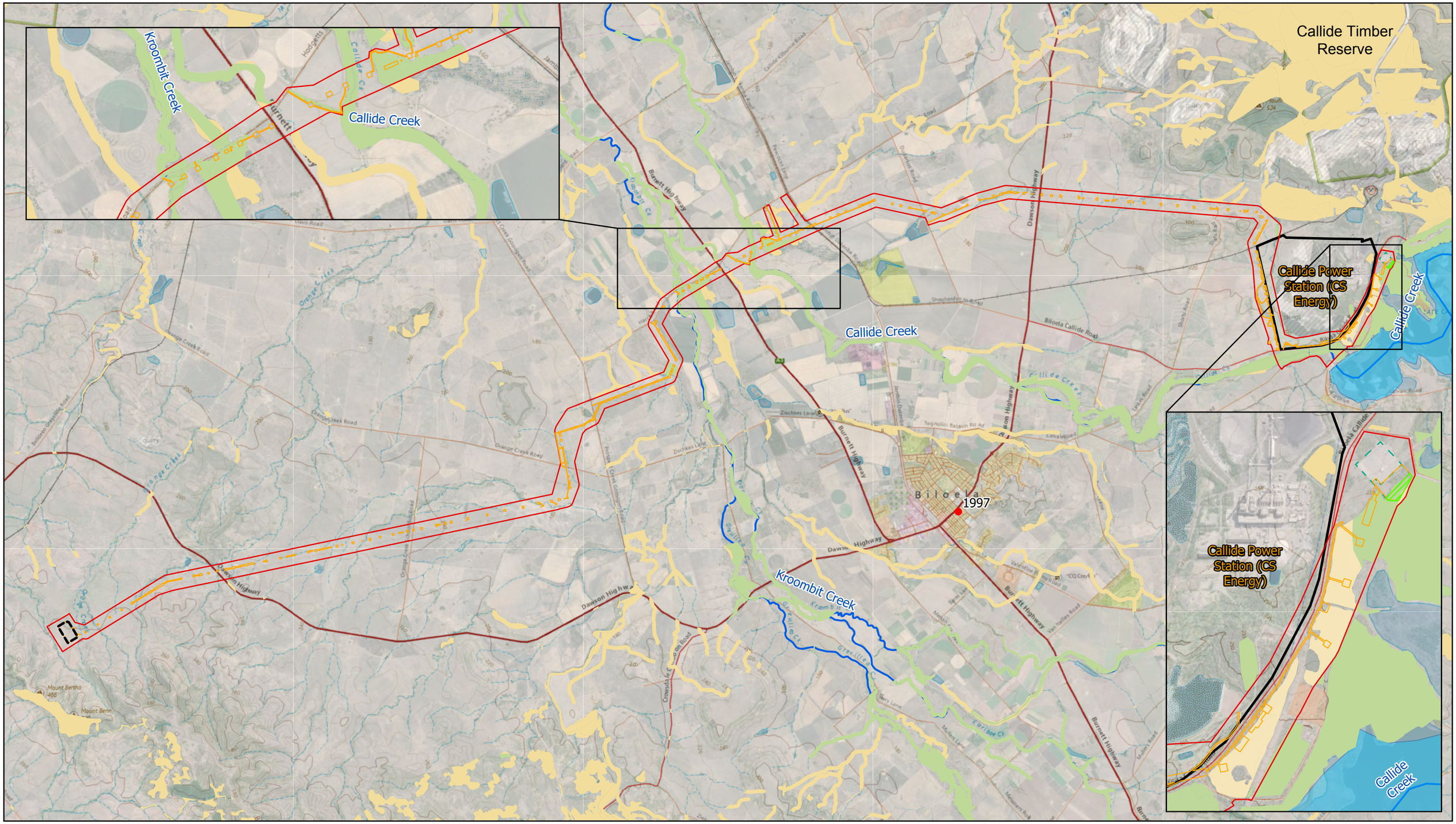
Greater Glider



Legend

- Disturbance Footprint
- Project area
- Area of Interest (20km buffer)
- Callide substation expansion
- Helipad area
- BRWF Substation
- Lake Callide

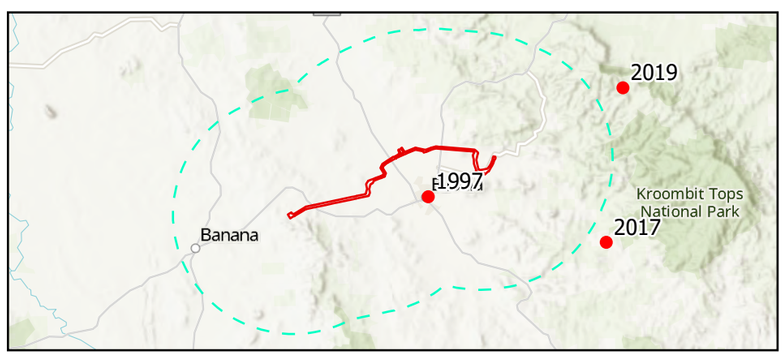
Historic species observations (ALA)

- Greater Glider

Species and Context Habitat

Greater glider

- Likely and current denning habitat
- Potential and future denning



BANANA RANGE WIND FARM CONNECTION PROJECT

Greater Glider Habitat and Context Map

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG
Checked: EK

Date: 02 Sep 2025

Source: © The State of Queensland (Department of Environment & Resource Management) 2010 Imagery Copyright and Imagery Date

Coordinate System: GDA 1994 MGA Zone 56

N

0 2,000 4,000
Metres

Scale: 1:91,671

Short-beaked Echidna

Callide Power Station (CS Energy)

Callide Power Station (CS Energy)

2023

Legend

- Disturbance Footprint
- Project area
- Area of Interest (20km buffer)
- BRWF Substation

Threatened species observations

- Short-beakled Echidna

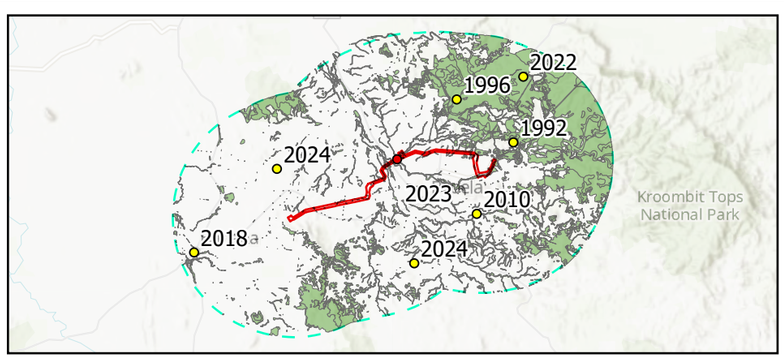
Historic species records

- Short-beaked Echidna

Species and Context Habitat

Short-beaked Echidna

- Suitable habitat



BANANA RANGE WIND FARM CONNECTION PROJECT

Short-beaked Echidna Habitat and Context Map

Trend Environmental Consultants

ABN 43 622 414 046
94 Kennedy Esplanade South Mission Beach, QLD 4852

Prepared: MG
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Metres

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Collared Delma

Callide Timber Reserve

Callide Power Station (CS Energy)

Callide Creek

Kroombit Creek

Biloela

Dawson Highway

Burnett Highway

Biloela Callide Road

Johnson Parry Road

Davis Road

Orange Creek Road

Prospect Creek Goovigen Road

Coreen Water Board Road

Zischkes Lane

Shepherdson Road

Coal Road

Mount Murchison 534

Mount Bertha 466

Mount Benn 520

Quarry

Callide Power Station (CS Energy)

Callide Creek

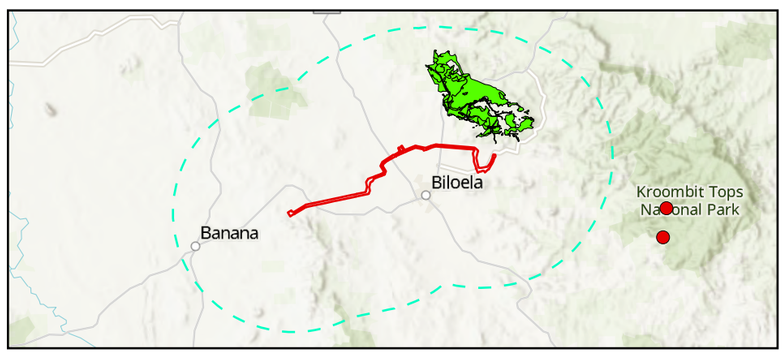
Legend

- Disturbance Footprint
- Project area
- Area of Interest (20km buffer)
- Helipad area
- Callide substation expansion
- BRWF Substation
- Lake Callide

Species and Context Habitat

Collared Delma

- Marginal habitat
- Historic Collard Delma records (ALA)
  *No records within the Area of Interest



BANANA RANGE WIND FARM CONNECTION PROJECT

Collared Delma Habitat and Context Map

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Fork-tailed Swift

Callide Timber Reserve

Kroombit Creek

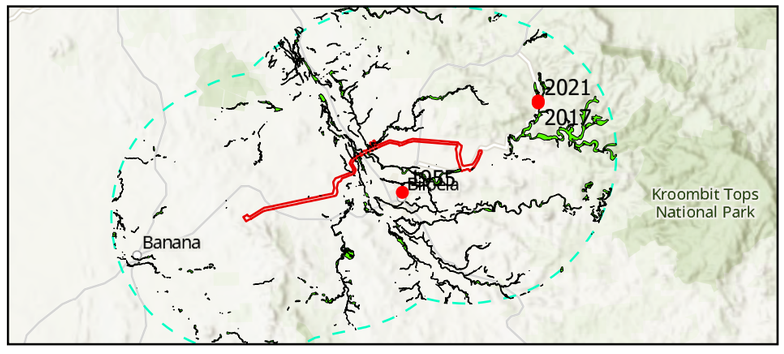
Callide Creek

Callide Creek

Kroombit Creek

1955

2021



Legend

- Disturbance Footprint
- Project area
- Area of Interest (20km buffer)
- BRWF Substation
- Helipad area
- Callide substation expansion
- CS Energy
- Lake Callide

Historic records

- Fork-tailed Swift

Species and Context Habitat

Fork Tailed Swift

- Foraging and dispersal

BANANA RANGE WIND FARM CONNECTION PROJECT

Fork-tailed Swift Habitat and Context Map

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Metres

Scale: 1:91,671

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Gull-billed Tern

Callide Timber Reserve

Callide Power Station (CS Energy)

2003

1994

2019

2011

2021

2017

Kroombit Creek

Callide Creek

Burnett Highway

Dawson Highway

Biloela

Kroombit Tops National Park

Banana

Legend

- Disturbance Footprint
- Survey area
- Area of Interest (20km buffer)
- Callide substation expansion
- BRWF Substation
- Helipad area

Historic records

- Gull-billed Tern

Species and Context Habitat

Gull-billed Tern

- Suitable habitat

BANANA RANGE WIND FARM CONNECTION PROJECT

Gull-billed Tern Habitat and Context Map

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Metres

Scale: 1:91,671

Caspian Tern

Callide Timber Reserve

Callide Power Station (CS Energy)

Callide Creek

Kroombit Creek

Burnett Highway

Dawson Highway

Jambin Dakenba Road

Biloela Callide Road

Zischkes Lane

Orange Creek Road

Davis Road

Shepherdson Road

Coal Road

Shorts Road

Lenton Road

Van Hallers Road

Mount Murchison 534

Giles Peak 518

Mount Bertha 465

Mount Bern 520

Biloela

1999
2023
1998
2001
2001
2015
2020
2023
1995
2018
2024
1992
2001
1998
1985
2001
2021
2020
2015
2023
1999
2018
2023

Legend

- Disturbance Footprint
- Project area
- Area of Interest (20km buffer)
- Callide substation expansion
- Helipad area
- BRWF Substation

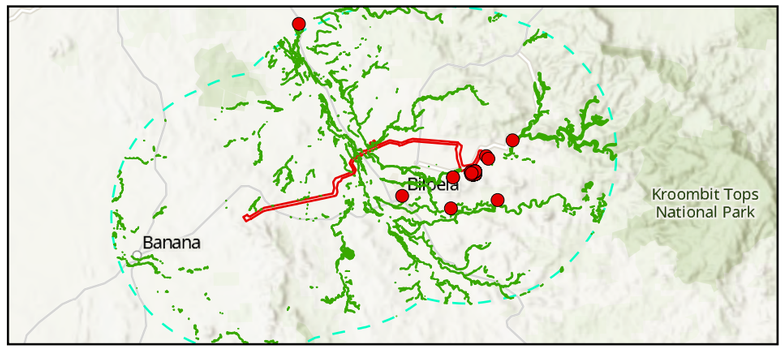
Historic species observations (ALA)

- Caspian Tern

Species and Context Habitat

Caspian Tern

- Foraging and Dispersal habitat



BANANA RANGE WIND FARM CONNECTION PROJECT

Caspian Tern Habitat and Context Map

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Scale: 1:91,671

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Coordinate System: GDA 1994 MGA Zone 55

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Version	6 (Rev 3)

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1	1/07/23	Shannon Michael, Max Gunther, Emily Krunes	Document Preparation
2	26/02/24	Max Gunther	GIS Mapping
3	15/03/24	Emily Krunes	Document Review
4	23/06/24	Emily Krunes	Document revised following Powerlink's comments
5	3/09/25	Emily Krunes	Document revised following updates to alignment and disturbance footprint
6	25/09/25	Emily Krunes	Document revised following Powerlink's review

CITATION

Trend Environmental. (2025). *Ecological Assessment Report. Banana Range Wind Farm Connection Project.* (Version 6 Rev 3, dated 29 September 2025). Prepared on behalf of Powerlink Queensland. September 2025.

PHOTOGRAPHS

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PERMISSIONS

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