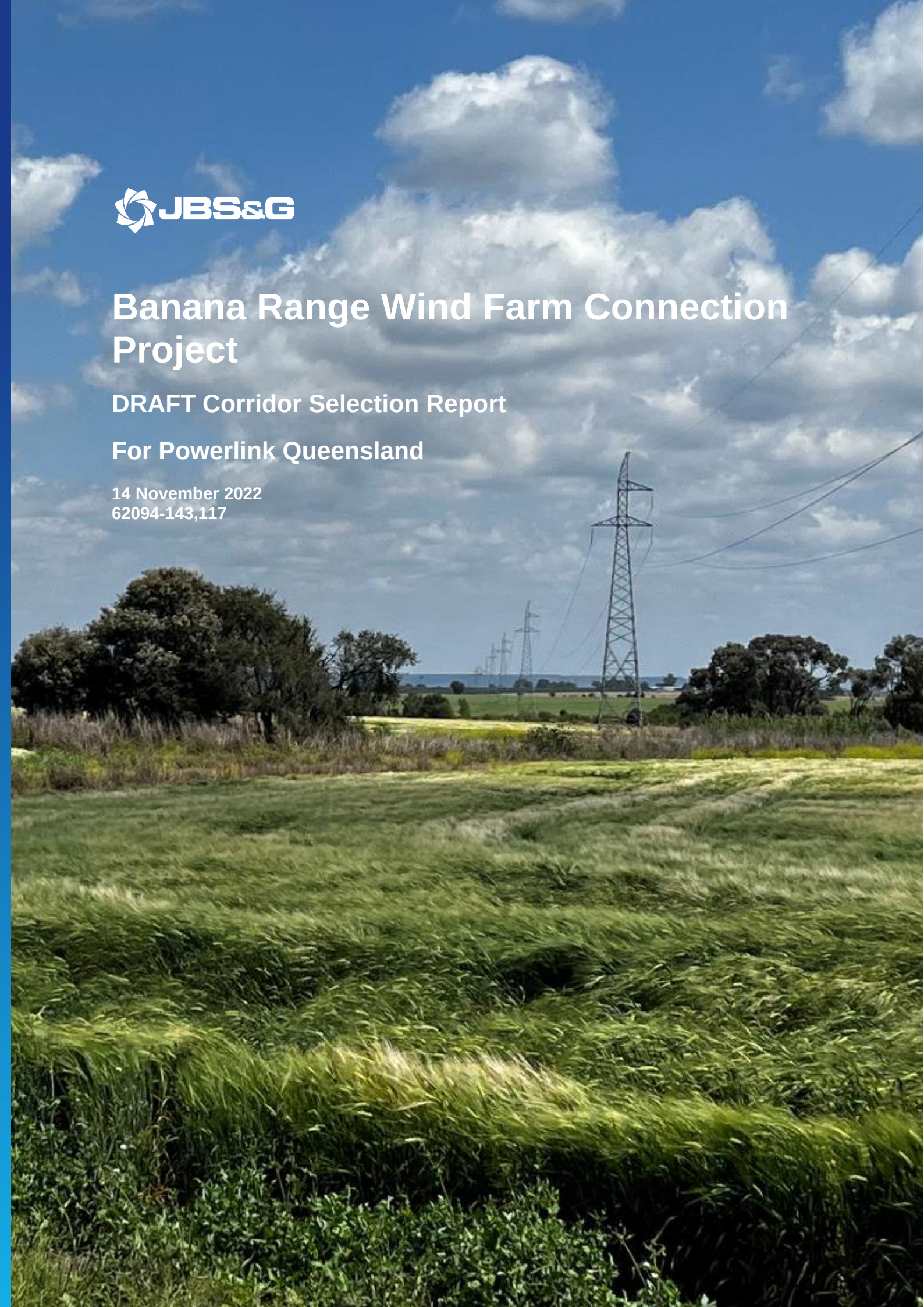


Banana Range Wind Farm Connection Project

DRAFT Corridor Selection Report

For Powerlink Queensland

14 November 2022
62094-143,117

Table of Contents

List of Tables

List of Figures

Executive Summary

EDF Renewables (EDF) is the proponent of the proposed Banana Range Wind Farm (BRWF) Project located approximately 20km west of Biloela in Central Queensland. The project comprises around 50 wind turbines and a battery energy storage system with an initial output of approximately 230 megawatts (MW) of renewable energy.

Powerlink Queensland (Powerlink) is the owner, developer and operator of Queensland's electricity transmission network and has been engaged by EDF to connect their project to the network. Powerlink has examined a range of options, including connecting the Banana Range Wind Farm to the existing 132kV transmission line between Calvale, Biloela and Moura and replacing the existing 132kV transmission line with a new 275kV transmission line. It was determined the most feasible solution is to construct a new 275kV double circuit transmission line from Powerlink's existing Calvale Substation (near Callide Power Station) to the proposed BRWF Substation.

This report comparatively assesses the suitability of potential transmission line corridors within a defined Study Area to determine the recommended corridor within which to locate the proposed 275kV transmission line. The assessment considers a range of social, environmental, and physical factors identified via desktop and field-based analysis, complemented by broad, early engagement with a range of stakeholders including landholders, Council, and the community. This engagement ensures a range of key groups are well informed about proposed Project and have early opportunities to provide local knowledge, insights, and experiences critical to inform the comprehensive assessment of transmission line corridor options.

Early engagement for the project commenced in June 2022 with phone calls and letters to landholders in the Study Area. Meetings were also undertaken from this time and are ongoing. In mid-June 2022, letters were sent to all landholders in the Study Area inviting them to attend the first community information drop-in sessions at the Biloela Civic Centre in mid-July 2022 to find out more about the project.

The top 5 matters raised by landholders included:

- Impacts to farming operations including biosecurity, loss of productivity, irrigation systems such as centre pivots and travelling irrigators;
- Proximity to homes;
- Visual impacts of the transmission line;
- Loss of property value; and
- Perceived health effects from Electric and Magnetic Fields (EMFs).

Feedback from the Study Area engagement process provided valuable information for the initial identification of potential corridors for the proposed transmission line. Three potential corridors generally 1km wide were identified for detailed analysis and in late August 2022, landholders within each corridor were contacted together with a range of other stakeholders to provide initial comments on the suitability of the corridors. They were also invited to attend the second community information drop-in sessions in mid-September 2022 where more than 25 members of the community participated.

Initial feedback received from landholders within the potential corridors and the broader community was consistent with the earlier engagement undertaken in July 2022 with some new matters raised, including –

- Impacts to transport routes and airstrip and aviation facilities within or nearby the potential corridors; and

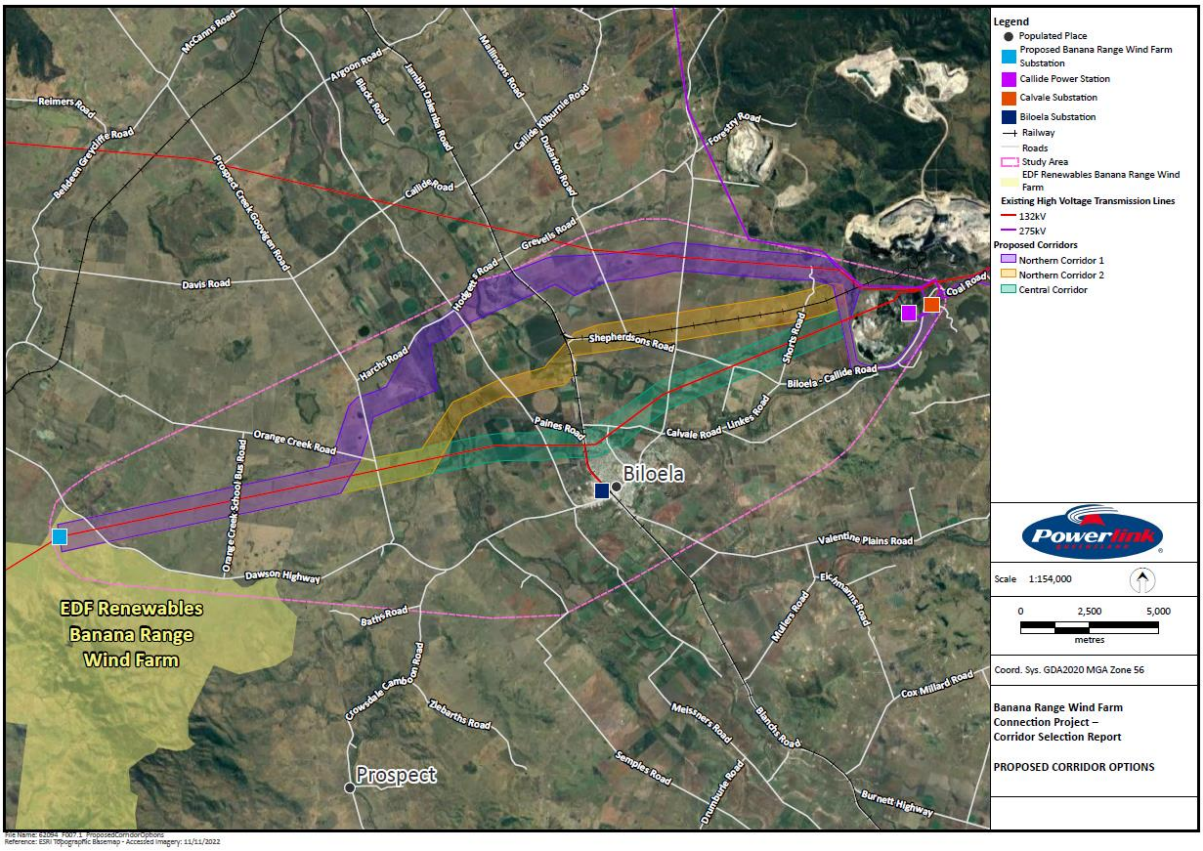
- Impacts to major development plans on some properties, including other renewable generation projects.

The key matter raised so far by landholders across the early engagement phase is for the location of the transmission line corridor to minimise impacts on high value cultivated land due to concerns regarding farm productivity and personnel safety. More specifically, these concerns have related to–

- Permanent removal of areas from production and associated loss of revenue;
- Electrical safety concerns for farm infrastructure operating in proximity of the transmission line; and
- Impact of EMF on farm personnel and Radio Frequency Interference on GPS guided farm machinery.

Powerlink will work with each directly affected landholder to site transmission towers, as best as possible, in locations which minimise impacts to farming operations, and if necessary, conduct in-field testing before and after construction to determine if there are any impacts on GPS systems from the transmission line. Remedial actions will be undertaken by Powerlink should impacts be identified. Where corridors intersect cropping land, towers will be positioned, where possible, close to boundaries or other existing infrastructure to minimise impacts on cropping activities. Co-location advantages include minimising impacts on cropping land by limiting the impacts to one area, and ability to utilise existing access tracks and points for maintenance.

Based on analysis of the Study Area, community and landholder feedback from the initial early engagement process and Powerlink's own experience developing electricity transmission infrastructure, three proposed corridor options were identified for comparative assessment. The corridors are generally 1km wide and shown as Northern Corridor 1, Northern Corridor 2, and Central Corridor below.



Northern Corridor 1 is found in the northern most section of the Study Area and seeks to reduce the level of interaction with high value cultivation land. It also provides an opportunity to co-locate the proposed 275kV transmission line with a section of the existing Calvale to Baralaba 132kV line and contains less than 10 houses and other places of assembly.

Northern Corridor 2 is similar to Northern Corridor 1 but is located further south and centred on co-location opportunities with the Moura rail line servicing the Callide Power Station and Mine. This corridor also contains a comparatively low number of houses or places of assembly (10 in total); however, it traverses significant areas of high value cultivation land, based on Strategic Cropping Land and Agricultural Land Class definitions and mapping, impacts an airfield on Shepherdson's Road and includes the Teys Abattoir site.

The Central Corridor is co-located with Powerlink's existing Calvale to Biloela to Moura 132kV transmission line and like Northern Corridor 2, traverses' extensive areas of cultivation between the power station west to Kroombit Creek. The 132kV line was built in the 1960s and since that time, many houses have been built in close proximity to the transmission line. This has resulted in just over 240 houses now being located within the 1km wide Central Corridor and significant visual amenity impacts are expected should the proposed 275kV transmission line be located within this corridor.

All proposed corridor options are common around the southern half of the Callide Power Station area and also from west of Prospect Creek Goovigen Road to the BRWF Substation. This commonality is due to significant restrictions posed by existing transmission lines around the northern side of the power station and strong co-location opportunities with the existing Calvale to – Biloela to Moura 132kV line in grazing country west of Kroombit Creek.

Environmental values within all corridors are limited due to historical and current land use with higher value areas generally confined to existing creek lines and an area south-west of Calvale Substation along Biloela-Callide Road.

The comparative assessment of proposed corridor options, informed by feedback from the early engagement process, has identified Northern Corridor 1 as the recommended corridor for the proposed 275kV transmission line connecting the BRWF to the electricity transmission network at Calvale Substation. While slightly longer than the other corridors, Northern Corridor 1 has the lowest social impacts given it affects the least number of land parcels and houses, and smallest areas of Strategic Cropping Land and Class A and B land. This has been confirmed through field inspections which have identified existing house locations and current land use. Northern Corridor 1 also avoids impacts on an airfield and Teys Abattoir which occurs along Northern Corridor 2. While the shortest in length, the Central Corridor traverses' extensive areas of cultivation and has the highest number of houses due to the urban growth of Biloela since the 1960s. Potential environmental impacts to protected flora and fauna are low across all proposed corridor options and mainly limited to watercourses which can be easily spanned by the project.

This Draft CSR will be released to landholders and the broader community for review and comment. Powerlink will consider submissions regarding the findings of this report and undertake further engagement and analysis before finalising and publicly releasing the Final CSR in early 2023.

The Final CSR will then refer to the recommended corridor as the 'study corridor' and Powerlink will commence detailed landholder engagement and technical studies within the study corridor to determine a suitable transmission line alignment. Development approval and land acquisition for the proposed transmission line will commence mid-2023 with construction expected to occur from 2024.

1. Introduction

1.1 Project Need

EDF Renewables (EDF) is the proponent of the proposed Banana Range Wind Farm (BRWF) Project located approximately 20km west of Biloela in Central Queensland. The project comprises around 50 wind turbines and a battery energy storage system with an initial output of approximately 230 megawatts (MW) of renewable energy. Powerlink Queensland (Powerlink) is the owner, developer and operator of Queensland's electricity transmission network and has been engaged by EDF to connect their project to the network.

1.2 Transmission Connection Options Considered

Powerlink has examined a range of options to connect the proposed wind farm to the electricity transmission network and determined the most feasible solution is to construct a new 275kV double circuit transmission line from Powerlink's existing Calvale Substation (near Callide Power Station) to the proposed BRWF Substation. **Figure 1-1** shows the existing Powerlink 132kV and 275kV network in the region and the proposed BRWF Project Area.

Other potential connection options considered by Powerlink include –

- Utilising the existing Calvale to Biloela to Moura 132kV transmission line which traverses the wind farm site; and
- Replacing the existing 132kV line with a new 275kV line from Calvale Substation to the proposed BRWF Substation.

A brief overview of these options is provided below.

1.2.1 Connecting the Banana Range Wind Farm to the existing 132kV transmission line between Calvale, Biloela and Moura

A section of Powerlink's existing 132kV transmission line between Calvale, Biloela and Moura traverses the BRWF Project Area as shown in **Figure 1-1** below. This line supplies electricity to Biloela and Moura and cannot be removed from service as there is no alternative supply that can meet the electricity demand requirements. As part of the early engagement process discussed in Section 4, several landholders asked whether the proposed wind farm could connect to the existing 132kV transmission line. This line was built in the early 1960s and has a capacity of approximately 100MW. Existing loads on this line result in available spare capacity for new generation being limited to approximately 50MW. The proposed capacity of the wind farm is currently 230MW and therefore exceeds the capacity of this line.

Landholders have also queried whether the existing line could be rebuilt to a higher capacity. Installation of modern conductor would increase the capacity of the line; however, the additional weight of the larger conductor exceeds the loading limits of the existing transmission towers. A new line would need to be built on a separate alignment.

In summary, Powerlink's existing 132kV transmission line traversing the BRWF Project Area does not have sufficient spare capacity to connect the proposed wind farm and cannot be rebuilt to provide the capacity required.

1.2.2 Replacing the existing 132kV transmission line with a new 275kV transmission line

Some landholders have asked whether the proposed 275kV transmission line could be built adjacent to the existing 132kV line which would then be removed. This supply option would require building a new 275/132kV substation at Biloela and the BRWF project site. The cost for these additional works makes this supply option uneconomic compared to other supply options considered.

Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Railway
- Roads
- EDF Renewables Banana Range Wind Farm

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000

metres

Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

LOCALITY MAP

FIGURE 1-1

File Name: 62094_F001.1_LocalityMap
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

2. Transmission Line Project Description

The proposed 275kV transmission line will comprise steel lattice towers in a double circuit arrangement. A representative photo is shown in **Photo 1**.

Photo 1 Self-supporting steel lattice tower in double circuit configuration

Tower heights vary depending on topographical and land use features and typically range between 40-60m in height. Span lengths between towers also vary depending on the same features with a typical length on flat ground being around 450m.

275kV transmission lines are generally located within a 60m wide easement registered on each property title. The easement provides Powerlink with a legal right to access land and build, operate and maintain transmission infrastructure within the easement area. Ownership of the land remains with the landholder and farming activities can continue within the easement and under the transmission line conductors subject to some safety and operational restrictions. A key focus of the engagement process is for Powerlink to work with each directly affected landholder to understand their property operations and where possible, place transmission structures and provide sufficient conductor height above ground to minimise impacts to farming operations.

Construction of a transmission line is undertaken in the five stages –

- Vegetation clearing and access tracks;
- Transmission tower benching and foundations;
- Tower assembly and erection;
- Installation of conductor (powerline wires) onto the transmission tower; and
- Site rehabilitation and demobilisation.

These are discussed in greater detail in Sections **2.1** to **2.5**.

2.1 Vegetation clearing and access tracks

Sufficient vegetation is cleared from the easement to enable the transmission line to be safely operated. A range of clearing methods may be used depending on land use, environmental constraints, maintenance requirements and landholder preferences. Existing tracks are used where possible and new tracks installed to provide access to each tower site. Tracks are typically left in place following the completion of construction to facilitate ongoing access requirements for operation and maintenance activities.

2.2 Transmission tower benching and foundations

Geotechnical assessments undertaken prior to construction determine the type of foundation to be installed in a particular location. 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.

2.3 Tower assembly and erection

Steel for lattice towers is fabricated, galvanised, sorted and bundled ready for delivery to each tower site typically by a semi-trailer. Assembly of the tower is usually carried out adjacent to its final site and involves a number of tower sections being lifted by crane into position and bolted together (**Photo 2**).

Photo 2 Tower assembly

2.4 Installation of conductor onto the transmission tower

This stage involves installing the conductors (or wires) onto the tower in a process known as 'stringing'. Conductor is 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. **Photo 3** shows a helicopter running out the draw wire through the pulleys on the tower crossarms.

Photo 3 Helicopter stringing

2.5 Site rehabilitation and demobilisation

Once construction activities are completed, each tower site is 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. Powerlink works with each landholder to agree on the rehabilitation requirements on each property.

3. Purpose of this report

The purpose of this Draft Corridor Selection Report (DCSR) is to assess the suitability of potential transmission line corridors (generally 1km wide) within a defined Study Area to determine the most feasible corridor within which to locate the proposed 275kV transmission line.

The assessment of proposed corridor options has considered a range of social, environmental and physical factors identified via desktop and limited field-based analysis as detailed in **Section 5**. Since July 2022, this analysis has been complemented by broad, early engagement with landholders, the wider community and other stakeholders (refer **Section 4** of this report).

3.1 Assessment Methodology

The methodology adopted for this report comprises the following steps:

- Define a broad Study Area for the transmission line project incorporating the two substation locations and of sufficient width to enable flexibility in the identification and assessment of viable corridor options;
- Build a project-specific geographical information system database which includes data that is publicly available or supplied by Powerlink;
- Undertake initial engagement with landholders, the local community and other stakeholders within the Study Area to understand matters of importance to them and obtain detailed local knowledge to help inform the identification and assessment of potential corridors;
- Undertake a desktop and limited field-based assessment of environmental, land use and social characteristics and features using the geographical information system database, topographic maps, satellite imagery, local government planning schemes, government mapping, database searches and inspections from roads and other public areas;
- Use the information from the engagement and assessment processes to evaluate the Study Area and identify potential transmission line corridors generally 1km wide;
- Undertake initial engagement with landholders, the local community and other stakeholders regarding the potential corridors and seek feedback on their suitability and opportunities for refinement; and
- Comparatively assess the potential corridors and identify the recommended corridor within which to locate the transmission line.

This DCSR will be released publicly to provide landholders, the local community and other stakeholders with an opportunity to review the assessment undertaken so far and make a formal submission on the suitability of the findings. Powerlink will review all submissions received and undertake further engagement and technical assessments before finalising the CSR. The Final Corridor Selection Report (FCSR) will also be publicly released and confirm the location of the recommended corridor for the transmission line. This corridor is known as the Study Corridor and is then subject to detailed technical assessment and engagement with landholders, the local community and other stakeholders to determine an alignment for the proposed line within the corridor.

4. Early engagement with landholders and the community

Electricity transmission infrastructure requires the construction of large steel structures along a linear alignment which may impact on the existing social and environmental characteristics of the receiving community. Powerlink recognises its proposed infrastructure may cause uncertainty for members of the community and is committed to engaging early and transparently with landholders, the broader community and other stakeholders in its development process to ensure they are aware of the project (a 'no surprises' approach), have multiple opportunities to provide valuable local knowledge and insights, and can comment on the suitability of Powerlink's project moving forward.

4.1 Consultation regarding the Study Area

Early engagement for the project commenced in June 2022 with phone calls and letters to landholders in the Study Area. Meetings were also undertaken from this time and are ongoing. In mid-June 2022, letters were sent to all landholders in the Study Area inviting them to attend the first community information drop-in sessions at the Biloela Civic Centre in mid-July 2022 to find out more about the project.

Data from engagement regarding the Study Area is provided below:

- Number of phone calls made/received - 157
- Number of letters (June 2022) sent - 227
- Number of individual meetings - 3
- Number of feedback forms received - 7
- Number of emails received - 4
- Number of entries on interactive mapping site (Social Pinpoint) – 6
- Number of feedback forms submitted at community information drop-in sessions - 27
- Number of people attending community information drop-in sessions – 35

The key matters raised by landholders during the early engagement phase for the Study Area are summarised in **Plate 1**.

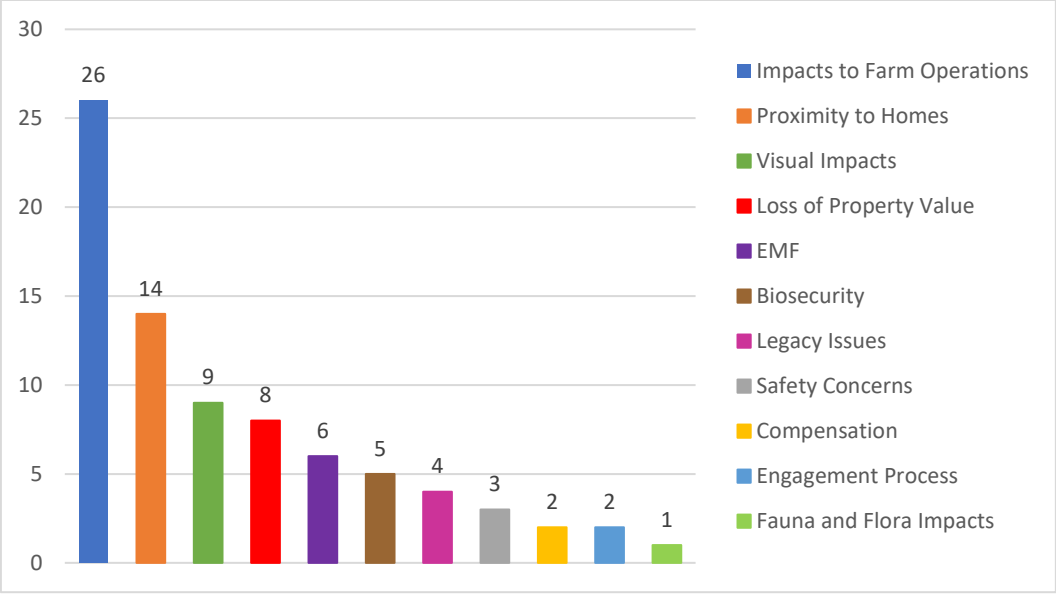


Plate 1 Matters raised by landholders during early engagement for the Study Area

The top 5 matters raised by landholders included:

- Impacts to farming operations including biosecurity, loss of productivity, impact on machinery movement and access, compaction of soils, irrigation systems such as centre pivots and travelling irrigators;
- Proximity to homes;
- Visual impacts of the transmission line;
- Loss of property value; and
- Perceived health effects from Electric and Magnetic Fields (EMFs).

4.2 Initial consultation regarding the potential transmission line corridors

Feedback from the Study Area engagement provided valuable information for the assessment of potential corridors for the proposed transmission line. Three potential corridors generally 1km wide were identified for detailed analysis and in late August 2022, landholders within each corridor were contacted together with a range of other stakeholders and invited to provide initial comments on the suitability of the corridors. They were also invited to attend the second round of community information drop-in sessions in mid-September 2022 where over 25 members of the community participated. These sessions enabled the project team to meet face-to-face with landholders within the potential corridors and other stakeholders in the project area to discuss any issues or concerns and provide valuable feedback on the proposed corridor options. All interactions with landholders were captured with feedback options remaining open for comment until 30 September 2022.

Data from initial engagement regarding the potential transmission line corridors is provided below:

- Number of phone calls made/received - 60
- Number of Corridor Option letters and supporting information (via email or post) sent - 56
- Number of attendees at community information drop-in sessions - 28
- Number of meetings – 21
- Number of email submissions received - 11
- Number of feedback forms received - 1
- Number of entries on interactive mapping site (Social Pinpoint) – 6 (from 28 August 2022)

The feedback received from landholders within the potential corridors and the broader community was consistent with the earlier engagement undertaken in July 2022 with some new matters identified including –

- Impacts to transport routes and airstrip and aviation facilities within or nearby the potential corridors.
- Impacts to major development plans on some properties, including other renewable generation projects.

Plate 2 graphs the key matters raised by landholders and other stakeholders across the corridor option phase engagement.

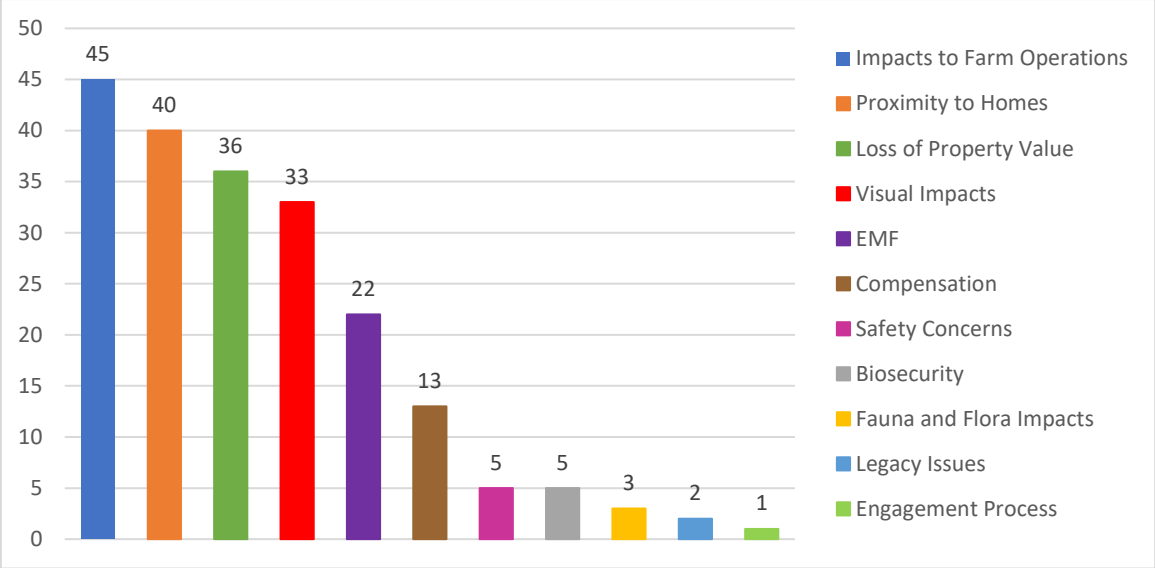


Plate 2 Matters raised by landholders during early engagement on the proposed corridor options

Based on the feedback from landholders, the community and other stakeholders, particularly around impacts to transport routes and airstrip and aviation facilities within or nearby the potential corridors; and impacts to major development plans on some properties, including other renewable generation projects. Small amendments were made to the boundaries of some of the corridors assessed in subsequent sections of this DCSR.

4.3 Farming Near Transmission Lines

The key matter raised by landholders across the early engagement phase is for the transmission line to minimise impacts on high value cultivated land due to concern for farm productivity and personnel safety. More specifically these concerns have related to –

- Permanent removal of areas from production and associated loss of revenue
- Electrical safety concerns for farm infrastructure operating in proximity of the transmission line
- Impact of EMF on farm personnel and Radio Frequency Interference on GPS guided farm machinery

This section provides an initial overview of these matters with more detailed information to be provided by Powerlink as engagement progresses.

4.3.1 Removal of areas from production

The base of transmission towers varies in size depending on the height of the structure and whether it is on a bend point or part of a straight run. Generally, tower bases range in size from 12m x 12m up to 20m x 20m. A clearance area of 20 metres around towers needs to be maintained for all planting type activities. Impacts to farm operations include the difficulty of movement of agricultural machinery with booms around towers, and impact of access tracks and EMF on controlled traffic farming operations, and compaction of soils, which all have potential to remove areas of production. The permanent loss of the tower base, clearance area and access tracks to agricultural production is assessed as part of the compensation process. Agricultural activities, such as grazing or production of low growing crops (less than 3.5m high) are permitted within the remainder of the easement, although approval may be necessary for tall operating equipment.

Powerlink will work with each directly affected landholders to locate towers, as best as possible, in locations which minimise impacts to farming operations. There are design and cost limitations to what can be achieved so it may not always be possible to locate a tower exactly in the location

requested by a landholder, however, Powerlink will work closely with landholders to examine and consider their particular property requirements to minimise impacts as much as possible. It is Powerlink's preference to, where possible, position towers close to boundaries or other existing infrastructure to minimise impacts on cropping activities. Co-location advantages include minimising impacts on cropping land by limiting the impacts to one area, and ability to utilise existing access tracks and points for maintenance.

4.3.2 Electrical safety

Powerlink will also work with each landholder to understand the operating height of farm machinery that may work safely under the transmission line conductors and may consider increasing the height of the towers so farming activities can be undertaken safely.

4.3.3 Electric and Magnetic Fields, including Radio Frequency Interference

EMF are found everywhere electricity or electrical equipment is used, including in the home, office, work sites and around transmission lines.

Electric fields are present in any appliance plugged into a power point which is switched on or on stand-by. They are proportional to the voltage of the appliance and the distance the user is from it. They are strongest close to their source and their strength diminishes rapidly as you move away in much the same way as noise decreases as you move away from the source. Electric fields are also shielded by most objects including trees, buildings and even human skin.

Magnetic fields are present in any appliance plugged into a power point, switched on and operating. They are proportional to the amount of electrical current flowing in the device. When an appliance is completely turned off, there is no magnetic field. Again, these are strongest close to their source, and their strength diminishes rapidly as you move away.

The power industry in Australia has a proactive management program specific to EMF at power frequencies (50 Hz). In conjunction with this, the Federal Government's Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) also maintains continual oversight of emerging research into the potential health effects of EMF exposure from powerlines and other electrical sources in order to provide accurate and up-to-date advice. The scientific evidence from independent bodies does not establish that exposure to EMF found around the home, the office or near powerlines and other electrical sources is a hazard to human health.

ARPANSA publishes guidelines for EMF exposure relating to all relevant situations to ensure community safety and the safety of electricity industry staff who work at much closer distances.

For magnetic fields, Powerlink's transmission network is designed and operated well below the general public exposure guideline limits of 200 micro-Tesla (µT). Similarly for electric fields, the network is designed and operated to observe the recommended general public guideline limit of 5kilovolts per metre (kV/m).

Powerlink recognises community interest in EMF and is committed to working closely with landholders, the local community and other stakeholders by:

- Taking a prudent avoidance approach. Where possible, locating proposed transmission infrastructure away from houses and habitable buildings so they do not materially add to EMF levels that already exist in a typical household environment;
- Providing information to the public regarding the latest findings from independent and credible scientific research into potential health impacts;
- Designing transmission lines to reduce EMFs in accordance with best practice guidelines; and
- Providing the maximum EMF generated by proposed transmission lines as part of public consultation for planned projects.

Some landholders have raised concerns with Powerlink regarding the impact of EMF (more specifically Radio Frequency Interference) on GPS guided precision agricultural equipment. In response to this feedback, Powerlink has commissioned a technical study from precision agricultural experts Data Farming at Toowoomba and will provide the results shortly.

An independent study commissioned by Transgrid in 2022 for Project EnergyConnect (proposed 330kV and 500kV lines) in southern NSW stated that modern transmission lines must comply with radio frequency limits set out in Australian Standard 2344. These lines are not expected to cause interference to GPS signals due to corona or gap discharges, however, there may be instances where signals are temporarily blocked in very close proximity to a transmission structure, similar to passing a tree or other physical impediment.

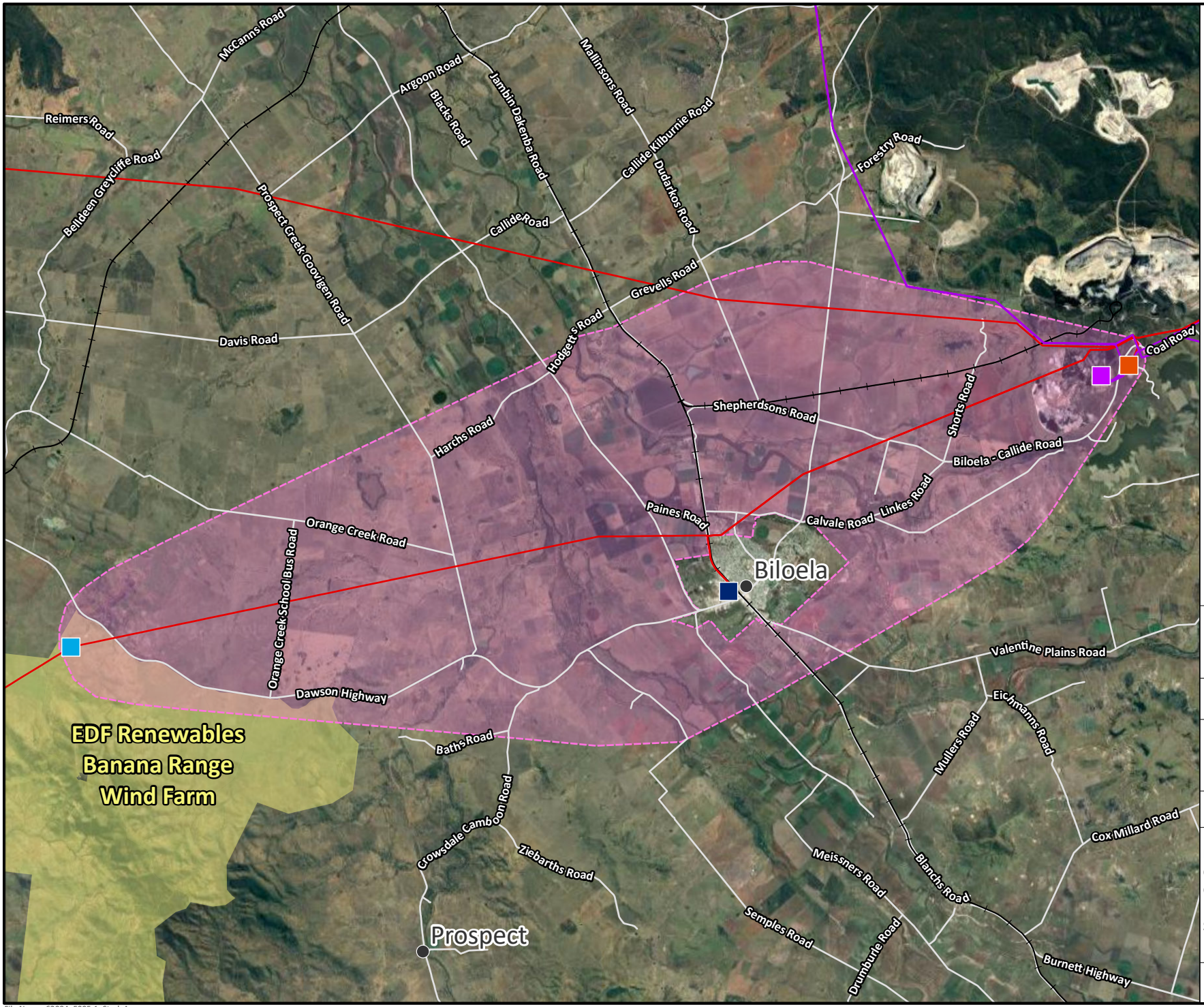
Powerlink will work with directly affected landholders to understand the type and layout of precision agricultural equipment being used and, if necessary, conduct in-field testing before and after construction to determine if there are any impacts on GPS systems from the transmission line. Remedial actions will be undertaken by Powerlink should impacts be identified such as the installation of booster equipment.

5. Description of the Study Area

The Study Area for the transmission line project wraps around the town of Biloela within the Banana Shire Council Local Government Area. It encompasses an area of around 28,000 hectares between the proposed BRWF Substation location and Powerlink's existing Calvale Substation as shown in **Figure 5-1** below. The northern boundary of the Study Area generally extends to near Grevells and Hodgetts Road at Dakenba and in the south to the hill section south-west of Callide Dam and through to Valentine Plains. West of Biloela, the Study Area converges to the BRWF Substation site at the base of the Banana Range. The residential area within Biloela has been excluded from the Study Area as this type of land use is not compatible with transmission line development.

Key features of the Study Area include:

- The Burnett and Dawson Highways;
- The Callide Power Station and Calvale Substation;
- Moura Railway line;
- Several high voltage transmission lines from the power station including the:
    - Calvale to Stanwell 275kV transmission lines;
    - Calvale to Biloela to Moura 132kV transmission line; and
    - Calvale to Baralaba 132kV transmission line.
- Wallumbilla to Gladstone to Rockhampton Branch Pipeline – Jemena QLD Gas Pipeline Pty Ltd;
- Residential and rural residential dwellings within and nearby Biloela;
- Significant cultivation land from Kroombit and Grevillea Creeks extending east to the Callide Power Station;
- Significant grazing land generally west of Kroombit and Grevillea Creeks with further areas toward the top of the Study Area and south-west of Callide Dam; and
- Extensive Strategic Cropping Land (SCL) areas covering the majority of the Study Area from near Callide Power Station west to Prospect.



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Railway
- Roads
- Study Area
- EDF Renewables Banana Range Wind Farm

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000

metres

Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

STUDY AREA

FIGURE 5-1

File Name: 62094_F005.1_StudyArea
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

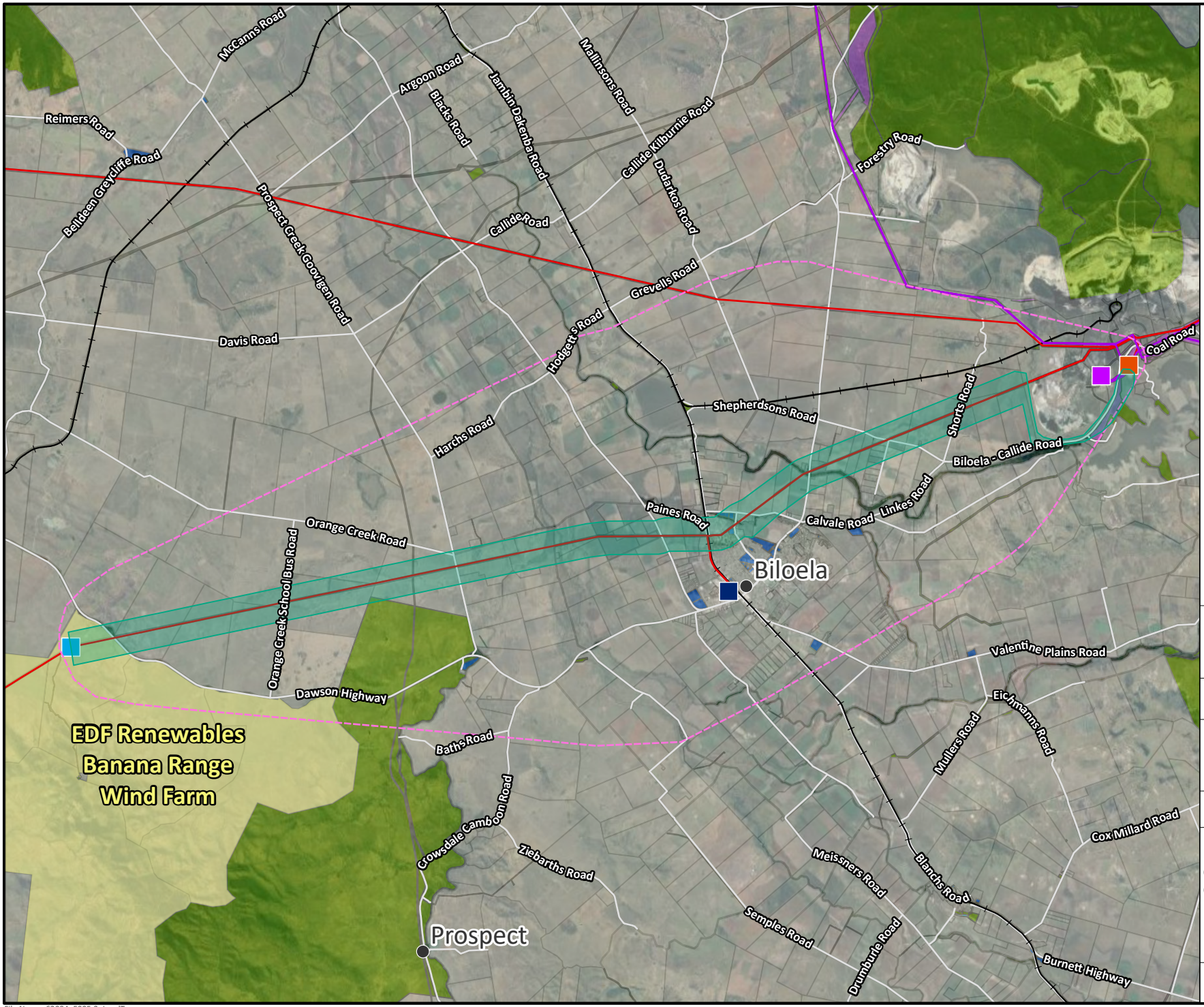
5.1 Social Environment

5.1.1 Tenure

Land tenure within the Study Area is predominantly freehold with some leased land, easements, road reserves and unallocated state land (see **Figure 5-2**). Land parcels vary in size from 0.06 ha (smaller lots in the town of Biloela to 9,480 ha (farm holdings).

The main easements and leases within the Study Area include:

- Moura Railway line;
- Moura to Biloela 132kV transmission line;
- Baralaba to Callide A Power Station 275kV transmission line
- Baralaba to Callide 132kV transmission line; and
- Wallumbilla to Gladstone to Rockhampton Branch Pipeline – Jemena QLD Gas Pipeline Pty Ltd.



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Railway
- Roads
- Study Area
- EDF Renewables Banana Range Wind Farm

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Land Tenure

- Freehold
- Lands Lease
- Reserve
- State Land
- State Forest
- Covenant
- Easement
- Proposed Central Corridor

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000

metres

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Banana Range Wind Farm Connection Project – Corridor Selection Report

LAND TENURE

FIGURE 5-2

File Name: 62094_F005.2_LandTenure
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

5.1.2 Land use

The Study Area intersects the Banana Shire Council Local Government Area.

Under the Banana Shire Council Planning Scheme, land is mostly zoned 'rural' with the exception of areas around Biloela zoned as general residential, recreation and open space and community facilities.

The Callide Mine and Power Station and Calvale Substation are located within the eastern extent of the Study Area and provide a major source of employment for the local community of Biloela.

Rural land uses generally consists of grazing as well as intensive cropping such as lucerne and cotton. The intent of the rural zoning is to preserve land for agricultural purposes and protect the rural character and amenity of the region. It also recognises the need to provide opportunities for compatible non-rural uses and for areas to be managed for their contribution to the economy, landscape character and ecological values.

The Study Area is located within the Central Queensland Regional Plan. Key mapped regional interests within the Study Area include 'priority agricultural areas' and 'SCL' which covers most of the Study Area with the exception of some small pockets and 'priority living areas' around the township of Biloela (see **Figure 5-3**). A number of irrigation channels are present across the Study Area which are utilised by the agricultural properties in the area.

The Queensland Government maps agricultural land classes across Queensland, to assist with the identification of important agricultural areas in the State.

Agricultural land classes types include:

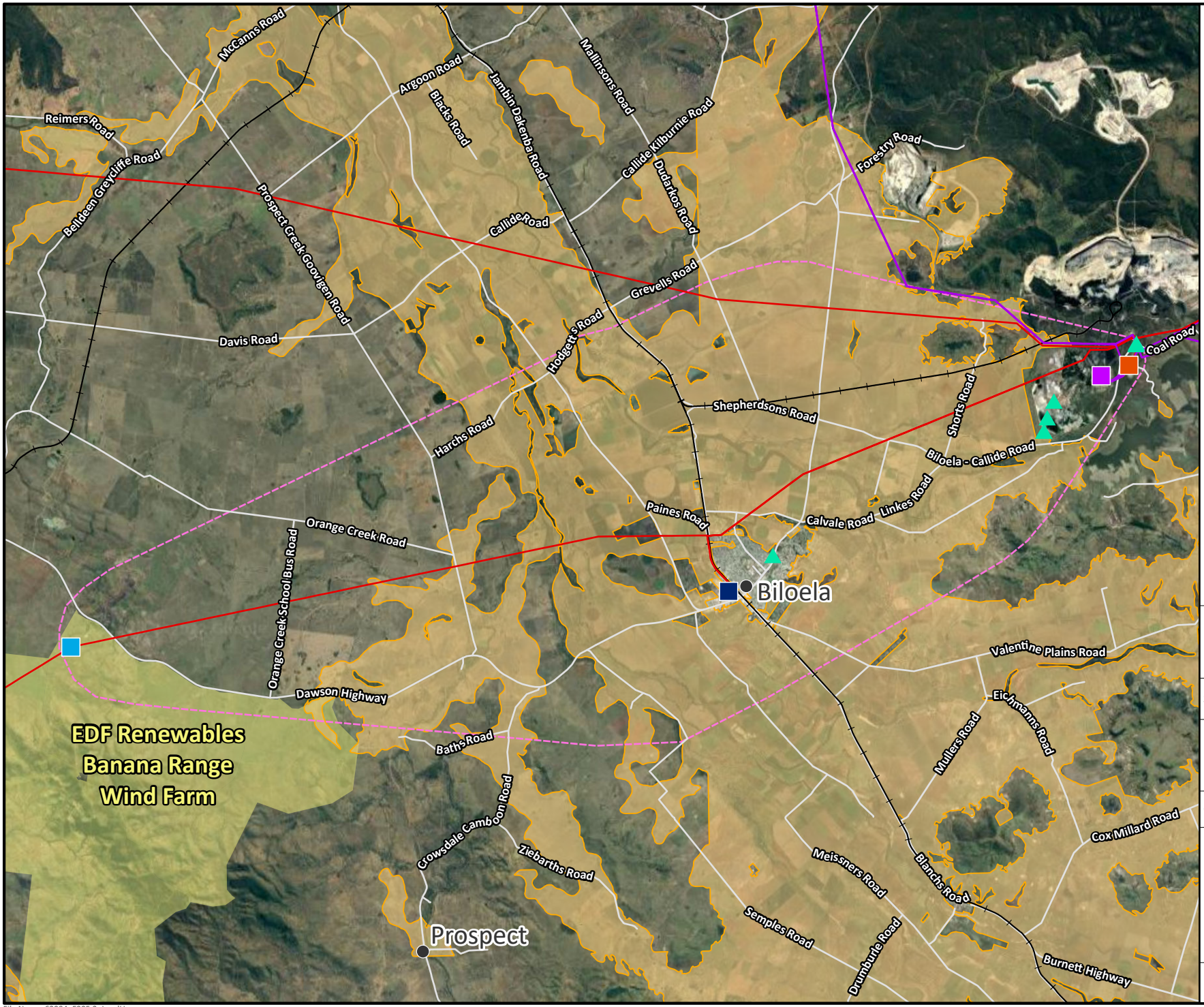
- Class A: Crop land that is suitable for a wide range of current and potential crops with nil to moderate limitations to production;
- Class B: Limited crop land that is suitable for a narrow range of current and potential crops due to severe limitations but is highly suitable for pastures. May be suitable for cropping with engineering or agronomic improvements;
- Class C: Pastureland that is suitable only for improved or native pastures due to limitations which preclude continuous cultivation for crop production; and
- Class D: Non-agricultural land and land not suitable for agricultural uses due to extreme limitations (ie. undisturbed land with significant conservation values, steep slopes, shallow soils, poor drainage, or is an urbanised area).

The land classes inform strategic policy, planning and investment decisions, including providing protection of locally important agricultural areas and investment in infrastructure which supports agriculture. The Queensland Government State Planning Policy (Agriculture State Interest)[1] protects Agricultural Land Classification Class A and B.

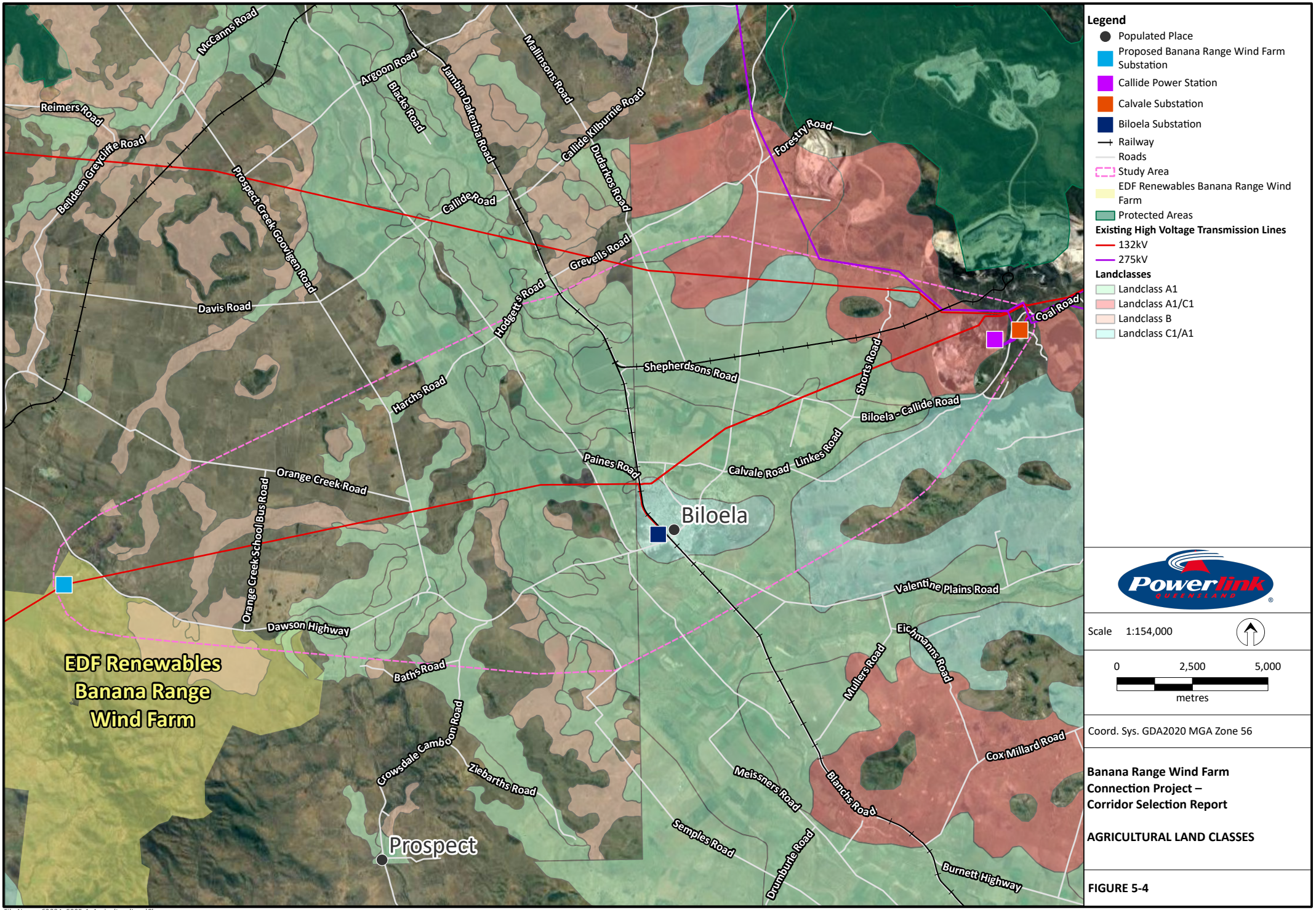
Land within the Study Area contains mostly Agricultural Land Class A and Class C, with some areas of Class B as shown in **Figure 5-4**.

Land use has been confirmed through field inspections which identified existing house locations and current land use as consistent with what is mapped.

[1] https://dsdmipprd.blob.core.windows.net/general/spp-july-2017.pdf



File Name: 62094_F005.3_LandUses
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



File Name: 62094_F005.4_AgriculturalLandClasses
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

5.1.3 Heritage

A search of the Department of Aboriginal and Torres Strait Islander Partnerships' cultural heritage database identified the Gaangalu National People as the cultural heritage party for the study area. Seven cultural heritage sites have been recorded within the study area and within a 1km buffer area and include artefact scatters, a scarred tree, isolated find and a burial (**Appendix A**). Further on ground surveys will be required to confirm the presence of any additional cultural heritage.

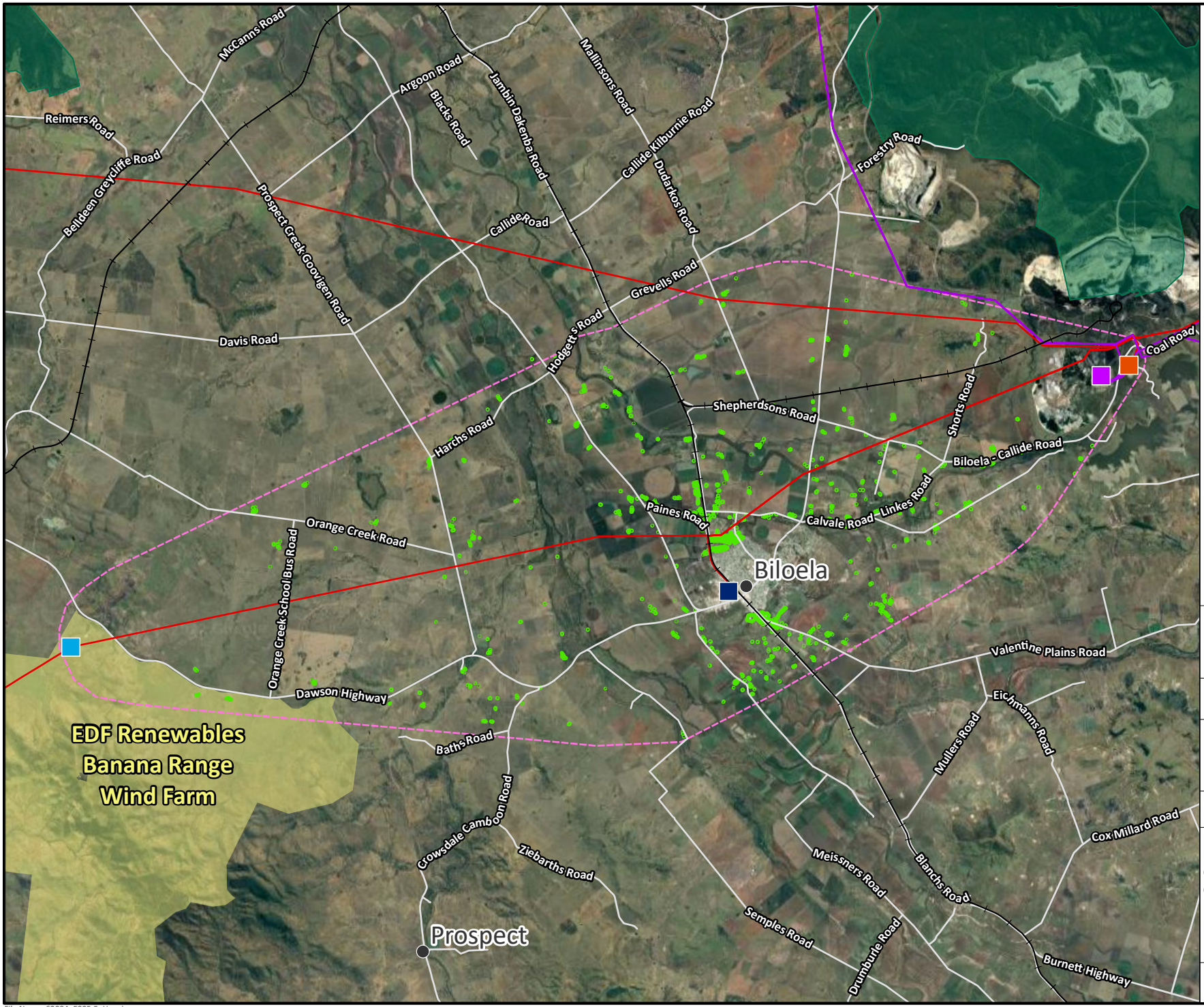
No heritage places listed on the Australian Heritage Database are present within the study area.

One Queensland Heritage Place and local heritage place is located within the study area being the Greycliffe Homestead at 48 Gladstone Road, Biloela (see **Figure 5-3**). The Homestead is listed as a heritage place due to its significance in early European exploration and settlement within Queensland and is one of the early homesteads in the Leichhardt Pastoral District (**Appendix A**).

5.1.4 Housing

The majority of residences are concentrated around the Biloela township with rural residences spread across the remainder of the Study Area.

Dwelling locations within the Study Area are mapped in **Figure 5-5**. It should be noted that public data on property dwellings and structures is not completely accurate and therefore property buildings have been identified manually using aerial imagery. While care was taken to identify all possible built structures within the Study Area, a comprehensive analysis and ground-truthing of all potentially affected properties will need to be undertaken in future studies.



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Railway
- Roads
- Study Area
- Houses
- EDF Renewables Banana Range Wind Farm
- Protected Areas

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000

metres

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Banana Range Wind Farm Connection Project – Corridor Selection Report

HOUSING

FIGURE 5-5

File Name: 62094_F005.5_Housing
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

5.1.5 Resource interests

Two mineral exploration permits are present in the western section of the Study Area, however, it is noted these permits do not affect land use rights and therefore are not a constraint to development of the proposed transmission line.

The Callide Coal Mine is located in the north-east of the Study Area adjacent to the Callide Power Station. The proposed corridor options discussed in **Section 7** avoid this area.

5.1.6 Transport and traffic

Two State-controlled roads traverse the Study Area:

- Burnett Highway, which connects Monto to Mt Morgan through Biloela; and
- Dawson Highway, which connects Gladstone to Banana through Biloela.

A number of local roads are located within the Study Area and are managed by Banana Shire Council.

There are five aerodromes listed within the Banana Shire Local Government Area:

- Baralaba Aerodrome;
- Moura Aerodrome;
- Taroom Aerodrome;
- Thangool Aerodrome; and
- Theodore Aerodrome.

None of these aerodromes are located within the Study Area, however, two private airstrips have been identified:

- Fitzy's Airfield, located along Dudarkos Road; and
- Airfield located along Shepherdsons Road.

Transmission lines located in close proximity to airstrips can prevent planes from safely landing and taking off and therefore adequate distances must be maintained where possible.

The Moura Railway traverses the north-eastern portion of the Study Area and connects the Callide Mine to the wider rail network.

5.1.7 Native Title

The study area is located entirely within the registered native title claim area of the Gaangalu Nation People (QC2012/009). Detailed investigation of tenures against native title considerations will occur once a corridor is determined. Engagement with the native title party on the impact of the transmission line on native title rights and interests will need to be addressed in accordance with the Native Title Act 1993.

An Indigenous Land Use Agreement (QI2014/006) intersects the study area approximately 7km west of the Burnett Highway. The Indigenous Land Use Agreement is between the Gaangalu Nation People and Australia Pacific LNG Pty Ltd and Australia Pacific LNG Gladstone Pipeline Pty Ltd.

5.2 Natural Environment

5.2.1 Flora

The Study Area is relatively cleared and modified as a result of historical and current land practices such as grazing, cropping and other rural industry uses, however, the Protected Matters Search Tool (PMST) identified 13 *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed threatened plant species that have the potential to occur within the Study Area, including (**Appendix A**):

- Hairy-joint grass (*Arthraxon hispidus*) (EPBC Act – vulnerable, NC Act – vulnerable);
- *Bertya opponens* (EPBC Act – vulnerable);
- Miniature moss-orchid (*Bulbophyllum globuliforme)* (EPBC Act – vulnerable, NC Act – vulnerable);
- Ooline (*Cadellia pentastylis)* (EPBC Act – vulnerable, NC Act – vulnerable);
- Cossinia (*Cossinia Australiana)* (EPBC Act – endangered, NC Act – endangered);
- *Cycas megacarpa* (EPBC Act – endangered, NC Act – endangered);
- King bluegrass (*Dichanthium queenslandicum)* (EPBC Act – endangered, NC Act – vulnerable);
- Blugrass (*Dichanthium setosum*) (EPBC Act – vulnerable);
- *Polianthion minutiflorum* (EPBC Act – vulnerable, NC Act – vulnerable);
- Quassia (*Samadera bidwilli*) (EPBC Act – vulnerable, NC Act – vulnerable);
- *Solanum dissectum* (EPBC Act – endangered, NC Act – endangered);
- *Solanum johnsonianum* (EPBC Act – endangered, NC Act – endangered); and
- *Xerothamnella herbacea* (EPBC Act – endangered, NC Act – endangered).

High risk areas for protected plants represent land where plants listed as endangered, vulnerable or near threatened under the *Nature Conservation Act 1992* are known or likely to occur.

Small clusters of high-risk areas are scattered across the eastern section of the Study Area around the existing Calvale Substation, with a few other scattered areas to the south of Biloela (**Figure 5-8**). Some of these areas coincide with areas of mapped essential habitat and therefore it is likely for the *Cycas megacarpa*.

Regulated vegetation and regional ecosystems

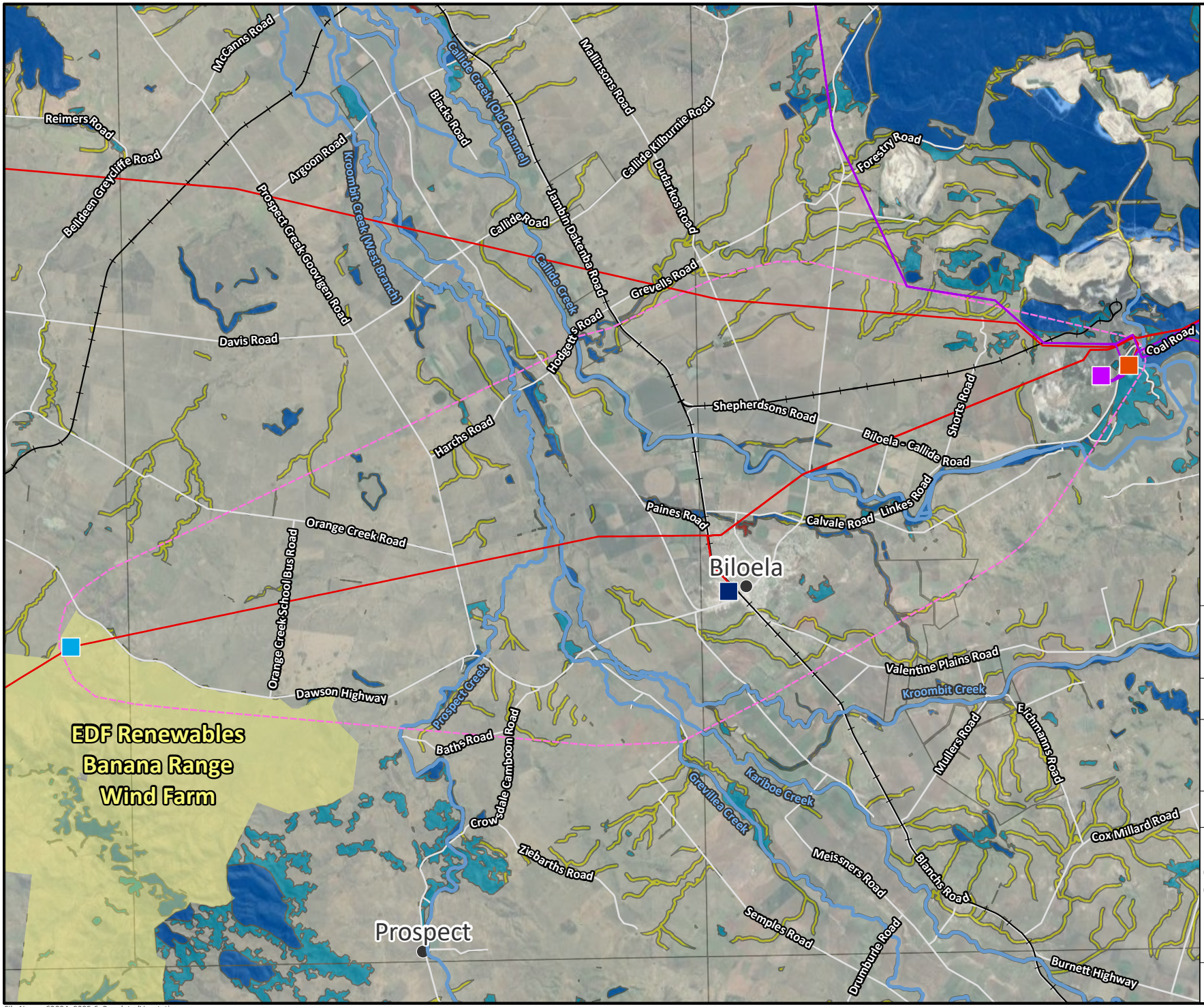
Regulated vegetation is managed under the *Vegetation Management Act 1999* and includes five types of vegetation:

- **Category A:** Compliance areas, environmental offset areas and declared areas;
- **Category B:** Remnant vegetation that is:
    - An ‘endangered’ regional ecosystem;
    - An ‘of concern’ regional ecosystem; or
    - A ‘least concern’ regional ecosystem.
- **Category C:** High-value regrowth vegetation areas that is:
    - On freehold land, indigenous land or land subject to a lease under the *Land Act 1994;* or
    - In an area that has not been cleared for at least 15 years, if the area is:

  - An ‘endangered’ regional ecosystem;
  - An ‘of concern’ regional ecosystem; or
  - A ‘least concern’ regional ecosystem.
- **Category R:** Areas within 50 m of a watercourse or drainage feature in all Great Barrier Reef Catchments; and
- **Category X:** An area that has been cleared of vegetation and does not correspond with Categories A, B, C or R.

The Study Area is generally mapped as non-remnant (Category X) vegetation, which reflects the current and historical agricultural practices of the area, however, waterways, creeks and drainage lines across the Study Area are mapped as containing Category B, C and R vegetation. An Area of Category A vegetation (offset area) is located to the east of the Biloela Showgrounds (see **Figure 5-6**) (**Appendix A**).

Regional ecosystems (RE) are vegetation communities in a bioregion that are consistently associated with a particular combination of geology, landform and soil regulated under the *Vegetation Management Act 1999*. RE within the Study Area generally include endangered and of concern communities (see **Figure 5-7**) and are mainly associated with waterways.



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Railway
- Roads
- Watercourse
- Study Area
- EDF Renewables Banana Range Wind Farm

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Regulated Vegetation

- Category A
- Category B
- Category C
- Category R
- Category X
- Water

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000

metres

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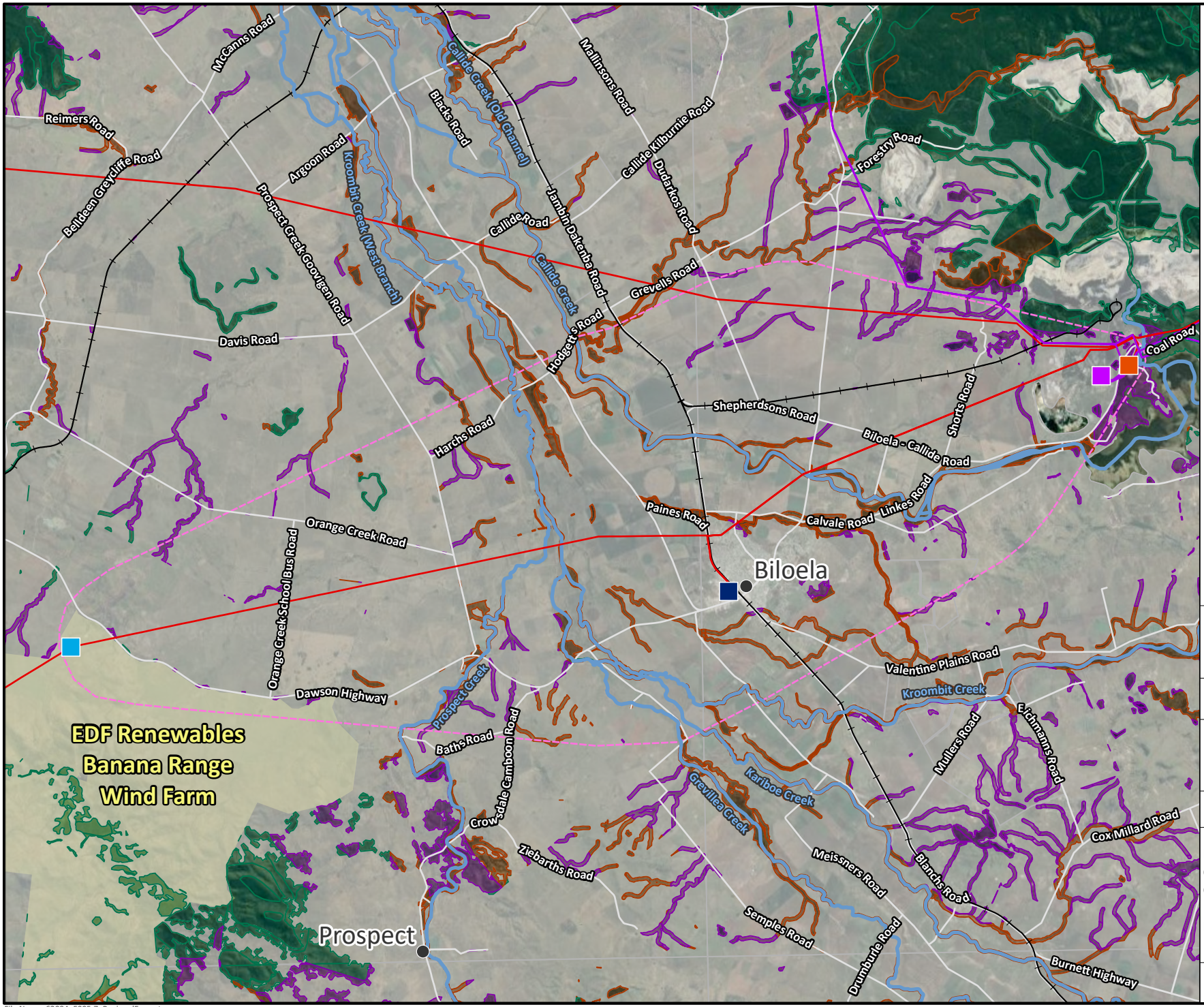
Banana Range Wind Farm Connection Project – Corridor Selection Report

REGULATED VEGETATION

FIGURE 5-6

File Name: 62094_F005.6_RegulatedVegetation
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Railway
- Roads
- Watercourse
- Study Area
- EDF Renewables Banana Range Wind Farm

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)
- Non-Remnant Vegetation

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000
metres

Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

REGIONAL ECOSYSTEMS

FIGURE 5-7

File Name: 62094_F005.7_RegionalEcosystems
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

Threatened ecological communities

RE listed under the State's *Vegetation Management Act 1999*, correspond to ecological communities listed under the EPBC Act.

The Protected Matters Search Tool report identified five Threatened Ecological Communities listed as endangered under the *EPBC Act* as known, likely to or may occur within the Study Area including:

- Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions (endangered);
- Poplar Box Grassy Woodland on Alluvial Plains;
- Weeping Myall Woodlands;
- Brigalow (*Acacia harpophylla* dominant and co-dominant); and
- Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions.

Details around the known distribution and habitat and corresponding RE of these Threatened Ecological Communities is provided in **Table 5.1**.

Table 5.1: Potential Threatened Ecological Communities within the Study Area

KNOWN DISTRIBUTION AND HABITAT	CORRESPONDING RE
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions (endangered)	
This TEC is associated floodplains and drainage areas and is likely to occur in the Banana Local Government Area. This TEC represents occurrences of one type of eucalypt woodland, where *Eucalyptus coolabah* supsp. *Coolabah (*Coolabah) and/or *Eucalyptus largiflorens* (Black Box) are the dominant canopy species (TSSC, 2011).	• Regional Ecosystem 11.3.3: *Eucalyptus coolabah* woodland on alluvial plains • Regional Ecosystem 11.3.15*: Eucalyptus coolabah*, *Acacia stenophylla, Muehlenbeckia florulenta* fringing woodland on alluvial plains • Regional Ecosystem 11.3.16: *Eucalyptus largiflorens*, ± *Acacia cambagei* ± *Acacia harpophylla* woodland to low open woodland on alluvial plains • Regional Ecosystem 11.3.28: *Eucalyptus coolabah* ± *Casuarina cristata* open woodland on alluvial plains • Regional Ecosystem 11.3.37: *Eucalyptus coolabah* fringing woodland on alluvial plains
Poplar Box Grassy Woodland on Alluvial Plains (endangered)	
This TEC mostly occurs in gently undulating to flat landscape and occasionally on gentle slopes on a wide range of soil types of alluvial and depositional origin. This TEC is typically a grassy woodland with a canopy dominated by *Eucalyptus populnea* (DoEE, 2019).	• Regional Ecosystem 11.3.2: *Eucalyptus populnea* woodland on alluvial plains • Regional Ecosystem 11.3.17: *Eucalyptus populnea* woodland with *Acacia harpophylla* and/or *Casuarina cristata* on alluvial plains • Regional Ecosystem 11.4.7: *Eucalyptus populnea* with *Acacia harpophylla* and/or *C. cristata* open forest to woodland on Cainozoic clay plains • Regional Ecosystem 11.4.12: *Eucalyptus populnea* woodland on Cainozoic clay plains • Regional Ecosystem 12.3.10: *Eucalyptus populnea* +/- *Eucalyptus tereticornis* grassy woodland/tall woodland +/- patches of *Acacia harpophylla* and *Melaleuca bracteata*
Weeping Myall Woodlands (endangered)	
This TEC occurs on the inland alluvial plains west of the Great Dividing Range on flat areas, shallow depressions or gilgais on raised alluvial plains. This TEC occurs in open woodlands to woodlands, in which *Acacia pendula* (Weeping Myall) trees are the sole, or dominant overstory species (TSSC, 2009).	• Regional Ecosystem 11.3.2: *Eucalyptus populnea* woodland on alluvial plains • Regional Ecosystem 11.3.28: *Eucalyptus coolabah* ± *Casuarina cristata* open woodland on alluvial plains

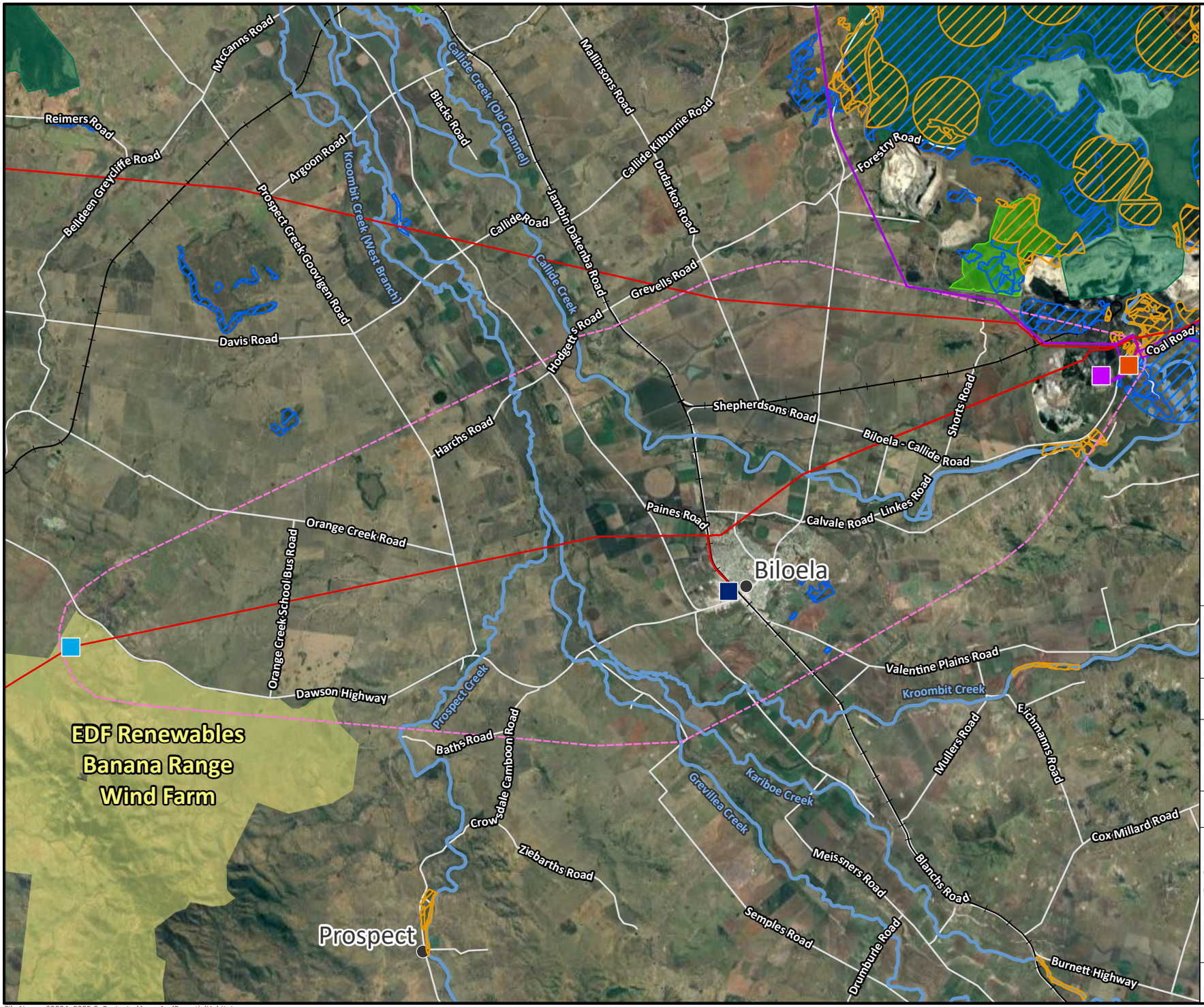
KNOWN DISTRIBUTION AND HABITAT	CORRESPONDING RE
Brigalow (*Acacia harpophylla* dominant and co-dominant) (endangered)	
This TEC is found in the Brigalow Belt North, Brigalow Belt South IBRA Bioregions. This TEC is characterised by the present of *Acacia harpophylla* as one of the most abundant species and commonly consists of open forests and woodlands (TSSC, 2001).	• Regional Ecosystem 11.3.1: *Acacia harpophylla* and/or *Casuarina cristata* open forest on alluvial plains. • Regional Ecosystem 11.4.3: *Acacia harpophylla* and/or *Casuarina cristata* shrubby open forest on Cainozoic clay plains. • Regional Ecosystem 11.4.7: Open forest to woodland of *Eucalyptus populnea* with *Acacia harpophylla* and/or *Casuarina cristata* on Cainozoic clay plains. • Regional Ecosystem 11.4.8: *Eucalyptus cambageana* woodland to open forest with *Acacia harpophylla* or *Acacia argyrodendron* on Cainozoic clay plains. • Regional Ecosystem 11.4.9: *Acacia harpophylla* shrubby open forest to woodland with *Terminalia oblongata* on Cainozoic clay plains. • Regional Ecosystem 11.4.10: *Eucalyptus populnea* or *Eucalyptus pilligaensis*, *Acacia harpophylla*, *Casuarina cristata* open forest to woodland on margins of Cainozoic clay plains. • Regional Ecosystem 11.5.16*: Acacia harpophylla* and/or *Casuarina cristata* open forest in depressions on Cainozoic sand plains/remnant surfaces. • Regional Ecosystem 11.9.1: *Acacia harpophylla- Eucalyptus cambageana* open forest to woodland on fine-grained sedimentary rocks. • Regional Ecosystem 11.9.5: *Acacia harpophylla* and/or *Casuarina cristata* open forest on fine-grained sedimentary rocks. • Regional Ecosystem 11.9.6: *Acacia melvillei* +/- *Acacia harpophylla* open forest on fine-grained sedimentary rocks. • Regional Ecosystem 11.11.14: *Acacia harpophylla* open forest on deformed and metamorphosed sediments and interbedded volcanics. • Regional Ecosystem 11.12.21: *Acacia harpophylla* open forest on igneous rocks; colluvial lower slopes.
Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions (endangered)	
This TEC is considered a dry seasonal subtropical rainforest and occurs in areas with a subtropical, seasonally dry climate on soils of high to medium fertility and is generally characterised by the prominence of trees with microphyll sized leaves and the frequent presence of *B. Australis* and *B. ruperstris* (DERM, 2010).	• Regional Ecosystem 11.2.3: Microphyll vine forest on sandy beach ridges • Regional Ecosystem 11.3.11: Semi-evergreen vine thicket on alluvial plains • Regional Ecosystem 11.4.1: Semi-evergreen vine thicket ± *Casuarina cristata* on Cainozoic clay plains • Regional Ecosystem 11.5.15: Semi-evergreen vine thicket on Cainozoic sand plains/remnant surfaces • Regional Ecosystem 11.8.3: Semi-evergreen vine thicket on Cainozoic igneous rocks • Regional Ecosystem 11.8.6: *Melodrum leichhardtii* thicket on Cainozoic igneous rocks • Regional Ecosystem 11.8.13: Semi-evergreen vine thicket and microphyll vine forest on Cainozoic igneous rocks • Regional Ecosystem 11.9.4: Semi-evergreen vine thicket on Cainozoic fine-grained sedimentary rocks • Regional Ecosystem 11.9.8: *Melodrum leichhardtii* thicket on Cainozoic fine-grained sedimentary rocks • Regional Ecosystem 11.11.18: Semi-evergreen vine thicket on old sedimentary rocks with varying degrees of metamorphism and folding

Essential habitat

Essential Habitat is vegetation in which a species that is Endangered or Vulnerable under the *Nature Conservation Act 1992* (NC Act) has been known to occur. A patch of essential habitat for the *Cycas megacarpa* (listed as endangered under the NC Act) is located within the eastern section of the Study Area (**Figure 5-8**).

Protected areas

The Study Area does not intersect any protected areas under Commonwealth or State Legislation, noting that the Callide Timber Reserve and Mount Murchison Natural Refuge are located directly northeast of the Study Area (**Figure 5-8**).



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Railway
- Roads
- Watercourse
- Study Area
- Vegetation Management - Essential Habitat
- Protected Plants Flora Survey Trigger Map
- EDF Renewables Banana Range Wind Farm
- DES Protected Areas
- MSES Protected Area - Nature Refuges

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000

metres

Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

PROTECTED AREAS AND ESSENTIAL HABITAT

FIGURE 5-8

File Name: 62094_F005.8_ProtectedAreasAndEssentialHabitat
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

5.2.2 Fauna

Threatened fauna species

The PMST report identified 41 threatened and migratory species that have the potential to occur within the Study Area, as identified in **Table 5.2**.

Table 5.2 Threatened fauna listed as occurring within 1 km of the Study Area

COMMON NAME	SCIENTIFIC NAME	EPBC ACT LISTING	NC ACT LISTING
BIRDS			
Curlew Sandpiper	*Calidris ferruginea*	Critically endangered, migratory	Critically endangered
Red goshawk	*Erythrotriorchis radiatus*	Vulnerable	Endangered
Grey falcon	*Falco hypoleucos*	Vulnerable	Vulnerable
Squatter pigeon	*Geophaps scripta scripta*	Vulnerable	Vulnerable
Painted honeyeater	Grantiella picta	Vulnerable	Vulnerable
White-throated needletail	*Hirundapus caudacutus*	Vulnerable, migratory	Vulnerable
Star finch	*Neochmia ruficauda ruficauda*	Endangered	-
Eastern curlew	*Numenius madagascariensis*	Critically endangered, migratory	Endangered
Australian painted snipe	*Rostratula australis*	Endangered	Endangered
Black-breasted button quail	*Turnix melanogaster*	Vulnerable	Vulnerable
MAMMALS			
Large-eared pied bat	*Chalinolobus dwyeri*	Vulnerable	Vulnerable
Northern quoll	*Dasyurus hallucatus*	Endangered	-
Semon's leaf-nosed bat	*Hipposideros semoni*	Vulnerable	Endangered
Ghost bat	*Macroderma gigas*	Vulnerable	Endangered
Corben's long-eared bat	*Nyctophilus corbeni*	Vulnerable	Vulnerable
Greater glider	*Petauroides Volans*	Vulnerable	Endangered
Yellow-bellied glider	*Petaurus australis australis*	Vulnerable	Endangered
Koala	*Phascolarctos cinereus*	Endangered	Endangered
Grey-headed flying fox	*Pteropus poliocephalus*	Vulnerable	-
REPTILES			
Adorned delma	*Delma torquata*	Vulnerable	Vulnerable
Ornamental snake	*Denisonia maculate*	Vulnerable	Vulnerable
Yakka skink	*Egernia rugosa*	Vulnerable	Vulnerable
Southern snapping turtle	*Elseya albagula*	Critically endangered	-
Dunmall's snake	*Furina dunmalli*	Vulnerable	-
Fitzroy River turtle	*Rheodytes leukops*	Vulnerable	Vulnerable
MIGRATORY SPECIES			
Fork-tailed swift	*Apus pacificus*	Migratory	-
Salt water crocodile	*Crocodylus porosus*	Migratory	-
Oriental cuckoo	*Cuculus optatus*	Migratory	-
Black faced monarch	*Monarcha melanopsis*	Migratory	-
Satin flycatcher	*Myiagra cyanoleuca*	Migratory	-
Rufous fantail	*Rhipidura rufifrons*	Migratory	-
Common sandpiper	*Actitis hypoleucos*	Migratory	-

COMMON NAME	SCIENTIFIC NAME	EPBC ACT LISTING	NC ACT LISTING
Sharp-tailed sandpiper	*Calidris acuminata*	Migratory	-
Pectoral sandpiper	*Calidris melanotos*	Migratory	-
Latham's snipe	*Gallinago hardwickii*	Migratory	-
Osprey	*Pandion haliaetus*	Migratory	-

Essential habitat

A patch of essential habitat for the southern snapping turtle (*Elseya albagula)* (listed as critically endangered under the NC Act) is located within the eastern section of the Study Area (see **Figure** 5-8**)**.

5.3 Physical Environment

5.3.1 Topography

The topography of the Study Area ranges from 175m to 269m AHD. Elevation is approximately 269m AHD at the BRWF substation connection, drops to 168m where the Study Area intersects the Burnett Highway, before gradually reaching 255m AHD at the existing Calvale Substation. The majority of farming properties within the Study Area are found on flat terrain below 200m AHD.

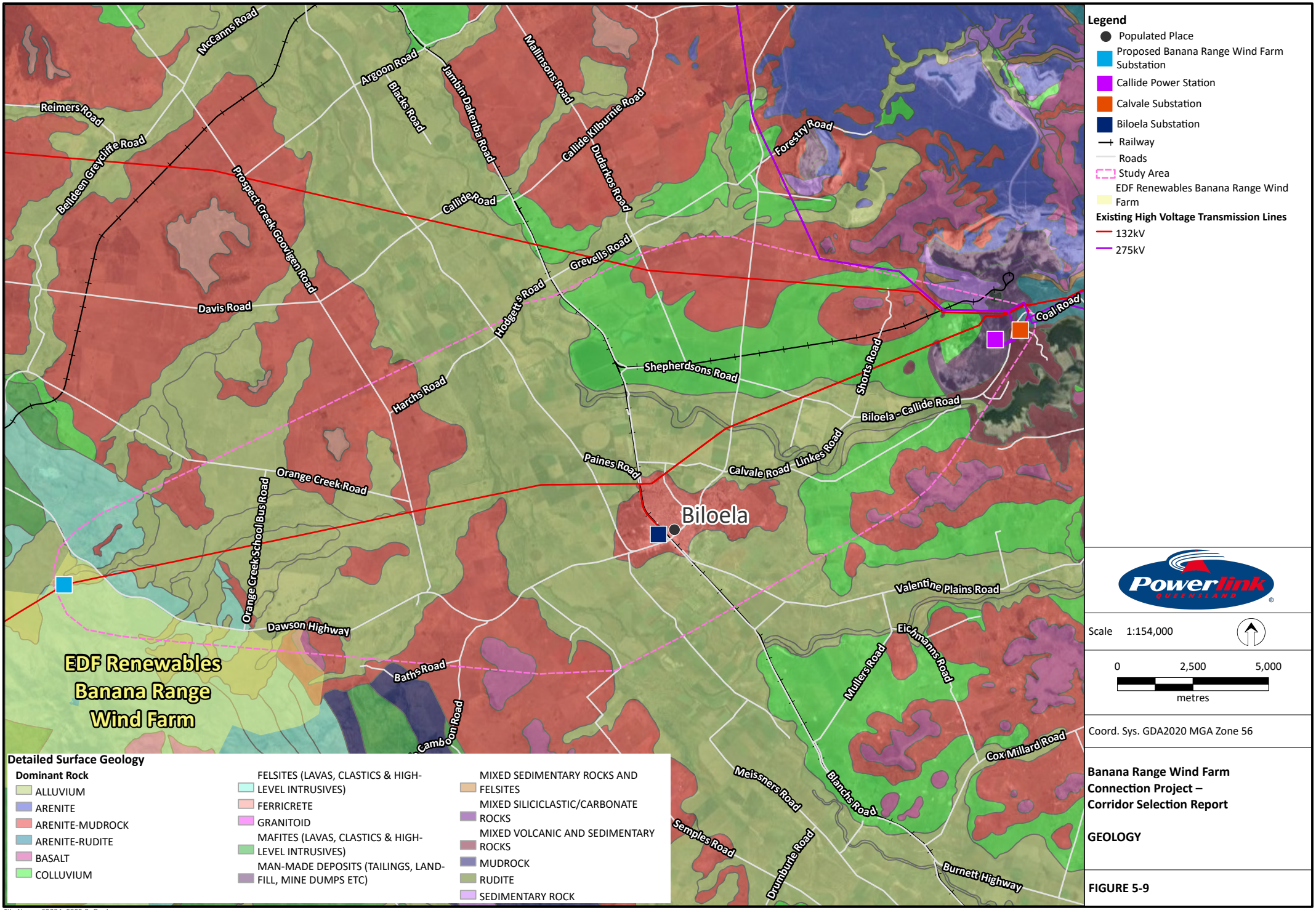
No topographical features have been identified in the Study Area which will impact constructability of the project.

5.3.2 Geology

Geology across the Study Area varies and includes a mix of alluvium, felsites, volcanic and sedimentary deposits and man-made deposits (see **Table 5.3; Figure 5-9**).

Table 5.3: Geological formations within the Study Area

GEOLOGICAL UNIT NAME	AGE	DOMINANT ROCK TYPE	LOCALITY
Torsdale Volcanics (CPvt)	Late Carboniferous – Early Permian	Felsites (lavas, clastics and high level intrusives)	Located around the BRWF substation connection point.
Qf-QLD	Quaternary	Alluvium	Located around the BRWF substation connection point.
Qpa-QLD	Pleistocene	Alluvium	Located in the west of the Study Area.
Qa-QLD	Quaternary	Allium	Located over the majority of the Study Area.
Biloela Formation	Eocene	Arenite-mudrock	Located over the township of Biloela.
TQr-QLD>Biloela Formation	Late Tertiary - Quaternary	Colluvium	Located in the southeast of the Study Area
Qha-QLD	Holocene	Alluvium	Located along Callide Creek.
Lochenbar Formation	Late Devonian	Mixed volcanic and sedimentary rocks	Located in the east of the Study Area near the Callide Power Station.
Qhh-QLD	Anthropocene	Man-made deposits (tailings, landfill, mine dumps)	Located at the Callide Mine and Power Station.
Callide Coal Measures	Late Triassic	Sedimentary Rock	Located at the Callide Mine.



Powerlink QUEENSLAND

Scale 1:154,000

0 2,500 5,000

metres

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Banana Range Wind Farm Connection Project – Corridor Selection Report

GEOLOGY

FIGURE 5-9

File Name: 62094_F005.9_Geology
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

5.3.3 Soils

Mapped soil units include rudosols, located in the western portion of the Study Area near the BRWF and vertosols over the remaining portion of the Study Area (see **Figure 5-10**).

Rudosol soil order accounts for soils that have negligible pedologic organisation and are generally young soils that have had little time to pedologically modify parent rocks or sediments and are generally sandy, loamy or clayey in texture. The soils can vary widely in terms of texture and depth, with many being stratified, whilst some are highly saline. Rudosols generally have a loose to firm surface which means they are susceptible to rapid infiltration and erosion.

Vertosol soils are the most common soil in Queensland and generally consist of cracking clay throughout with mottled subsoils and limestone sediments and generally have a well-structured surface which is self-mulching, cracking, firm and sometimes crusting. These soils often contain dispersive subsoils, which have a high erosion risk, however, soils formed on dolomite or limestone are generally non-dispersive.

Geotechnical investigations will confirm soil type and bearing capacity.

Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Railway
- Roads
- Study Area
- EDF Renewables Banana Range Wind Farm

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Dominant Soil Type

- DERMOSOLS
- RUDOSOLS
- VERTOSOLS

Powerlink QUEENSLAND

Scale 1:154,000

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metres

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Banana Range Wind Farm Connection Project – Corridor Selection Report

SOILS

FIGURE 5-10

File Name: 62094_F005.10_Soils
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

5.3.4 Hydrology

The Study Area falls within the Fitzroy Basin. The major watercourses which traverse the Study Area include Callide Creek, Kroombit Creek, Prospect Creek and Grevillea Creek (see **Figure 5-11**).

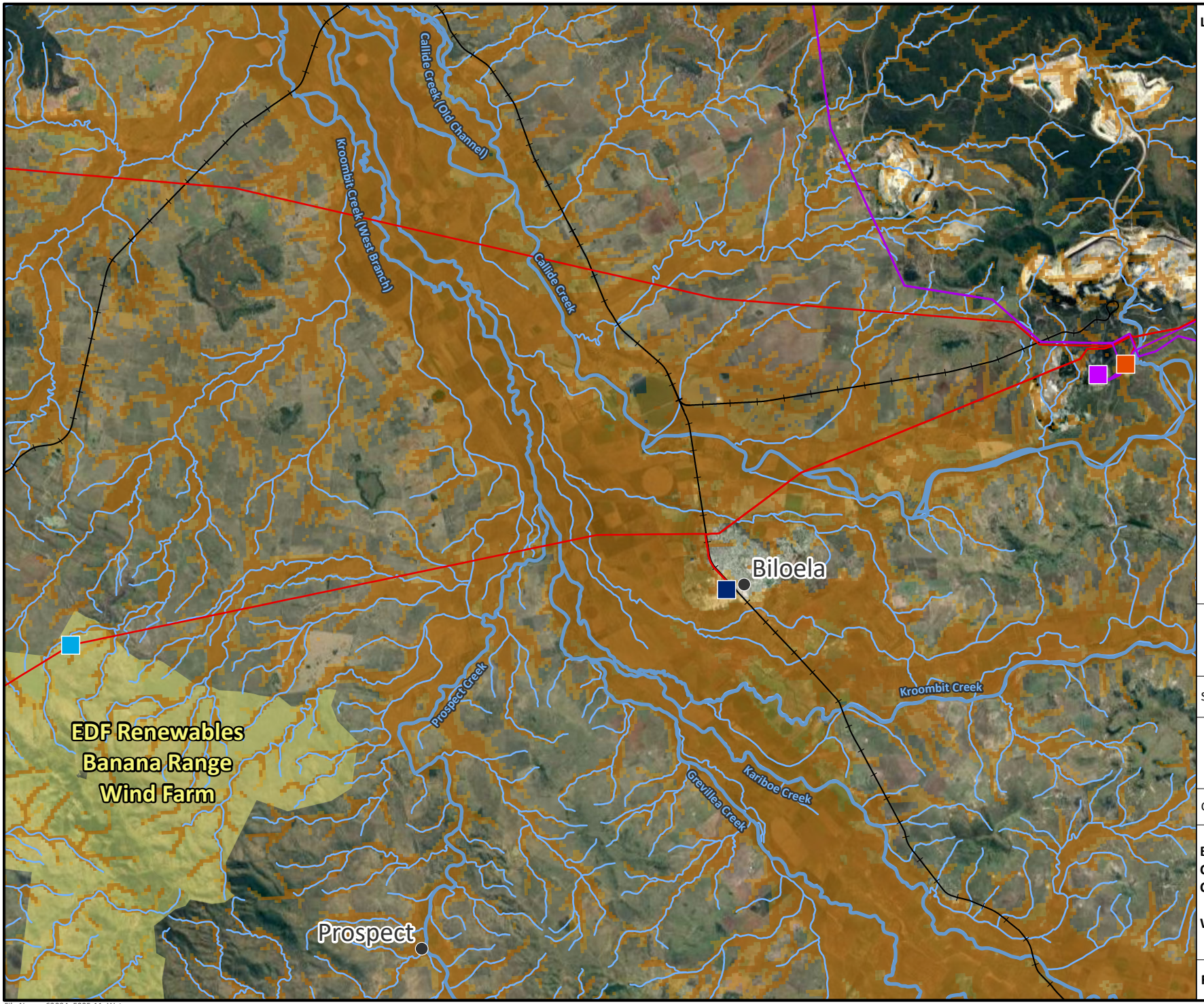
Waterway barrier works are regulated under the *Fisheries Act 1994* and the *Planning Act 2016* and are barriers to fish movement, including partial barriers, that are installed across waterways. Barrier works include construction, raising, replacement and some maintenance works on structures such as culvert crossings, bed level and low-level crossings, weirs and dams (both permanent and temporary). To help define the limits of waterways for the purpose of managing impacts of waterway barriers on fish passage, waterways are broken into four categories; low, moderate, high and major risk waterways.

Callide, Kroombit, Prospect and Grevillea Creeks are all mapped as major-risk waterways for waterway barrier works. These creeks also contain a number of branching tributaries that are classed as low, moderate and major-risk waterways. Where works require the construction of a new access track across a waterway, consideration will need to be given to potential waterway barrier works approvals and the requirements for waterway barriers under the *Fisheries Act 1994.*

The *Water Act 2000* provides a legislative framework for the sustainable use, allocation and management of water resources in Queensland and regulates activities occurring within designated watercourses under the Act. The Watercourse Identification Map categorises water features as either a designated watercourse, drainage feature, downstream limit of a watercourse or lake and is used to determine the assessment requirements for undertaking activities within a watercourse. Callide, Kroombit, Prospect and Grevillea Creeks are all mapped watercourses under the *Water Act 2000.* Consideration will need to be given to works within these watercourses and whether an approval is required to undertake activities within the watercourse.

Flood mapping of the Fitzroy basin for Peak (100m/100yr) and extreme (100m) are shown on **Figure 5-11.** The four creeks located within the Study Area are mapped as being within the peak and extreme flood extents, with the downstream areas (southern extent) of the Study Area being impacted the greatest by flooding.

Lake Callide is located within the eastern section of the Study Area and supports coal mining, beef production, power generation, dryland cropping and irrigation cropping such as lucerne and cotton within the region.



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Railway
- Waterway (Waterway Barrier Works)
- Watercourse
- Study Area
- EDF Renewables Banana Range Wind Farm

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Fitzroy Basin Flood Extent

- Peak (100m/100yr)
- Extreme Peak (100m)

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Scale 1:154,000

0 2,500 5,000

metres

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Banana Range Wind Farm Connection Project – Corridor Selection Report

WATERCOURSE

FIGURE 5-11

File Name: 62094_F005.11_Watercourses
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

5.3.5 Contaminated land

Contaminated land searches (including searches of the Environmental Management Register and Contaminated Sites Register) were not undertaken as part of this assessment. Land generally associated with the Environmental Management Register and Contaminated Sites Register include railways, service stations, landfill sites, mine sites and manufacturing sites.

5.3.6 Unexploded ordnance

The Defence Unexploded Ordnance Mapping identifies no land subject to potential Unexploded Ordnance within the Study Area.

5.4 Key Constraints and Opportunities

The desktop analysis of the Study Area has identified the following key constraints and opportunities affecting the identification and assessment of potential transmission line corridors:

- Extensive agricultural land across the Study Area, including SCL and Agricultural Land Class A and B areas east of Kroombit and Grevillea Creeks;
- Powerlink's existing Calvale to Biloela to Moura 132kV transmission line and Calvale to Baralaba 132kV transmission line and Moura Railway line may provide potential co-location opportunities;
- The location of residential houses and other places of assembly;
- Major watercourses and flood areas. While the number of major watercourses is limited, the area of potential flooding is extensive;
- Presence of remnant vegetation, potential Threatened Ecological Communities, *Nature Conservation Act 1992* flora survey trigger areas, threatened flora and fauna and mapped essential habitat for the *Cycas megacarpa* and southern snapping turtle (*Elseya albagula)*;
- The existing road network, particularly Burnett and Dawson Highways; and
- Existing airfields within the Study Area.

These factors have been taken into consideration in the corridor assessment.

6. Transmission Line Corridor Assessment Criteria

This section identifies the criteria for the comparative assessment of potential transmission line corridor options. It has been developed from an analysis of the Study Area, feedback received from landholders, the local community and other stakeholders during the early engagement process, and Powerlink's own experience developing transmission infrastructure.

Criteria not considered to be relevant to the purpose of this Study have been excluded from the comparative assessment. This occurred in cases where:

- There was little or no variation in the criterion across the Study Area; or
- Relative scarcity of high quality and detailed information available to inform differentiation between the merits of the different options questionable without undertaking significant additional studies.

Where it was determined that criteria were relevant (either due to relevance to the Study Area or variation between the proposed corridor options), performance indicators were identified.

Table 6.1 Assessment criteria

ASSESSMENT CRITERIA	RELEVANCE	PERFORMANCE INDICATOR
Social environment		
Tenure	All corridor options traverse similar tenure types (freehold, lands lease), and zoning type, including rural zoned land and therefore using tenure as a differentiating factor will not assist in corridor selection.	N/A
Land use	The Study Area comprises agricultural land use of varying intensity and productive value i.e. cropping compared to grazing. Transmission lines have potential to constrain cropping operations including the use of mobile irrigation systems, crop dusting and aerial spraying. Mapped SCL and Agricultural Land Class A and B provides a measure of the type and value of agricultural production. Corridor options with least impact to Class A and B are preferred.	Corridors that intersect SCL and Agricultural Land Class A and B.
Heritage	One place of local heritage and a number of Aboriginal cultural heritage sites are located within the Study Area. The lack of baseline data restricts the potential to differentiate between corridor options without further ground truthing occurring, and therefore, it is not a differentiating factor in corridor selection.	N/A
Housing	Numerous residential properties are dispersed throughout the Study Area. Potential impacts include a loss of visual amenity, general property amenity and perceived health concerns for local residents and other persons spending significant time in close proximity to the development. Development options with least potential impact to dwellings and other sensitive receptors are preferred.	Number of houses within a potential corridor and number of land parcels within a potential corridor.
Resource interests	Two mineral exploration permits are present in the western section of the Study Area; however, it is noted these permits do not affect	N/A

ASSESSMENT CRITERIA	RELEVANCE	PERFORMANCE INDICATOR
	land use rights and therefore are not a constraint and have not been considered	
Transport and Infrastructure	Infrastructure intersecting the Study Area includes road, rail, existing transmission lines and gas pipelines. Potential impacts occur at the intersection of the proposed transmission alignment and other infrastructure, which may influence corridor/alignment/site selection. Potential corridor options with the least potential impact to transport and other infrastructure are preferred. Two small airfields were identified within the Study Area. There is the potential for the project development to impact on the operations of one or more of these facilities.	Number of road, rail, transmission line and pipelines intersected by the corridor. Number of airfields within or adjacent to the corridor.
Native title	The Study Area is located entirely within an active native title claim and therefore the presence of native title claims do not differentiate between corridor options.	N/A
Natural environment		
Protected flora and fauna	The Study Area comprises areas of protected vegetation, mapped RE, essential habitat and threatened ecological communities. Corridor options with least potential impact to flora and fauna are preferred.	Area of remnant vegetation to be cleared (including mapped RE, essential habitat, threatened ecological communities).
Physical environment		
Topography	All corridor options traverse similar terrain. Thus, topography is not considered to be a differentiating factor for corridor/alignment selection.	N/A
Geology and soils	The corridor options traverse varied geology and soil conditions. However, soil and geology is not considered to be a differentiating factor for corridor / alignment selection.	N/A
Hydrology	Various ephemeral waterways and flood plains intersect the Study Area. Potential impacts to surface waters occur at the intersection of the development and these waterways and floodplains, which may influence corridor/alignment/site selection. Corridor options with least potential impact to surface waters are preferred.	Number of waterways intersected by the corridor.
Contaminated land	No contaminated land searches or assessments have been undertaken. The lack of baseline data restricts the potential to differentiate between corridor options without further ground truthing occurring, and therefore, it is not a differentiating factor in corridor selection.	N/A
Unexploded ordnance	No UXO have been recorded within the Study Area and therefore this is not a differentiating factor in corridor selection.	N/A

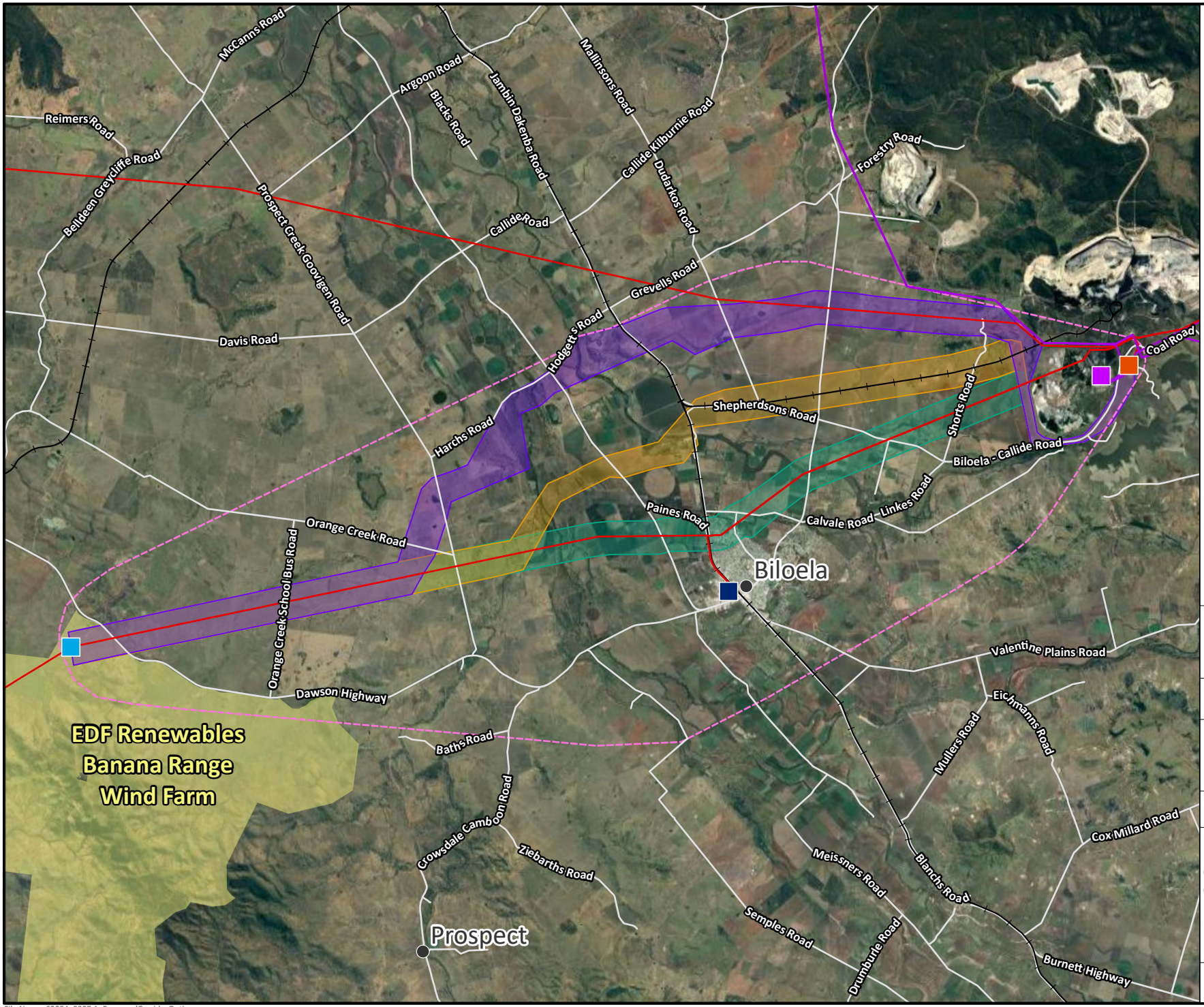
ASSESSMENT CRITERIA	RELEVANCE	PERFORMANCE INDICATOR
Costs		
Cost and constructability	Cost of construction (including the length and potential number of bend points) and the practicality of access to the transmission line (i.e. through built up areas or intersection with rail corridors) are relevant to the route selection process.	Length of corridor Number of bend points

7. Transmission Line Corridors

Three corridor options have been identified following analysis of the environmental, social and physical characteristics of the Study Area and feedback from the early stakeholder engagement process. The corridors comprise:

- Northern 1 option;
- Northern 2 option; and
- Central option (co-located with the existing Calvale to Moura 132kV transmission line).

The options are shown in **Figure 7-1** and described in detail in **Sections 7.1, 7.2**, and **7.3.**



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Railway
- Roads
- Study Area
- EDF Renewables Banana Range Wind Farm

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Proposed Corridors

- Northern Corridor 1
- Northern Corridor 2
- Central Corridor

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000

metres

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Banana Range Wind Farm Connection Project – Corridor Selection Report

PROPOSED CORRIDOR OPTIONS

FIGURE 7-1

File Name: 62094_F007.1_ProposedCorridorOptions
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

7.1 Northern Corridor 1

Description

From Calvale Substation, the corridor moves south-west then west adjacent to Biloela-Callide Road. This area is constrained by the power station and dam immediately north and south. An alternative corridor north and then west from the substation was also considered, however, it was found to require several crossings of existing transmission lines which would have significant electricity supply reliability and cost impacts.

The corridor then turns north and stays near the western boundary of the power station property seeking to minimise impacts on the agricultural land immediately west. It crosses the east-west rail line and joins the existing Calvale to Baralaba 132kV line for around 8km to near Dudarkos Road. Where possible, the new transmission line would be located adjacent the existing 132kV line in this area.

The corridor then turns south-west to cross Jambin-Dakenba Road, Callide Creek, Burnett Highway and Kroombit Creek before joining the existing Calvale to Biloela to Moura 132kV transmission line around 1km west of the junction of Orange Creek Road and Prospect Creek Goovigen Road. It then continues west to the proposed Banana Range Wind Farm substation site. Once again, the new transmission line would be located adjacent the existing 132kV line in this area where possible.

Key Characteristics

- Opportunity to co-locate with the existing Calvale to Baralaba and Calvale to Moura 132kV lines;
- From west of the power station to Kroombit Creek, land use comprises cultivation and grazing areas;
- Low number of houses;
- Larger land parcels;
- Longer corridor includes more grazing land which is generally compatible with a transmission line and reduced impacts on cultivation land to the south; and
- Potential impact on Remnant Vegetation.

Views from the Dawson Highway, looking west towards the location of Northern Corridor 1 and from Hodgetts Road looking southeast are provided in **Photo 4**, **Photo 5**, **Photo 6** and **Photo 7**.

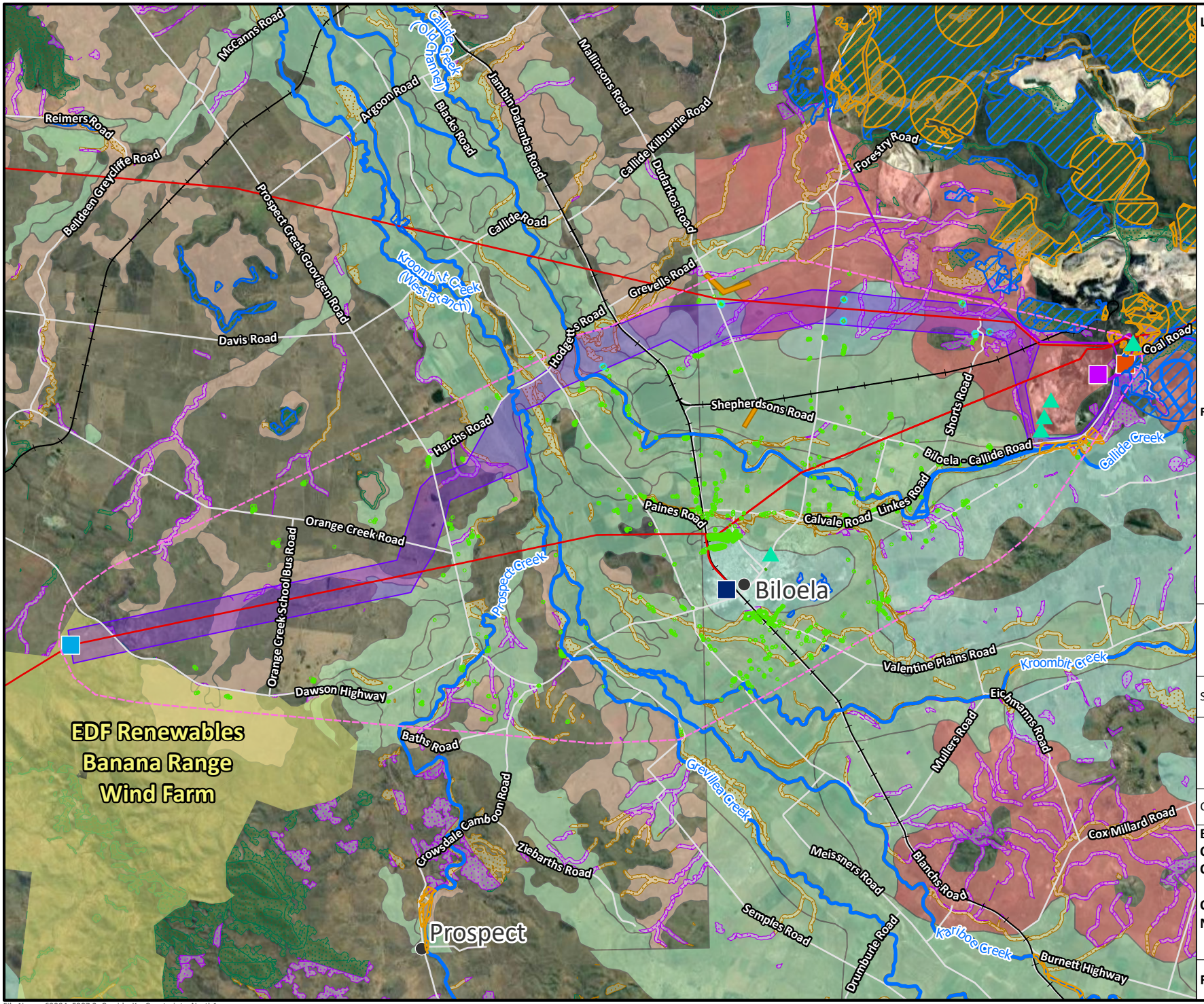
Figure 7-2 shows Northern Corridor 1 and its associated constraints.

Photo 4 Views from the Dawson Highway, looking west

Photo 5 Views from Hodgetts Road, looking southeast

Photo 6 View west from Dudarkos Road

Photo 7 View east from Shorts Road



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Cultural Heritage Site
- Railway
- Roads
- Watercourse (Water Act)
- Study Area
- Houses
- EDF Renewables Banana Range Wind Farm
- Proposed Northern Corridor 1
- QLD Heritage Register
- Airfields
- Protected Plants Flora Survey Trigger Map
- Vegetation Management - Essential Habitat

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass A1/C1
- Landclass B
- Landclass C1/A1

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000

metres

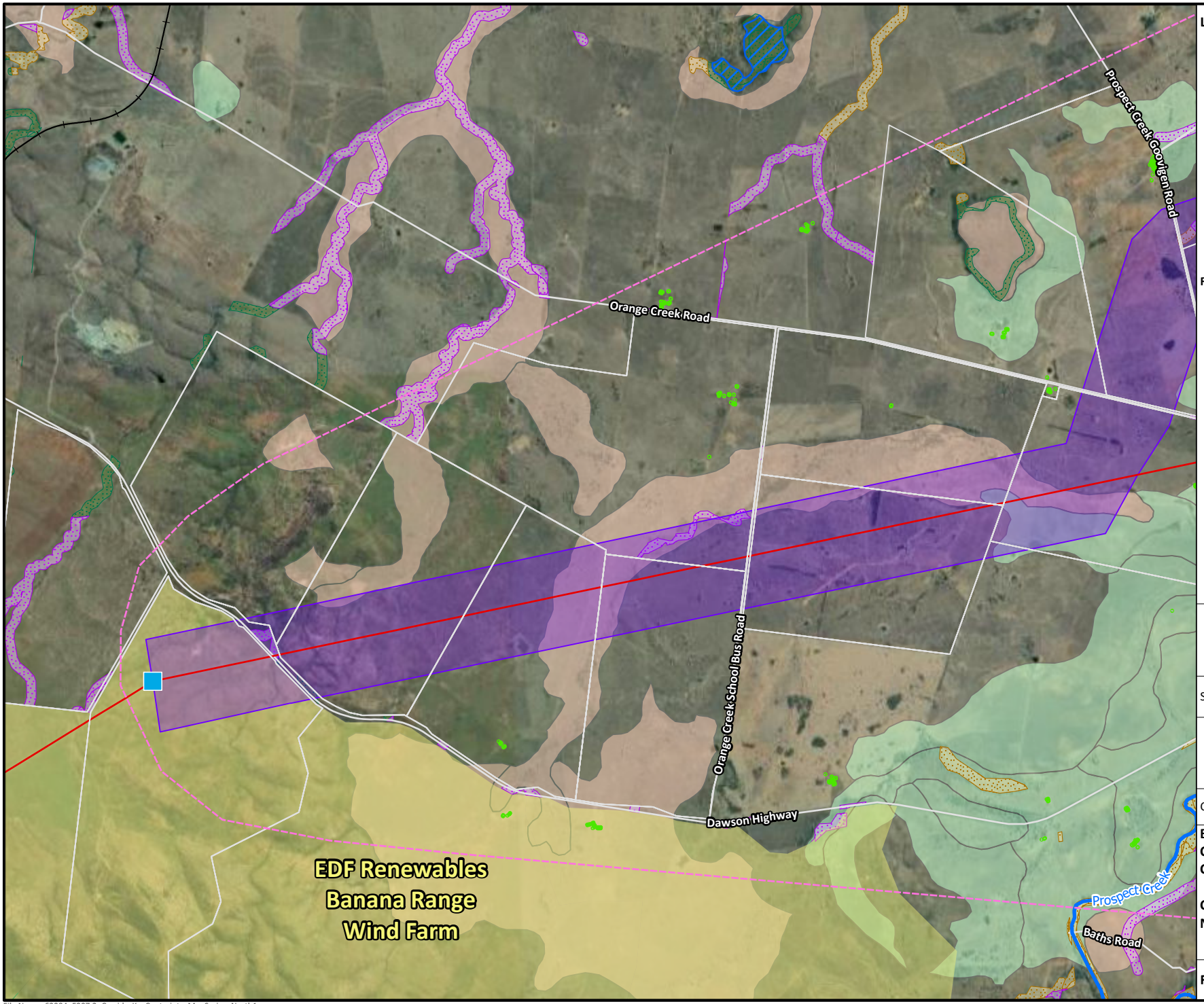
Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Northern Corridor, Option 1

FIGURE 7-2

File Name: 62094_F007.2_CorridorKeyConstraints_North1
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



Legend

- Proposed Banana Range Wind Farm Substation
- Railway
- Roads
- Watercourse (Water Act)
- EDF Renewables Banana Range Wind Farm
- Study Area
- Cadastre
- Houses
- Proposed Northern Corridor 1
- Protected Plants Flora Survey Trigger Map

Existing High Voltage Transmission Lines

- 132kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass B

Powerlink QUEENSLAND

Scale 1:55,000

0 1,000 2,000

metres

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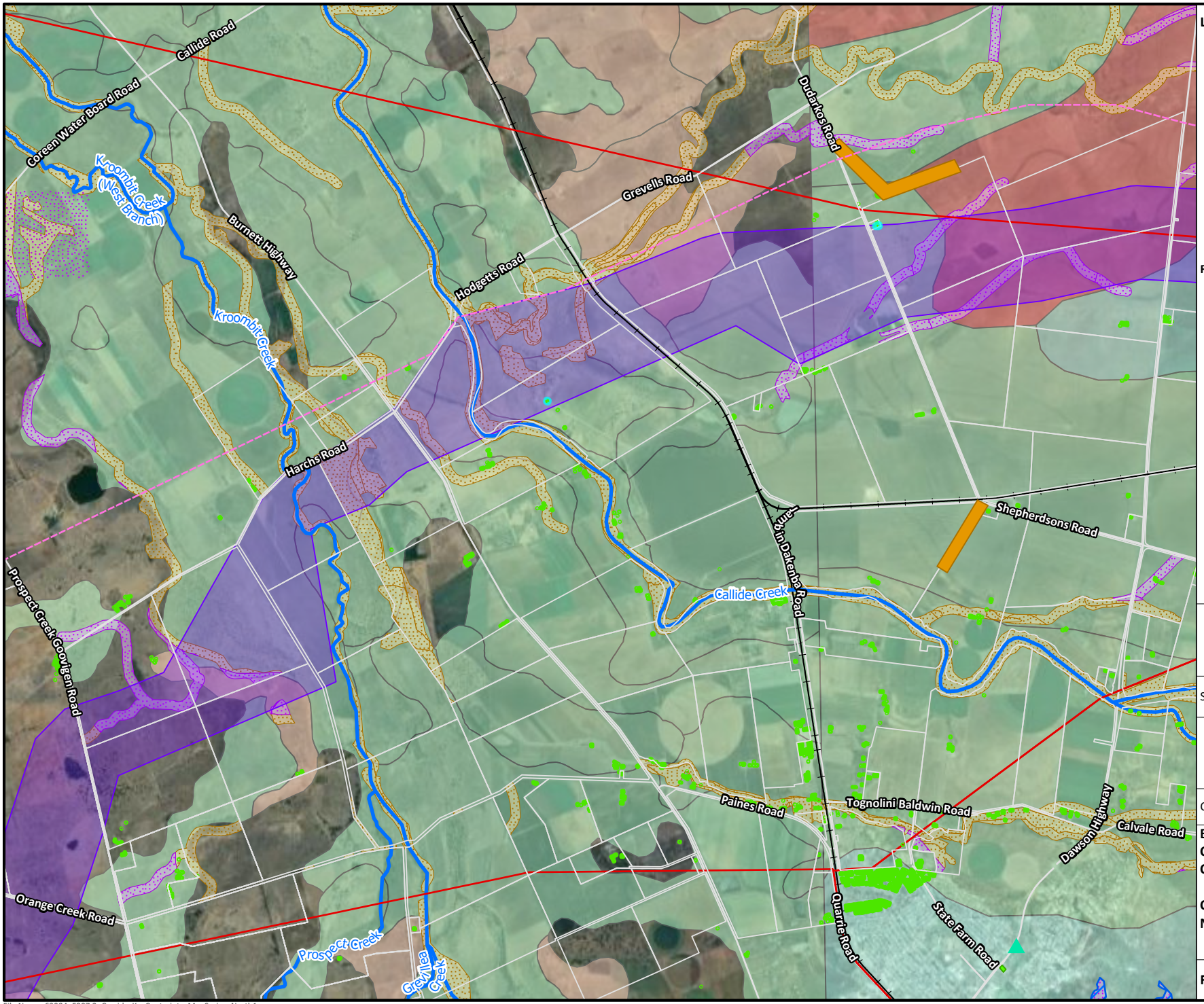
Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Northern Corridor, Option 1

FIGURE 7-2a

File Name: 62094_F007.2_CorridorKeyContraints_MapSeries_North1
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



Legend

- Cultural Heritage Site
- Railway
- Roads
- Watercourse (Water Act)
- Study Area
- Cadastre
- Houses
- Proposed Northern Corridor 1
- QLD Heritage Register
- Airfields
- Protected Plants Flora Survey Trigger Map

Existing High Voltage Transmission Lines

- 132kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass A1/C1
- Landclass B
- Landclass C1/A1

Powerlink QUEENSLAND

Scale 1:55,000

0 1,000 2,000

metres

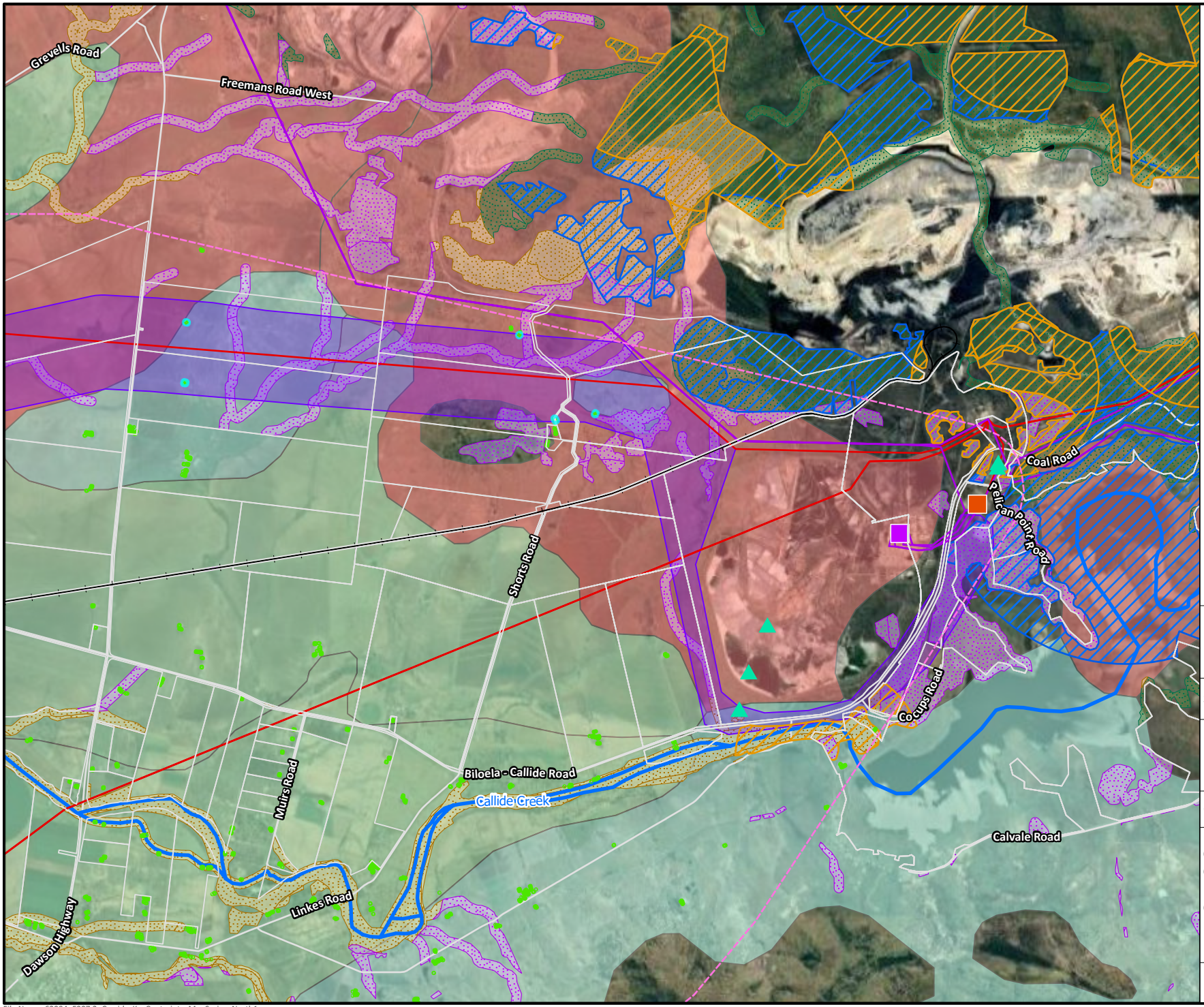
Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Northern Corridor, Option 1

FIGURE 7-2b

File Name: 62094_F007.2_CorridorKeyContraints_MapSeries_North1
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



Legend

- Callide Power Station
- Calvale Substation
- Cultural Heritage Site
- Railway
- Roads
- Watercourse (Water Act)
- Study Area
- Cadastre
- Houses
- Proposed Northern Corridor 1
- Protected Plants Flora Survey Trigger Map
- Vegetation Management - Essential Habitat

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass A1/C1
- Landclass C1/A1

Powerlink Queensland

Scale 1:55,000

0 1,000 2,000
metres

Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Northern Corridor, Option 1

FIGURE 7-2c

File Name: 62094_F007.2_CorridorKeyContraints_MapSeries_North1
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

7.2 Northern Corridor 2

Description

From Calvale Substation, the corridor moves south-west then west adjacent to Biloela-Callide Road. This area is constrained by the power station and dam immediately north and south. An alternative corridor north and then west from the substation was also considered, however, it was found to require several crossings of existing transmission lines which would have significant supply reliability and cost impacts.

The corridor then turns north and stays near the western boundary of the power station property seeking to minimise impacts on the agricultural land immediately west. It turns west at the rail line and continues until Jambin-Dakenba Road. Where possible, the new transmission line would be located adjacent the railway in this area.

The corridor then moves south-west across Callide Creek, Burnett Highway and Kroombit Creek before joining the existing Calvale to Biloela to Moura 132kV transmission line just west of the junction of Zischkes Lane and Bowketts Lane. It then continues west to the proposed BRWF Substation. Once again, the new transmission line would be located adjacent the existing 132kV line in this area where possible.

Key Characteristics

- Opportunity to co-locate with the existing Moura Railway and Calvale to Biloela to Moura 132kV line;
- Includes Teys Bros abattoir site;
- From west of the power station to Kroombit Creek impacts intensively cultivated land;
- Low number of houses;
- Larger land parcels;
- Opportunity to follow property boundaries where possible; and
- Potential impact on Remnant Vegetation.

Views of a number of proposed crossings of road and rail infrastructure intersected by Northern Corridor 2 are provided in **Photo 8**, **Photo 9**, **Photo 10** and **Photo 11**.

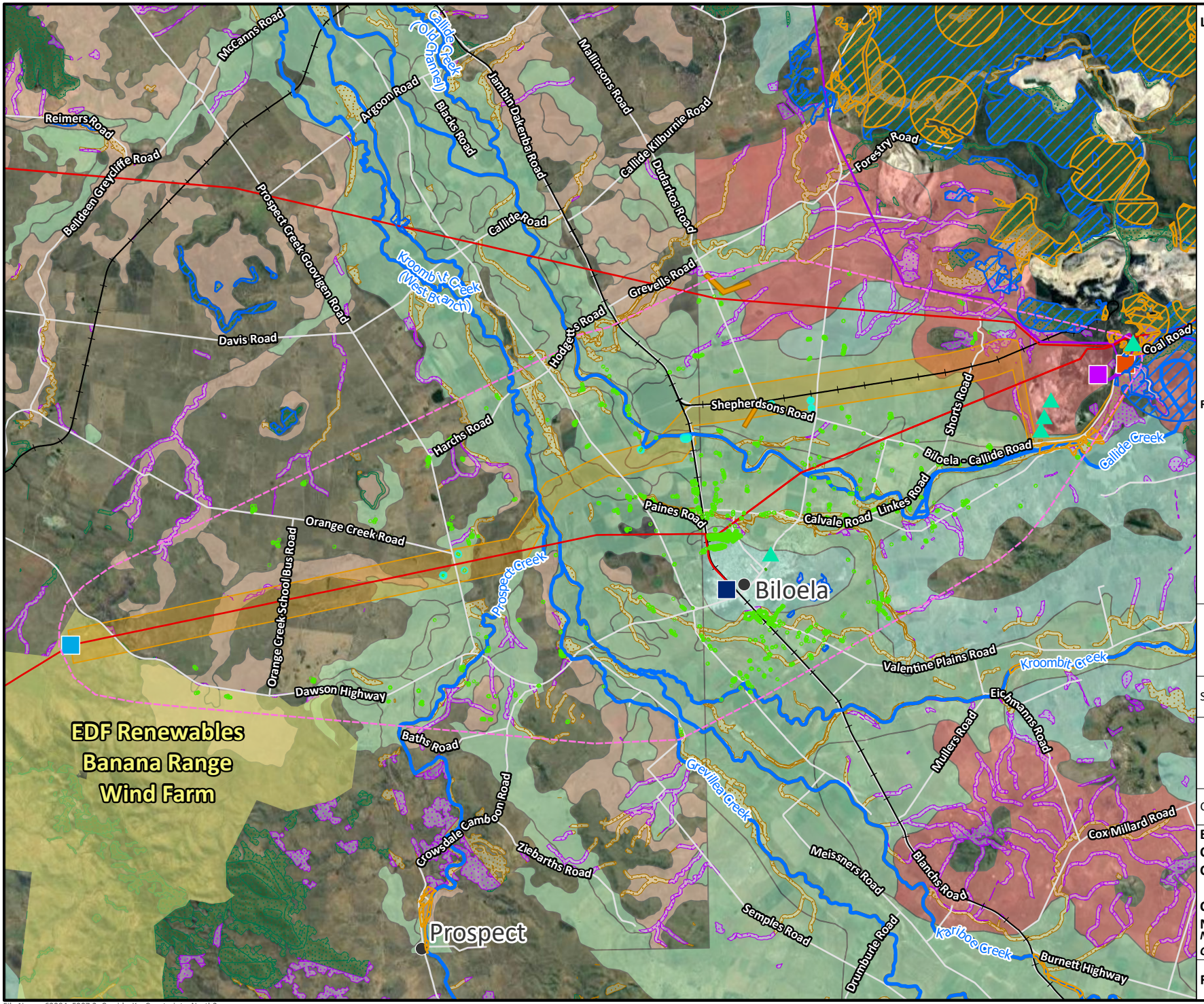
Figure 7-3 shows Northern Corridor 2 and its associated constraints associated with the corridor.

Photo 8 Views from Teys Road showing constrained road and agricultural operations

Photo 9 View from Shorts Road rail crossing

Photo 10 Views from Dudarkos Road facing southwest

Photo 11 Views from Jambin Dakenba Road



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Cultural Heritage Site
- Railway
- Roads
- Watercourse (Water Act)
- EDF Renewables Banana Range Wind Farm
- Study Area
- Houses
- Proposed Northern Corridor 2
- QLD Heritage Register
- Airfields
- Vegetation Management - Essential Habitat
- Protected Plants Flora Survey Trigger Map

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass A1/C1
- Landclass B
- Landclass C1/A1

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000
metres

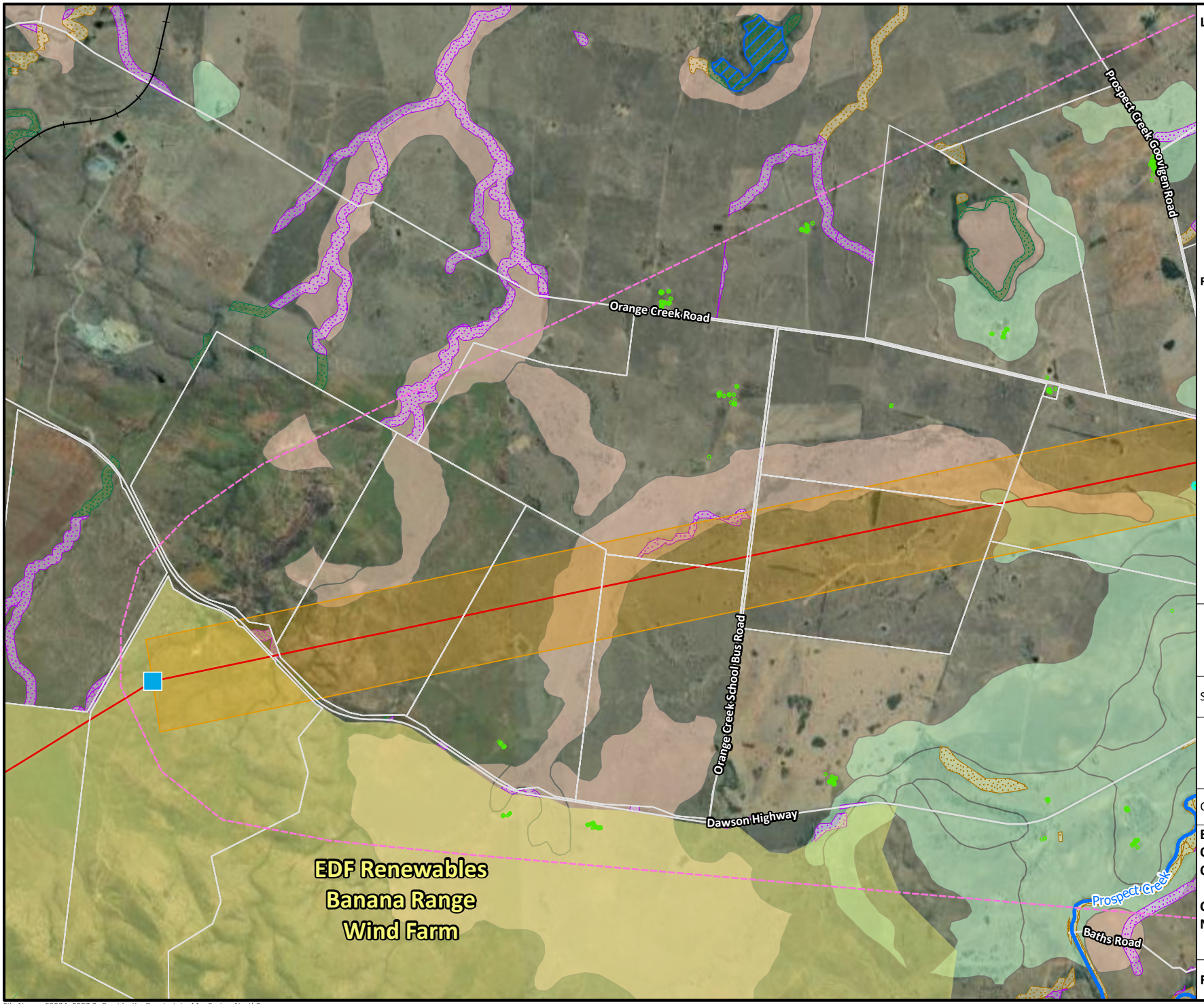
Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Northern Corridor, Option 2
Native Title Register Active, Gaangalu Nation People

FIGURE 7-3

File Name: 62094_F007.3_CorridorKeyConstraints_North2
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



Legend

- Railway
- Roads
- Watercourse (Water Act)
- Study Area
- Cadastre
- Houses
- Proposed Northern Corridor 2
- Proposed Banana Range Wind Farm Substation
- EDF Renewables Banana Range Wind Farm
- Protected Plants Flora Survey Trigger Map

Existing High Voltage Transmission Lines

- 132kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass B

Powerlink QUEENSLAND

Scale 1:55,000

0 1,000 2,000

metres

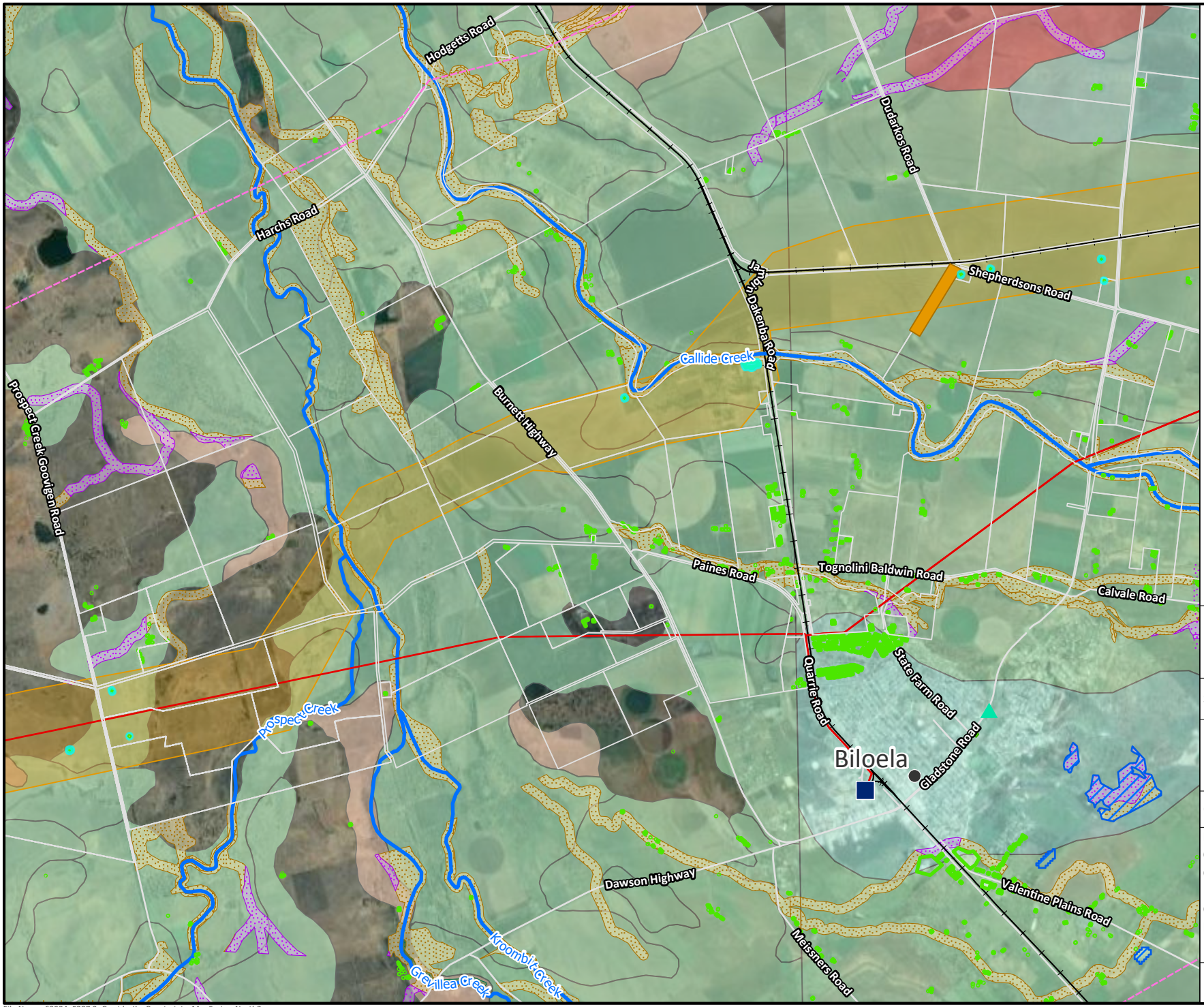
Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Northern Corridor, Option 2

FIGURE 7-3a

File Name: 62094_F007.3_CorridorKeyConstraints_MapSeries_North2
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



Legend

- Populated Place
- Biloela Substation
- Cultural Heritage Site
- Railway
- Roads
- Watercourse (Water Act)
- Study Area
- Cadastre
- Houses
- Proposed Northern Corridor 2
- QLD Heritage Register
- Airfields
- Protected Plants Flora Survey Trigger Map

Existing High Voltage Transmission Lines

- 132kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass A1/C1
- Landclass B
- Landclass C1/A1

Powerlink Queensland

Scale 1:55,000

0 1,000 2,000

metres

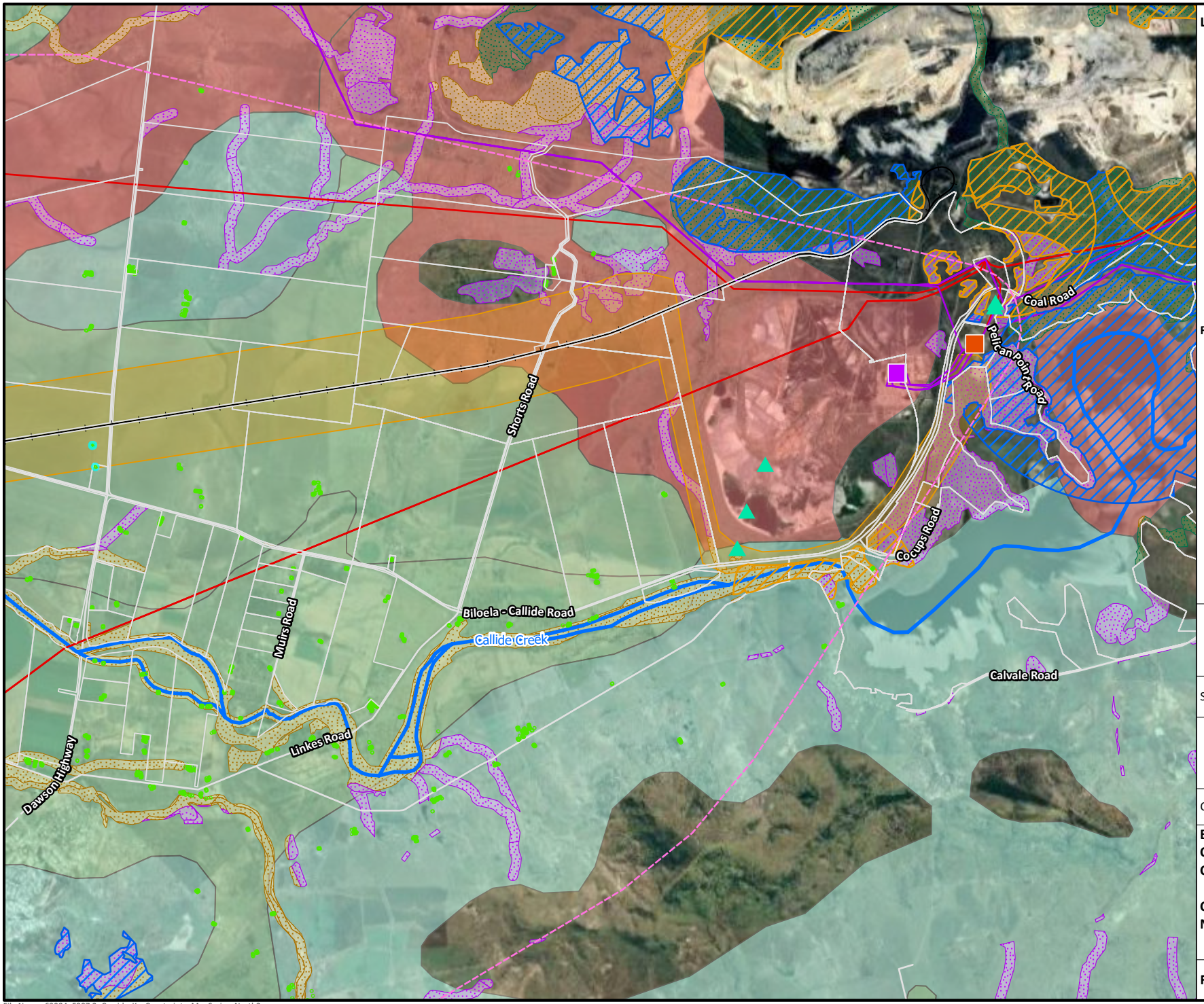
Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Northern Corridor, Option 2

FIGURE 7-3b

File Name: 62094_F007.3_CorridorKeyConstraints_MapSeries_North2
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



Legend

- Callide Power Station
- Calvale Substation
- Cultural Heritage Site
- Railway
- Roads
- Watercourse (Water Act)
- Study Area
- Cadastre
- Houses
- Proposed Northern Corridor 2
- Vegetation Management - Essential Habitat
- Protected Plants Flora Survey Trigger Map

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass A1/C1
- Landclass C1/A1

Powerlink QUEENSLAND

Scale 1:55,000

0 1,000 2,000

metres

Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Northern Corridor, Option 2

FIGURE 7-3c

File Name: 62094_F007.3_CorridorKeyConstraints_MapSeries_North2
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

7.3 Central Corridor

Description

From Calvale Substation, the corridor moves south-west then west adjacent to Biloela-Callide Road. This area is constrained by the power station and dam immediately north and south. An alternative corridor north and then west from the substation was also considered, however, it was found to require several under crossings of existing transmission lines which would have significant supply reliability and cost impacts.

The corridor then turns north and stays near the western boundary of the power station property seeking to minimise impacts on the agricultural land immediately west. It then turns west and joins the existing Calvale to Moura 132kV line through to the proposed Banana Range Wind Farm substation site. Where possible, the new transmission line would be located adjacent the existing 132kV line in this area.

Key Characteristics

- Very significant opportunity to co-locate with the existing Calvale-Moura 132kV line;
- From west of the power station to Kroombit Creek impacts intensively cultivated land;
- Impacts the Biloela Showgrounds and residential properties along Auburn Street;
- Very significant number of houses within the corridor;
- Significant number of land parcels;
- Most direct corridor between the two substations;
- Intersects large and small properties;
- Does not follow property boundaries; and
- Potential impact on Remnant Vegetation.

Views of a number of proposed crossings of road and rail infrastructure intersected by the Central Corridor are provided in **Photo 12**, **Photo 13**, **Photo 14**, **Photo 15**, **Photo 16** and **Photo 17**.

Figure 7-4 shows the Central Corridor and its associated constraints.

Photo 12 Orange Creek School Bus Road facing east towards Biloela

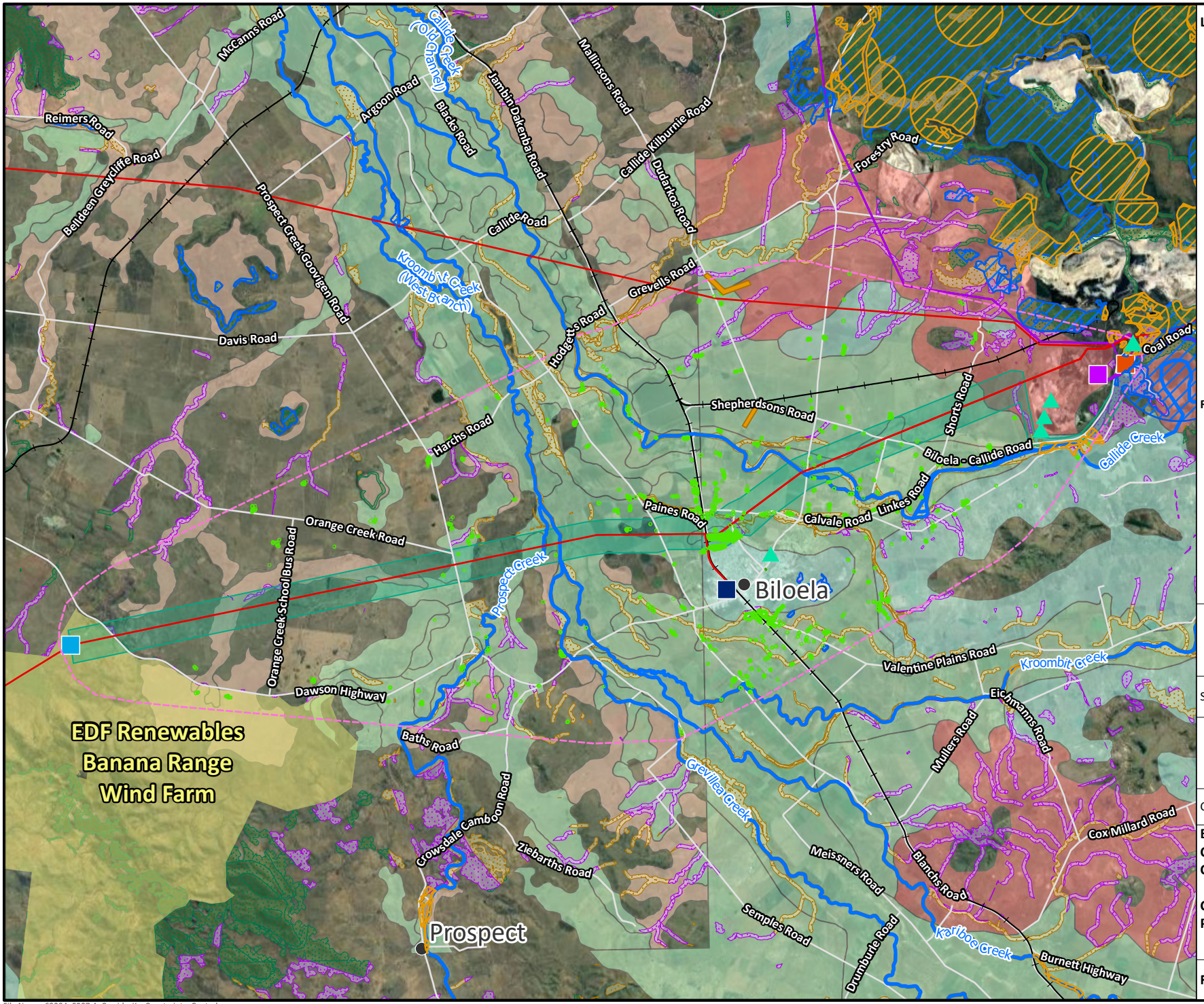
Photo 13 Prospect Creek Goovigen Road facing west towards Banana Range

Photo 14 View east along existing 132kV line along Auburn St

Photo 15 View northeast along State Farm Road with interface between existing 132 kV line and Ergon distribution line

Photo 16 Shorts Road facing west towards Biloela

Photo 17 Biloela Callide Road view north along vegetation at bottom of Callide Power Station ash dam



Legend

- Populated Place
- Proposed Banana Range Wind Farm Substation
- Callide Power Station
- Calvale Substation
- Biloela Substation
- Cultural Heritage Site
- Railway
- Roads
- Watercourse (Water Act)
- EDF Renewables Banana Range Wind Farm
- Study Area
- Houses
- Proposed Central Corridor
- QLD Heritage Register
- Airfields
- Vegetation Management - Essential Habitat
- Protected Plants Flora Survey Trigger Map

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass A1/C1
- Landclass B
- Landclass C1/A1

Powerlink Queensland

Scale 1:154,000

0 2,500 5,000

metres

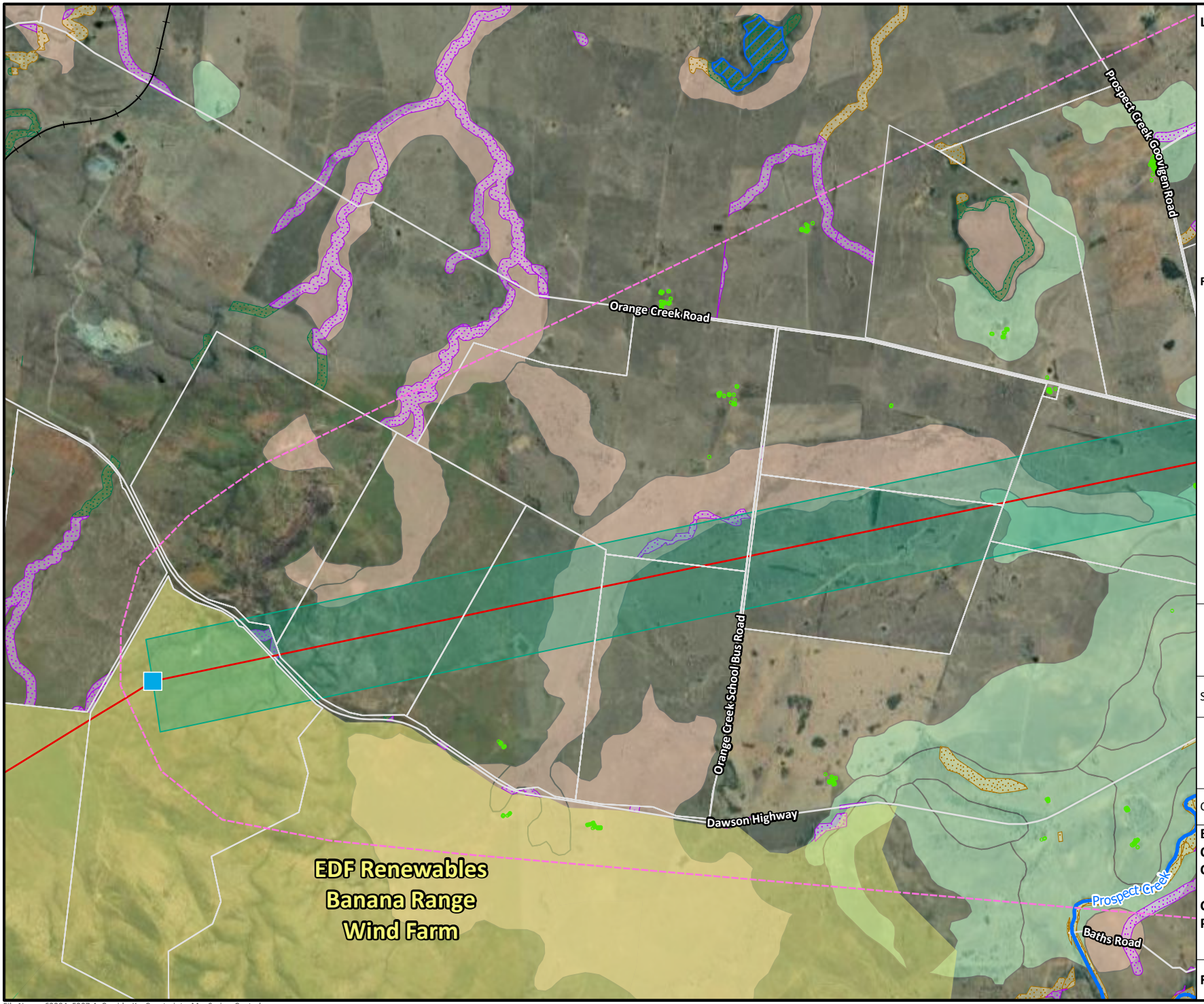
Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Central Corridor

FIGURE 7-4

File Name: 62094_F007.4_CorridorKeyConstraints_Central
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



Legend

- Proposed Banana Range Wind Farm Substation
- Railway
- Roads
- Watercourse (Water Act)
- EDF Renewables Banana Range Wind Farm
- Study Area
- Cadastre
- Houses
- Proposed Central Corridor
- Protected Plants Flora Survey Trigger Map

Existing High Voltage Transmission Lines

- 132kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass B

Powerlink Queensland

Scale 1:55,000

0 1,000 2,000

metres

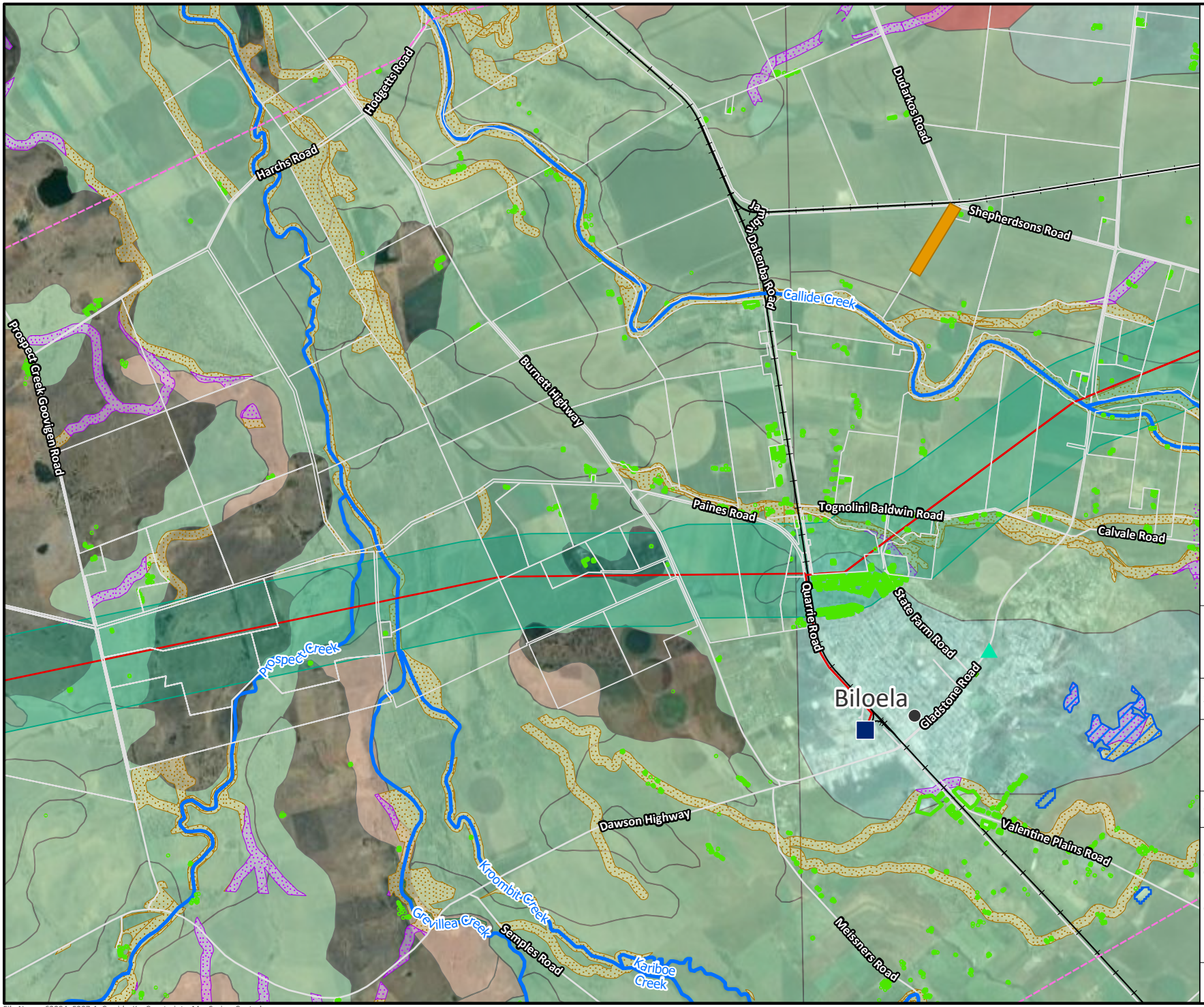
Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Central Corridor

FIGURE 7-4a

File Name: 62094_F007.4_CorridorKeyConstraints_MapSeries_Central
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



Legend

- Populated Place
- Biloela Substation
- Cultural Heritage Site
- Railway
- Roads
- Watercourse (Water Act)
- Study Area
- Cadastre
- Houses
- Proposed Central Corridor
- QLD Heritage Register
- Airfields
- Protected Plants Flora Survey Trigger Map

Existing High Voltage Transmission Lines

- 132kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass A1/C1
- Landclass B
- Landclass C1/A1

Powerlink QUEENSLAND

Scale 1:55,000

0 1,000 2,000

metres

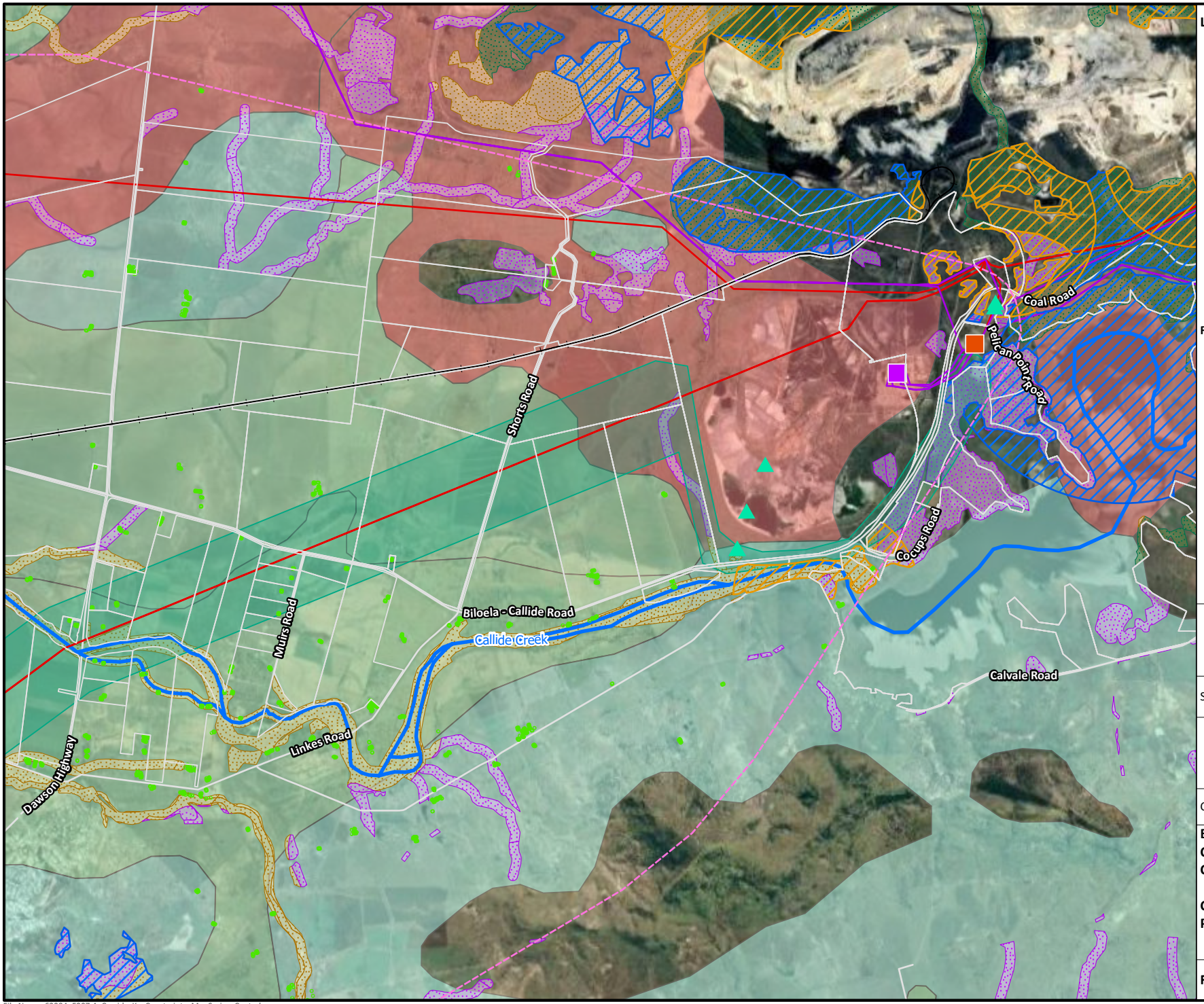
Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Central Corridor

FIGURE 7-4b

File Name: 62094_F007.4_CorridorKeyConstraints_MapSeries_Central
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022



Legend

- Callide Power Station
- Calvale Substation
- Cultural Heritage Site
- Railway
- Roads
- Watercourse (Water Act)
- Study Area
- Cadastre
- Houses
- Proposed Central Corridor
- Vegetation Management - Essential Habitat
- Protected Plants Flora Survey Trigger Map

Existing High Voltage Transmission Lines

- 132kV
- 275kV

Regional Ecosystem Mapping

- Endangered Vegetation (Category A,B,C or R)
- Of Concern Vegetation (Category A,B,C or R)
- Least Concern Vegetation (Category A,B,C or R)

Agricultural Land Classes

- Landclass A1
- Landclass A1/C1
- Landclass C1/A1

Powerlink QUEENSLAND

Scale 1:55,000

0 1,000 2,000

metres

Coord. Sys. GDA2020 MGA Zone 56

Banana Range Wind Farm Connection Project – Corridor Selection Report

Corridor Key Constraints - Proposed Central Corridor

FIGURE 7-4c

File Name: 62094_F007.4_CorridorKeyConstraints_MapSeries_Central
Reference: ESRI Topographic Basemap - Accessed Imagery: 11/11/2022

7.4 Consideration of a corridor option south of Biloela

A southern corridor option was initially considered, however following engagement with landholders, other stakeholders and members of the community, as well as detailed technical assessment, this option was not considered viable moving forward, mainly due to significant social impacts. This includes impacts on many small properties south of Biloela township, including the Prospect and Valentine Plains areas as well as impacts on the community and sporting facilities along Valentine Plains Road.

7.5 Comparative Assessment of Proposed Corridor Options

The corridor options have been assessed using a quantitative analysis and ranking against each assessment criteria. Further analysis was then undertaken based on qualitative issues relating to the magnitude of impact and/or the potential for impacts to be mitigated.

Using this approach, the benefits and disadvantages of the corridor options against each criterion were considered and discussed and from this a recommended corridor has been identified.

7.5.1 Land use

The potential impact of the transmission line on SCL and Agricultural Land Classes A and B has been the key issue raised through the early engagement process. As discussed in Section 5.1.2, SCL is regulated under the *Regional Planning Interests Act 2014* and is considered to be land that is, or is likely to be, highly suitable for cropping because of a combination of the lands soil, climate and landscape features. Agricultural land classes are defined under the State Planning Policy and provide for the protection of agriculture and agricultural development opportunities.

The percentage area of each corridor which overlays SCL and Agricultural Land Classes A, B and C are shown in **Table 7.1**.

Table 7.1 Corridor intersection with SCL and Agricultural Land Classes

Constraint (% of total corridor area)	NORTHERN CORRIDOR 1	NORTHERN CORRIDOR 2	CENTRAL CORRIDOR
SCL	48.5%	50.9%	52.4%
Agricultural Land Class A	29.4%	44.8%	48.4%
Agricultural Land Class B	8.5%	6.6%	6.9%
Agricultural Land Class C	37.2%	37.8%	37.1%

All proposed corridor options intersect large areas of SCL from just west of Callide Power Station to Kroombit Creek. Moving further west, land use becomes grazing with limited areas of SCL.

Agricultural Land Classification mapping shows all corridors traversing mainly Class A and Class B land between the Callide Power Station to Bowketts Lane. The corridors become common west of Bowketts Lane with mostly Class C and some areas of Class A land being affected. A pocket of A1/C1 and C1/A1 is located within Northern Corridor 1 to the north of Mount Murchison State School. Small pockets of A1/C1 and C1/A1 are located along Northern Corridor 2 and Central Corridor.

Agriculture is one of the main industries within the Banana Shire with both irrigation and dryland farming being undertaken to grow a range of produce including lucerne, cotton, sorghum, wheat, legumes and herbs. One of the largest mung bean exporters is based in Biloela. As such, given the nature of the Study Area and the intensive use of the area as cropping, not all cropping land could be avoided and therefore the objective of the corridor development was to minimise and/or mitigate impact. Where corridors intersect cropping land, towers will be positioned, where possible, close to boundaries or other existing infrastructure to minimise impacts on cropping activities. Co-location advantages include minimising impacts on cropping land by limiting the impacts to one area, and ability to utilise existing access tracks and points for maintenance.

Northern Corridor 1 intersects the lowest percentage of SCL and Agricultural Land Class A and is the recommended option on this basis.

7.5.2 Houses / land parcels

Houses and other sensitive receptors located within the Study Area are described in **Section 0**. The number of houses and land parcels within each corridor is represented in **Figure 7-2** to **Figure 7- 4.**

Table 7.2 Corridor interaction with houses/land parcels

	NORTHERN CORRIDOR 1	NORTHERN CORRIDOR 2	CENTRAL CORRIDOR
Houses within the corridor	7	10	243**
Land parcels within the corridor	63	84	334**

** For comparative assessment, these numbers also include some houses and land parcels within the Biloela township that fall within 500m of the existing transmission line.

Northern Corridor 1 intersects the fewest number of lots and has the fewest number of houses within its corridor.

Northern Corridor 1 is the recommended option on this basis.

7.5.3 Transport and other infrastructure

Transport and other infrastructure located within the Study Area are described within **Section 5.1.6**. The number of crossings for each corridor option is summarised in **Table** 7.3**.**

Table 7.3 Corridor intersection with transport and other infrastructure

Constraint	NORTHERN CORRIDOR 1	NORTHERN CORRIDOR 2	CENTRAL CORRIDOR
Main roads	3	3	3
Railway	2	3	1
Transmission Line (high voltage)	2	2	3
Pipeline	1	1	1
Airstrips	0	1	0

All proposed corridor options intersect Biloela-Callide Road, Burnett Highway and Dawson Highway as well as a high-pressure gas pipeline (Wallumbilla to Gladstone to Rockhampton Branch Pipeline – Jemena QLD Gas Pipeline Pty Ltd). There is limited differentiation between interactions with roads, railways and transmission lines between the corridors, however the Central Corridor would result in less crossings of minor roads and railways.

Fitzy's Airfield, a private airstrip, is located approximately 350 m north of Northern Corridor 1. The existing Calvale to Baralaba 132kV line is located between the airstrip and Northern Corridor 1 and no impacts are expected.

Northern Corridor 2 has a very significant impact on a property that contains a private airstrip along Shepherdsons Road. The Civil Aviation Safety Authority has no guidelines for the development of infrastructure near private airstrips however reference is made to Part 139 (Aerodromes) Manual of Standards 2019[2]. The Standards state that on approach to a Code 1 (non-instrumental) runway, the slope requires 5%, therefore, tall infrastructure should be built around 800 – 1,200 m (depending on height of tower) from the end of the airstrip to enable its continued operation.

Opportunities to co-locate the proposed transmission line with other linear infrastructure provides the following benefits –

- Confines land use impacts to one corridor instead of multiple corridors on a property;

[2] Part 139 (Aerodromes) Manual of Standards 2019 (legislation.gov.au)

- Reduces biosecurity risk and impacts on farming operations; and
- Helps to maintain the landholders privacy with third parties only accessing one area of their property.

The Central Corridor is the recommended option on the basis it has the least number of potential road and railway infrastructure interactions.

7.5.4 Protected flora and fauna

A description of the protected flora and fauna within the Study Area is provided in **Section 0**. A review of the proposed corridor options against the flora and fauna mapping was undertaking to identify the potential impacts as summarised below.

The PMST report identified five TECs listed as endangered under the EPBC Act as known, likely to, or may occur within the Study Area. It is likely that all proposed corridor options will intersect potential TEC based on the location of mapped corresponding REs. Remnant and regrowth vegetation is scattered across all three proposed corridor options, particularly near watercourses and roadsides. Vegetation near the Calvale Substation, which intersects all three corridors, is mapped as both essential habitat and a high-risk area for protected plants.

Therefore, the presence of TEC within each option does not differentiate and/or assist with identifying a preferred corridor option. The area of mapped remnant vegetation has been expressed as a percentage of the total area for each corridor option as represented in **Table 7.4**. The table shows that areas of remnant vegetation within each corridor is very small, with mapping showing it generally limited to the watercourses. All watercourses can be easily spanned by the proposed transmission line.

Table 7.4 Corridor intersection with vegetation and essential habitat

	NORTHERN CORRIDOR 1	NORTHERN CORRIDOR 2	CENTRAL CORRIDOR
Vegetation			
- **Category A**	-	-	10.3 ha (0.3%)
- **Category B**	87.4 ha (2.5%)	31.4 ha (1.0%)	46.8 ha (1.5%)
- **Category C**	92.2 ha (2.6%)	73.8 ha (2.4%)	58.9 ha (1.9%)
- **Category R**	197.2 ha (5.8%)	27.7 ha (0.9%)	43.2 ha (1.4%)
Essential habitat (ha and % of the total corridor area)	0.2%	0.2%	0.2%
High risk area for protected plants (ha and % of the total corridor area)	7.4 ha (0.2%)	7.4 ha (0.2%)	7.4 ha (0.2%)

For this criteria, Northern Corridor 2 is the recommended option on the basis it has the lowest amount of vegetation coverage due to the historical use of land for cropping with limited native vegetation near the major watercourses.

7.5.5 Hydrology

A description of watercourses within the Study Area is provided in Section 5.3.4. The number of watercourse crossings for each corridor is summarised in **Table 7.5**.

Table 7.5 Corridor intersection with watercourses

	NORTHERN CORRIDOR 1	NORTHERN CORRIDOR 2	CENTRAL CORRIDOR
Number of watercourse intersections (major)	2	2	3-4

The existing Moura to Biloela transmission line crosses the Kroombit and Callide Creeks and associated floodplains. Transmission towers are engineered and designed to be resilient to flooding

impacts where they may be subject to inundation by floodwaters. Each tower and its foundations are designed based on the local conditions and in accordance with relevant engineering guidelines and standards. The watercourses and floodplains traversed by the corridor options would not impede the construction of a new transmission line and has no impact on constructability or operation of the transmission line.

Northern Corridors 1 and 2 intersect the least number of waterways and are equally the most recommended on this basis.

7.5.6 Cost

The cost to construct the transmission line and the ongoing maintenance cost is considered in the assessment of corridor options. The cost to construct and maintain a transmission line is generally proportional to the length of the route and the number of angle structures. Significant changes in the direction, different construction types and foundation types of a route will increase construction costs.

As a basis for this comparative assessment, the length of the corridor and potential bend points (or changes in direction) as presented in **Table 7.6** is taken as a proxy of capital cost.

Table 7.6 Corridor length

	NORTHERN CORRI59655DOR 1	NORTHERN CORRIDOR 2	CENTRAL CORRIDOR
Corridor length	40.78 km	37.57 km	35.35 km
Potential bend points	20	21	20
Potential colocation opportunities with other linear infrastructure	19 km	23 km	30 km

Northern Corridor 1 provides co-location opportunities with the Calvale to Baralaba 132kV transmission line and Calvale to Biloela to Moura 132kV line.

Northern Corridor 2 provides co-location opportunities with the Moura Railway line and Calvale to Biloela to Moura 132kV line. However, this corridor intersects an airstrip and would not have enough separation distance to the airstrip to allow for continued operations without also impacting on adjacent property land uses. Northern Corridor 2 would also prove difficult for access adjacent to the existing railway line, with limited access points to cross the railway which may cause difficulties during both construction and operation.

Central Corridor provides significant co-location opportunities with the existing Calvale to Biloela to Moura 132kV line.

A detailed cost estimate for the proposed corridor options has not been prepared for the comparative assessment. Typically, a cost estimate will be prepared following the development of a transmission line alignment.

Central Corridor has the shortest length and comparable number of potential bend points, consistent with the number of Northern Corridor 1, and also has the greatest length of co-location opportunity. Central corridor is the recommended option on this basis.

7.6 Assessment summary

The comparative assessment of each corridor option is shown in Table 7.7. Based on their impact, each option has been ranked 1-3, with 1 being the least impact and 3 being the highest impact.

Table 7.7: Summary of corridor assessment

	NORTHERN CORRIDOR 1		NORTHERN CORRIDOR 2		CENTRAL CORRIDOR	
	IMPACT	RANK	IMPACT	RANK	IMPACT	RANK
LAND USE						
SCL	48.5%	1	50.9%	2	52.4%	3
Agricultural Land Class A & B	37.9%	1	51.2%	2	55.3%	3
Agricultural Land Class C	37.2%	2	37.8%	1	37.1%	3
HOUSING						
Houses within the corridor	7	1	10	2	243	3
Lots crossed by corridor centreline	63	1	84	2	334	3
INFRASTRUCTURE						
Main roads	3	1	3	1	3	1
Railway	2	2	3	3	1	1
Transmission Line (high voltage)	2	1	2	1	3	2
Airstrips	0	1	1	3	0	1
PROTECTED FLORA AND FAUNA						
Category A, B, C or R vegetation	10.9%	3	4.3%	1	5.1%	2
WATERCOURSES						
Number of watercourse intersections (major)	2	1	2	1	3-4	2
COST						
Corridor length	40.78 km	3	37.57 km	2	35.35 km	1
Potential bendpoints	20	1	21	2	20	1
Potential colocation with existing rail or transmission lines	16km	3	23km	2	30km	1
TOTAL SCORE	22		25		27	
TOTAL RANK	1		2		3	

Based on a comprehensive assessment of the proposed corridor options outlined in this report, Northern Corridor 1 has been identified as the recommended corridor for the proposed 275kV transmission line connecting the BBRWF to the electricity transmission network at Calvale Substation.

Northern Corridor 1, while slightly longer than the other two corridors, has the lowest social impact given it intersects the least number of land parcels and houses and overall, intersects the lowest percentage of areas of SCL and Class A and B land compared to both Northern Corridor 2 and Central Corridor. This has been confirmed through field inspections which identified existing house locations and current land use. While potential environmental impacts to protected flora and fauna are higher for Northern Corridor 1, they are mainly limited to watercourses where impacts can be avoided through appropriate siting of transmission towers and over-spanning of vegetation. Northern Corridor 1 also avoids impacts on an airfield which occurs for Northern Corridor 2.

8. Legislative and Approval Requirements

A number of Commonwealth, State and Local planning and environmental approvals may be required for the project. Applicable planning and environmental legislation and associated approvals or permits likely to be required are discussed in this section.

8.1 Commonwealth

8.1.1 Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act is the Australian Government's central piece of environmental legislation which is administered by the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

The Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places — defined in the EPBC Act as Matters of National Environmental Significance (MNES) and establishes a process for environmental assessment and approval of proposed actions that have, will have, or are likely to have a significant impact on MNES.

MNES protected under the EPBC Act include:

- Listed threatened species and communities
- Listed migratory species
- Ramsar wetlands of international importance
- Commonwealth marine environment
- World heritage properties
- National heritage places
- The Great Barrier Reef Marine Park
- Nuclear actions
- A water resource, in relation to coal seam gas development and large coal mining development.

If a project may cause a significant impact on an MNES, the project must be referred to the Commonwealth Minister for the Environment for assessment of the potential impacts. The Minister will decide whether the project is:

- *Not a controlled action*: the project does not need to be assessed further.
- *Not a controlled action* 'particular matter': the project does not need to be assessed further, providing the action is undertaken in accordance with conditions that are supplied with the decision.
- *A controlled action*: the project will need to be assessed against the EPBC Act, through one of several processes available.

Ecological investigations and subsequent significant impact assessments will need to be undertaken to understand the presence of, and potential impacts on MNES. Outcomes of these investigations will determine the requirement for referral to the Commonwealth Minister for the Environment.

8.1.2 Native Title Act 1993

The Native Title Act 1993 (NTA) provides for the recognition of native title and establishes ways in which certain future dealings may proceed and to set standards for those dealings. Any acts or dealings in relation to land and waters subject to native title are only valid if they comply with the NTA.

The study area is located entirely within the registered native title claim of the Gaangalu Nation People (QC2012/009).

Within land over which native title exists, Powerlink must comply with the requirements of the NTA to secure an easement for the transmission line. The section 24KA under the NTA process may apply to validate certain future acts such as the registration of easements and construction and operation of Powerlink's electricity transmission lines. Impacts on native title rights and interests may also be addressed through other processes under the NTA such as Indigenous Land Use Agreements. Section 24KA does not extinguish native title. The requirements under the NTA do not differentiate between corridor options.

8.2 State

8.2.1 Acquisition of Land Act 1967

The *Acquisition of Land Act 1967* is administered by the Department of Resources (DoR) and sets out the processes for compulsory and voluntary acquisition of land by a constructing authority.

Powerlink may acquire land or register an easement over land for the transmission line. Land may be acquired either by voluntary agreement for easements or other tenures required or, where agreement cannot be reached, by compulsory resumption of land.

8.2.2 Aboriginal Cultural Heritage Act 2003

The *Aboriginal Cultural Heritage Act 2003* (ACHA) is administered by the Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships and aims to provide recognition, protection and conservation of Aboriginal cultural heritage.

The ACHA establishes the cultural heritage duty of care and provides processes for managing activities that have the potential to cause harm to Aboriginal cultural heritage.

Engagement with the relevant cultural heritage party for the area is required to identify any potential risk to Aboriginal cultural heritage. It also may necessitate preparation of a cultural heritage management plan or cultural heritage management agreement. Activities which pose a high risk to Aboriginal cultural heritage which may apply to the project include:

- Works in, or within proximity to registered Aboriginal cultural heritage sites or places;
- Works in areas with little or no previous ground disturbance; and
- Works in proximity to water features.

8.2.3 Electricity Act 1994

The *Electricity Act 1994* is administered by the Department of Energy and Public Works and sets out the requirements that all electricity industry participants must follow to ensure a safe, efficient and reliable supply of electricity, as well as ensuring that the supply of electricity is undertaken in an environmentally sound manner.

Section 31 of the Act states that the transmission entity must properly account for the environmental effect of its activities under the transmission authority. Powerlink holds a transmission authority in Queensland, and as such, is required to develop its network to meet the security and reliability standards of the National Electricity Rules, the *Electricity Act 1994* and the terms of its transmission authority.

The legislative requirements of the *Electricity Act 1994* are standard to Powerlink projects and therefore pose a low risk to the construction of the transmission line.

8.2.4 Electrical Safety Act 2002

The *Electrical Safety Act 2002* is administered by the Department of Education and seeks to, and regulates electricity works to prevent death, injury or destruction caused by electricity. The transmission line must be designed in compliance with the requirements outlined under the *Electricity Safety Act 2002*. These requirements are standard to Powerlink processes and therefore have a low risk over the project.

8.2.5 Environmental Protection Act 1994

The *Environmental Protection Act 1994* (EP Act) is administered by the Department of Environment and Science (DES) and aims to protect Queensland's environment, while allowing for development that improves the total quality of life, both now and in the future.

Section 319 establishes a general environmental duty of care which Powerlink are obliged to meet. The general environmental duty of care provides that an organisation must not cause, or be likely to cause, environmental harm unless all reasonable and practicable measures to prevent or minimise harm are taken.

Powerlink may exercise this duty of care through the development of preliminary studies, subsequent environmental assessment reports and project-specific environmental management plans implemented throughout the construction and operational stages of the project.

8.2.6 Fisheries Act 1994

The *Fisheries Act 1994* is administered by the Department of Agriculture and Fisheries (DAF) and governs the management of fisheries, declared fish habitat areas and marine plants. Works which may cause disturbance to 'waterways' as defined under the Act can be subject to assessable operational work for waterway barrier works, unless construction complies with the conditions under the 'Accepted development requirements for operational work that is constructing or raising waterway barrier works'.

Should any works within a waterway not comply with the Accepted development requirements, a development permit is ordinarily required under the *Planning Act 2016*. However, if the project is granted an Infrastructure Designation, operational work for waterway barrier works will be considered accepted development and will not require a development permit.

8.2.7 Land Act 1994

The *Land Act 1994* is administered by the DoR and governs the allocation and management of land for development. The *Electricity Act 1994* provides exemptions to the *Land Act 1994* for works by transmission entities. Transmission entities are entitled to take necessary action in publicly controlled places (such as unallocated State land) to provide or supply electricity under section 101 of the *Electricity Act 1994*, as well as undertake works on road reserves through written agreement from the road authority under section 102.

8.2.8 Nature Conservation Act 1992

The *Nature Conservation Act 1992* is administered by DES and is the primary legislation governing the protection and management of native wildlife, habitat and protected areas within Queensland.

The protected plants flora survey trigger map identifies high risk areas for protected plants to occur and must be used to determine whether a targeted flora survey is required for a particular area. High risk areas are those in which endangered, vulnerable, threatened or near threatened flora is known or likely to exist.

Where clearing is required in an area containing a protected plant species, a clearing permit must be obtained from DES.

8.2.9 Planning Act 2016

The *Planning Act 2016* is administered by the Department of State Development, Infrastructure, Local Government and Planning (DSDILGP) and establishes a system of land use planning and development assessment prescribed under the *Planning Regulation 2017*. The proposed project is considered 'Electricity Operating Works', which is considered as 'infrastructure' and is therefore prescribed development under the *Planning Regulation 2017*.

Under the Act, the Planning Ministers is the only minister with the power to designate land for infrastructure. The 'Minister's Guidelines and Rules' outlines the process for making a ministerial designation.

An approval for a ministerial designation will require submission of an environmental assessment report that includes requirements about works for the infrastructure (such as the height, shape, bulk, landscaping, or location of works), the use of premises including access and ancillary uses, or lessening the impact of the works or use (such as environmental management procedures). Under section 44 of the *Planning Act 2016*, infrastructure that is designated is considered accepted development and will not require further approvals under the *Planning Act 2016*. However, this does not exempt any approvals required under other legislation.

A new Infrastructure Designation proposal would be required for construction of the transmission line.

8.2.9.1 State Planning Policy

The State Planning Policy (SPP) expresses the State's interests in land use planning and development. A state interest is defined under the *Planning Act 2016* as an interest that the Planning Minister considers:

- Affects an economic or environmental interest of the State or a part of the State
- Affects the interest of ensuring that the purpose of the Act is achieved

The SPP framework outlines 17 State interests that are relevant to the assessment of development in Queensland. The SPP applies to development applications and designated infrastructure under the *Planning Act 2016* and prevails over all regional and local planning instruments.

The relevant state interests are outlined in **Table 8.1** along with a description of how each interest relates to the project.

Table 8.1: Summary of applicable SPP State Interests

RELEVANT STATE INTEREST		APPLICATION
Economic Growth	*Agriculture*	The Study Area is broadly mapped as containing important agricultural areas and Class A (crop land) and Class B (limited crop land) agricultural land. All corridor options will traverse through these mapped areas. Where each corridor is located with these areas, impacts should be minimised to lot boundaries, roads or tracks to reduce the impact on cropping areas. Engagement with affected landholders to be undertaken to identify preferred siting.
	Mining and Extractive Resources	No Key Resource Areas are intersected by the corridor options. All options will however traverse the transportation routes for mining and extractive resources. This is unlikely to cause a major constraint.

RELEVANT STATE INTEREST		APPLICATION
Environment and Heritage	*Biodiversity*	MSES identified under SPP mapping within the Study Area include: • Of concern and endangered RE; • Essential habitat; and • Protected areas. The corridor options do not traverse protected areas; however, wildlife habitat (endangered or vulnerable and special least concern animal) and regulated vegetation (category B, C and R, essential habitat and wetlands) occur within the corridor options. The project should seek to avoid or minimise impacts to the State values.
	Cultural Heritage	All corridor options avoid National and State heritage places.
	Water Quality	The corridors do not cross high ecological value watercourses.
Safety and Resilience to Hazards	*Emissions and Hazardous Activities*	A high-pressure gas pipeline (Wallumbilla to Gladstone to Rockhampton Branch Pipeline – Jemena QLD Gas Pipeline Pty Ltd) is located in the western most extent of the Study Area and will be intersected by all corridor options.
	Natural Hazards, Risk and Resilience	The Study Area and all corridor options is subject to the Queensland Floodplain Assessment Overlay and contains scattered areas of land identified as medium or high potential bushfire hazard.
Infrastructure	*Energy and Water Supply*	The Callide Diversion Irrigation Channel is located in the south-eastern section of the Study Area.
	Transport Infrastructure	The Corridor Options all traverse State-controlled roads, including Dawson Highway and Burnett Highway. The corridor is to be located and designed so as not to affect the safety or operational integrity of these roads.

8.2.10 Vegetation Management Act 1999

The *Vegetation Management Act 1999* is governed by the DoR and seeks to manage native vegetation across Queensland. Regulated Vegetation Mapping identifies categorised areas of remnant vegetation in Queensland and is used to establish whether clearing of native vegetation is considered assessable development requiring a permit.

8.2.11 Water Act 2000

The *Water Act 2000* is administered by the Department of Regional Development, Manufacturing and Water and provides a legislative framework for the sustainable use, allocation and management of water resources in Queensland and regulates activities occurring within designated watercourses under the Act.

The Watercourse Identification Map categorises water features as either a designated watercourse, drainage feature, downstream limit of a watercourse or lake, and is used to determine the assessment requirements for undertaking activities within a watercourse. Activities including excavating, filling or destroying native vegetation within a watercourse may require approval under the *Water Act 2000* in the form of a riverine protection permit.

Powerlink is an approved entity exempt from requiring a permit if the self-assessment guidelines under the 'Riverine protection permit exemption requirements' are followed.

8.3 Local

8.3.1 Planning scheme

The Study Area is located within the Banana Shire Council, which is governed by the Banana Shire Planning Scheme 2021. Under the Banana Shire Council Planning Scheme, the Study Area is mostly zoned as 'rural' with the exception of areas around Biloela mapped as general residential, recreation and open space and community facilities.

The purpose of the rural zone code is to provide for rural uses and activities, as well as other activities that are compatible with existing and future rural uses and activities, and the character and

environmental feature of the zone. The zone also aims to maintain the capacity of rural land for rural uses and activities by protecting and managing significant natural resources and processes.

Under the Planning Scheme, major electricity infrastructure is:

- A transmission grid or supply network, or
- A telecommunications facility, if the use is ancillary to the use in paragraph (A).

Therefore, transmission lines are considered a major electricity infrastructure use. Under the rural zone code, major electricity infrastructure is accepted development, subject to requirements and assessment.

Where the project is granted an Infrastructure Designation, the construction, operation, and maintenance of the transmission line with be accepted development under the *Planning Act 2016* and will not require an approval under the Banana Shire Council Planning Scheme. Regardless, consideration of the requirements of the planning scheme, relating to the land subject to designation, is required.

8.3.2 Local laws

The *Local Government Act 2020* allows for Councils to make local laws for, or with respect to any act, matter or thing in respect of which the Council has a function or power under the *Local Government Act 2020* and allows Councils to regulate specific matters within their LGA. While the Planning Scheme is exempt for Infrastructure Designation, consideration of any local laws is still required, and may trigger approvals for certain activities. The Banana Shire Council Local Laws which may be applicable to the project include Local Law No. 3 – Community and Environmental Management and Local Law No. 4 – Local Government Controlled Areas, Facilities and Roads.

Local Law No. 3's purpose is to protect the environment and public health, safety and amenity within the LGA through the elimination or reduction of risks and threated to these matters from; inadequate protection against pests, vegetation overgrowth, visual pollution, fires and fire hazards, community safety hazards and noise that exceeds noise standards.

Local Law No. 4's purpose is to protect the health and safety of persons using local government-controlled land, facilities, infrastructure and roads and to preserve features of the natural and built environment within these areas. This is achieved through regulation of access to local government areas, prohibition or restriction of particular activities in local government areas or roads and miscellaneous matters affecting roads. Banana Shire Council should be consulted in relation to potential impacts and implications of these local laws on the project.

8.4 Summary of legislative triggers

A summary of the potential legislative riggers applicable to the project, based on the current level of project knowledge, is provided in **Table 8.2**. It is noted that further design and detailed assessment will be required to confirm the appropriate approval pathway for the project.

Standard Powerlink requirements under the *Electricity Act 1994* have not been included in the below.

Table 8.2 Summary of legislative triggers

LEGISLATION	APPROVAL / LICENCE	ADMINISTERING AUTHORITY	ACTIVITY THAT TRIGGERS APPROVAL
COMMONWEALTH			
Environment Protection and Biodiversity Conservation Act 1999	EPBC Act Referral	DCCEEW	Potential or likely impact to matters of NES. The project is unlikely to be determined as a controlled action however a significant impact assessment is to be undertaken.
STATE			
Planning Act 2016	Infrastructure Designation	DSDILGP	To facilitate the delivery of community support infrastructure (electricity operating works). Planning approval for the project is to be sought via the infrastructure designation process. If approved, the development becomes accepted development under the *Planning Act 2016.*
Acquisition of Land Act 1967	Voluntary agreement / Compulsory acquisition	DoR	Acquisition of land for the transmission line easement. The project seeks to secure the transmission line easement via voluntary agreement, or other tenures required or, where agreement cannot be reached, by compulsory resumption of land.
Fisheries Act 1994	Operational works for waterway barrier works	DAF	Land subject to an Infrastructure Designation is accepted development and will not require a development approval for operational works for waterway barrier works.
Nature Conservation Act 1992	Clearing permit / Exempt clearing notification	DES	Where ecological surveys identify NC Act listed flora species within the project area, a clearing permit will be required. Where no NC Act listed flora species are identified within mapped flora survey trigger areas, an exempt clearing notification will be required.
Vegetation Management Act 1999	Operational works for clearing native vegetation	DoR	Land subject to an Infrastructure Designation is accepted development and will not require a development approval for operational works for clearing native vegetation.
Water Act 2000	Riverine Protection Permit / Compliance with Exemption Requirements	DoR	Where excavation, fill or removal of vegetation within a watercourse is required. Powerlink is an approved entity exempt from requiring a permit if the self-assessment guidelines under the 'Riverine protection permit exemption requirements' are followed.

9. Conclusion and Next Steps

Since June 2022, Powerlink has been engaging with landholders, the broader community and other stakeholders regarding a proposed 275kV transmission line connection between EDF Renewable's Banana Range Wind Farm and Powerlink's existing Calvale Substation. The engagement process has sought to raise awareness about the proposed transmission line and provide several opportunities for landholders, the community and other stakeholders to provide local knowledge and input on matters which should be considered when assessing proposed corridor options for the project.

Based on feedback from this early engagement process and technical assessment of the project Study Area, three potential corridors were identified and evaluated in this report, namely Northern Corridor 1, Northern Corridor 2 and Central Corridor.

Comparative assessment of these corridors has identified Northern Corridor 1 as the overall recommended corridor for the proposed 275kV transmission line. This corridor has the lowest potential social impacts with the least number of land parcels and houses, and lowest impact on strategic cropping and class A and B land. This is offset by slightly higher construction costs due to its slightly longer length and requirement to over-span a greater proportion of creek lines that support flora and fauna.

This draft report will be released to landholders and the broader community for review and comment. Powerlink will consider submissions regarding the findings of this report and undertake further engagement and analysis before finalising and publicly releasing the Final CSR in early 2023.

Once finalised, the recommended corridor will be known as the 'Study Corridor' and Powerlink will commence detailed landholder engagement and technical studies within the corridor to determine a suitable transmission line alignment. Development approval and land acquisition for the proposed transmission line will commence around mid-2023 with construction expected to commence in 2024.

10. References

Department of Environment and Resource Management (2010) *National Recovery Plan for the 'Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions' Ecological Community.* Australian Government. Available from: National recovery plan for the "Semi-evergreen vine thickets of the Brigalow Belt (North and South) and Nandewar Bioregions" ecological community - DCCEEW

Department of the Environment and Energy (2019). Conservation Advice (including listing advice) for the Poplar Box Grassy Woodland on Alluvial Plains. Canberra: Department of the Environment and Energy. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/141pb-conservation-advice.pdf. In effect under the EPBC Act from 04-Jul-2019.

Threatened Species Scientific Committee (2009). *Commonwealth Listing Advice on Weeping Myall Woodlands*. Department of the Environment, Water, Heritage and the Arts. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/98-listing-advice.pdf. In effect under the EPBC Act from 07-Jan-2009.

Threatened Species Scientific Committee (TSSC) (2001). *Commonwealth Listing Advice on Brigalow* (Acacia harpophylla *dominant and co-dominant)*. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/brigalow.html. In effect under the EPBC Act from 04-Apr-2001.

Threatened Species Scientific Committee (TSSC) (2011). Commonwealth Listing Advice on Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions. Department of Sustainability, Environment, Water, Population and Communities. Canberra, ACT: Department of Sustainability, Environment, Water, Population and Communities. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/66-listing-advice.pdf. In effect under the EPBC Act from 01-Mar-2011.

Appendix A Desktop searches

Australian Government
Department of Agriculture, Water and the Environment

EPBC Act Protected Matters Report

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

Report created: 06-Jun-2022

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:	5
Listed Threatened Species:	38
Listed Migratory Species:	15

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

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

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

Commonwealth 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:	1
Regional Forest Agreements:	None
Nationally Important Wetlands:	None
EPBC Act Referrals:	5
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 may occur within area	In feature area
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 ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area	In feature area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	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

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Geophaps scripta scripta](#) Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat likely 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 may 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
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may 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
[Turnix melanogaster](#) Black-breasted Button-quail [923]	Vulnerable	Species or species habitat may occur within area	In feature area
MAMMAL			
[Chalinolobus dwyeri](#) Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area	In feature area
[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 may occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Nyctophilus corbeni			
Corben's Long-eared Bat, South-eastern Long-eared Bat [83395]	Vulnerable	Species or species habitat may occur within area	In feature area
Petauroides volans			
Greater Glider [254]	Vulnerable	Species or species habitat likely 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
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
Bulbophyllum globuliforme			
Miniature Moss-orchid, Hoop Pine Orchid [6649]	Vulnerable	Species or species habitat may 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 likely to occur within area	In feature area
Cycas megacarpa			
[55794]	Endangered	Species or species habitat known to occur within area	In feature area

Scientific Name	Threatened Category	Presence Text	Buffer Status
Dichanthium queenslandicum King Blue-grass [5481]	Endangered	Species or species habitat may occur within area	In feature area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area	In feature area
Polianthion minutiflorum [82772]	Vulnerable	Species or species habitat likely to occur within area	In buffer area only
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 likely to occur within area	In feature area
Xerothamnella herbacea [4146]	Endangered	Species or species habitat likely to occur within area	In feature area
REPTILE			
Delma torquata Adorned Delma, Collared Delma [1656]	Vulnerable	Species or species habitat may 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
Rheodytes leukops Fitzroy River Turtle, Fitzroy Tortoise, Fitzroy Turtle, White-eyed River Diver [1761]	Vulnerable	Species or species habitat may 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 Marine Species			
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		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 may occur within area	In feature area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat may occur within area	In feature area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area	In feature area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area	In feature area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely to occur within area	In feature area
Migratory Wetlands Species			

Scientific Name	Threatened Category	Presence Text	Buffer Status
[Actitis hypoleucos](#) Common Sandpiper [59309]		Species or species habitat known to occur within area	In feature area
[Calidris acuminata](#) Sharp-tailed Sandpiper [874]		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
[Calidris melanotos](#) Pectoral Sandpiper [858]		Species or species habitat may occur within area	In feature area
[Gallinago hardwickii](#) Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area	In feature area
[Numenius madagascariensis](#) Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	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 feature area

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text	Buffer Status
Bird			

Scientific Name	Threatened Category	Presence Text	Buffer Status
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
Calidris acuminata Sharp-tailed Sandpiper [874]		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]		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

Scientific Name	Threatened Category	Presence Text	Buffer Status
Hirundapus caudacutus White-throated Needletail [682]	Vulnerable	Species or species habitat may 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 may 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
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat known to occur within area overfly marine area	In feature area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	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
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat likely 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
Reptile			
Crocodylus porosus Salt-water Crocodile, Estuarine Crocodile [1774]		Species or species habitat likely to occur within area	In feature area

Extra Information

State and Territory Reserves			[Resource Information]
Protected Area Name	Reserve Type	State	Buffer Status
Mount Murchison	Nature Refuge	QLD	In feature area

EPBC Act Referrals				[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status	Buffer Status
Controlled action				
Construct and operate 447km high pressure gas transmission pipeline	2009/4976	Controlled Action	Post-Approval	In feature area
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
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

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 are 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

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

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

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
- 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.

Department of Agriculture Water and the Environment
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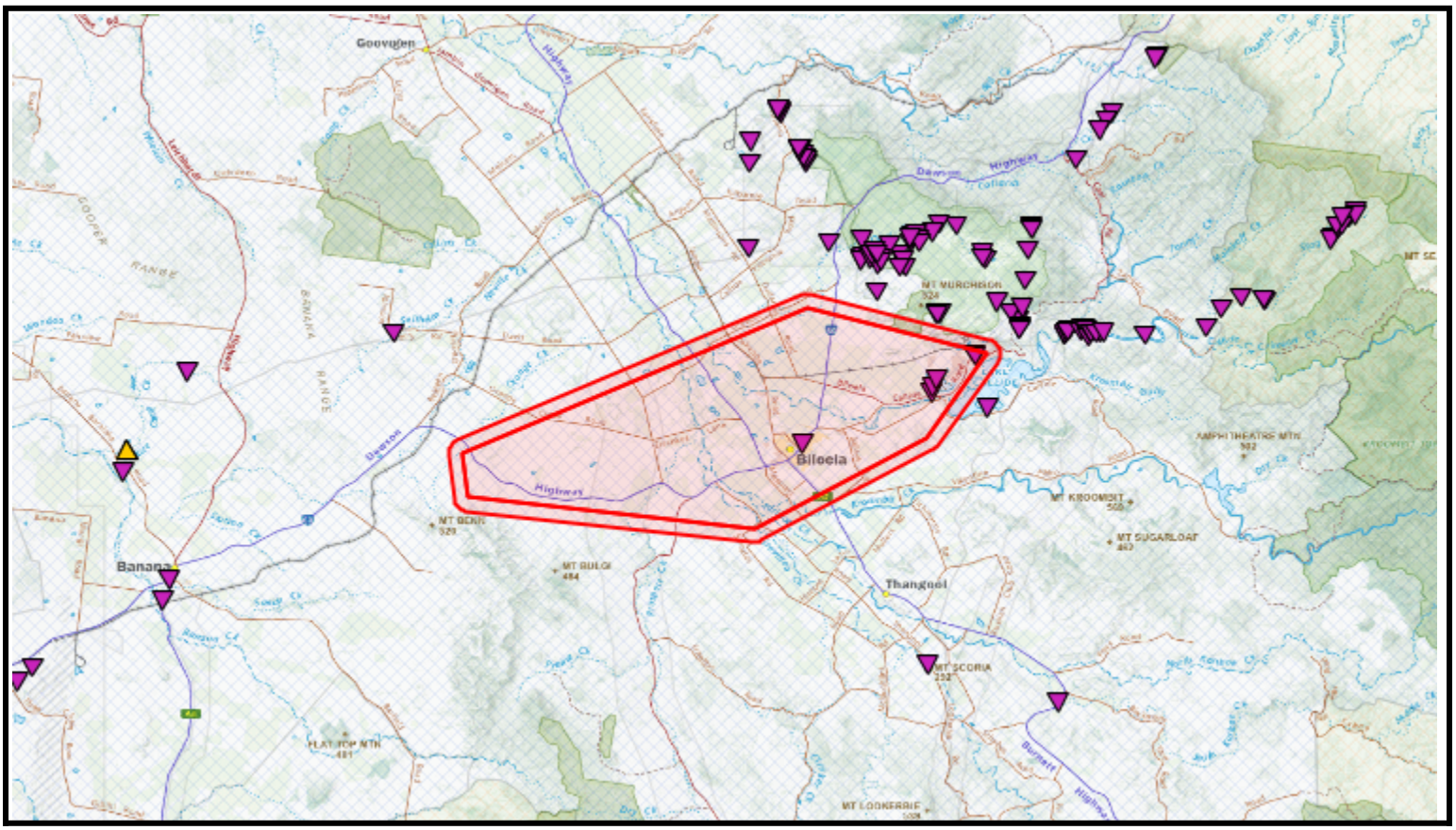
Canberra City ACT 2601 Australia
+61 2 6274 1111

Digital Data Search

Reference Number:	113545
Buffer Distance:	1000 metres



Cultural heritage site points for the area are:

Site ID	Latitude	Longitude	Record Date	Attribute	Party
JE:A17	-24.362948	150.601696	Nov 1, 1981	Artefact Scatter	Gaangalu Nation People
JE:A17	-24.362948	150.601696	Nov 1, 1981	Scarred/Carved Tree	Gaangalu Nation People
JE:A18	-24.359354	150.60275	Nov 1, 1983	Artefact Scatter	Gaangalu Nation People
JE:A19	-24.354873	150.604805	Nov 1, 1981	Artefact Scatter	Gaangalu Nation People
JE:D94	-24.339605	150.629367	Dec 10, 2001	Artefact Scatter	Gaangalu Nation People
JE:D95	-24.340037	150.62928	Dec 10, 2001	Isolated Find	Gaangalu Nation People

GDA2020

Digital Data Search

Cultural heritage site points for the area are:

Site ID	Latitude	Longitude	Record Date	Attribute	Party
JE:E07	-24.395188	150.521265	Jan 1, 1997	Burial(s)	Gaangalu Nation People

There are no Aboriginal or Torres Strait Islander cultural heritage site polygons recorded in your specific search area.

Cultural heritage party for the area is:

QC Ref Number	QUD Ref Number	Name	Contact Details
QC2012/009	QUD33/2019	Gaangalu Nation People	Gaangalu Nation People Saylor Legal AMP Building PO Box 4017 VINCENT QLD 4814 Phone: (07) 4431 0074 Mobile: 0474 244 447 Email: david@saylorlegal.com.au

There is no cultural heritage body recorded in your specific search area.

Cultural Heritage Management Plans (CHMP) for the area are:

CHL Number	Sponsor	Party	Approved
CLH000456	Powerlink		Jun 9, 2009
CLH000759	Origin Energy	Gangulu People	Aug 18, 2010
CLH010008	Anglo American Metallurgical Coal	Gangulu People	Aug 2, 2011

There are no Designated Landscape Areas (DLA) recorded in your specific search area.

There are no Registered Cultural Heritage Study Areas recorded in your specific search area.

GDA2020

Digital Data Search

Regional Coordinator:

Name	Position	Phone	Mobile	Email
Cultural Heritage Unit		1300 378 401		cultural.heritage@dsdsatsip.qld.gov.

Disclaimer: The Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships is the custodian of spatial data provided by various third parties for inclusion in the Aboriginal and Torres Strait Islander cultural heritage online portal. This includes spatial data provided by the National Native Title Tribunal and Aboriginal and Torres Strait Islander parties. Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships is not responsible for the accuracy of information provided by third parties or any errors in this search report arising from such information.

Map Datum: Geographic Latitude & Longitude (GDA2020)

Digital Data Search

I refer to your submission in which you requested advice regarding Aboriginal or Torres Strait Islander cultural heritage recorded at your nominated location.

The Cultural Heritage Database and Register have been searched in accordance with the location description provided, and the results are set out in the above report.

Aboriginal or Torres Strait Islander cultural heritage which may exist within the search area is protected under the terms of the *Aboriginal Cultural Heritage Act 2003* and the *Torres Strait Islander Cultural Heritage Act 2003*, even if the Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships has no records relating to it.

Under the legislation a person carrying out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal or Torres Strait Islander cultural heritage. This applies whether or not such places are recorded in an official register and whether or not they are located on private land.

Please refer to our website https://www.dsdsatsip.qld.gov.au/people-communities/aboriginal-torres-strait-islander-cultural-heritage for a copy of the gazetted Cultural Heritage Duty of Care Guidelines, which set out reasonable and practicable measure for meeting the cultural heritage duty of care.

In order to meet your duty of care, any land-use activity within the vicinity of recorded cultural heritage should not proceed without the agreement of the Aboriginal or Torres Strait Islander Party for the area, or by developing a Cultural Heritage Management Plan under Part 7 of the legislation.

If your proposed activity is deemed a Category 5 activity pursuant to the Duty of Care Guidelines, there is generally a high risk that it may harm cultural heritage. In these circumstances, the activity should not proceed without cultural heritage assessment.

Where a Category 5 activity is proposed that may impact on features set out in Paragraph 6 of the Guidelines, it is necessary to notify the Aboriginal or Torres Strait Islander Party and seek:

a. Advice as to whether the area is culturally significant;
b. If it is, agreement on how best the activity may be managed to avoid or minimise harm to any cultural heritage values.

The features set out in Paragraph 6 include:

- Rock outcrops

Digital Data Search

- Caves
- Foreshores and coastal dunes
- Sand Hills
- Areas of biogeographical significance, such as natural wetlands
- Permanent and semi-permanent waterholes, natural springs
- Native vegetation
- Some hill and mound formations

The extent to which the person has complied with Cultural Heritage Duty of Care Guidelines and the extent the person consulted Aboriginal or Torres Strait Islander Parties about carrying out the activity – and the results of the consultation – are factors a court may consider when determining if a land user has complied with the cultural heritage duty of care.

Should you have any further queries, please do not hesitate to contact the Search Approval Officer on 1300 378 401.

Kind regards

The Director
Cultural Heritage | Community Participation | Department of Seniors, Disability Services and Aboriginal and Torres Strait Islander Partnerships

Digital Data Search

Digital Data:

POLYGON((150.30879996560208 -24.399000002316473,150.5243999549691 -24.308300000966412,150.63600004139005 -24.336800001309342,150.5983000393 -24.388999998315075,150.49080004333152 -24.44589999905618,150.31189996240448 -24.42620000281559,150.30879996560208 -24.399000002316473))

Queensland Government

Greycliffe Homestead

- Place ID: 600017
- 48 Gladstone Road, Biloela

General

More images...

Also known as
Greycliffe
Classification
State Heritage
Register status
Entered
Date entered
21 October 1992
Type
Pastoralism: Homestead
Themes
2.3 Exploiting, utilising and transforming the land: Pastoral activities
6.4 Building settlements, towns, cities and dwellings: Dwellings
Construction period
1863, Greycliffe Homestead (1863c -)
Historical period

1840s–1860s Mid-19th century

Location

Address

48 Gladstone Road, Biloela

LGA

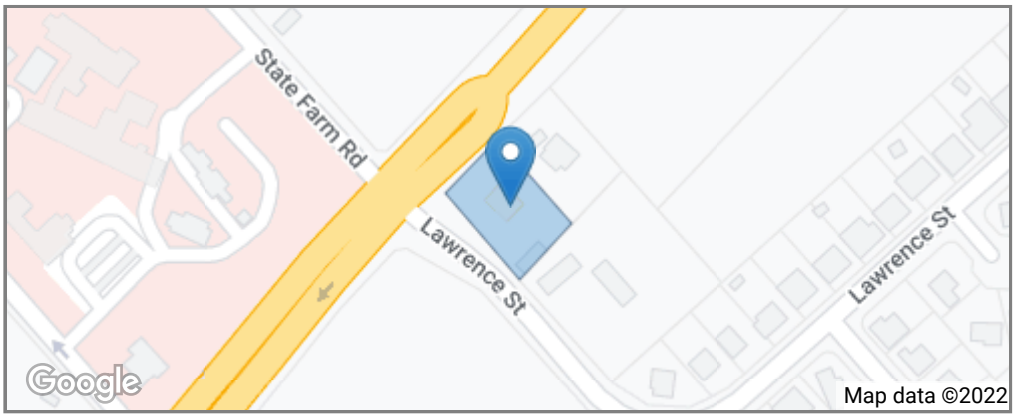
Banana Shire Council

Coordinates

-24.39628949, 150.51981983

Map

- Enlarge map



Street view

Photography is provided by Google Street View and may include third-party images. Images show the vicinity of the heritage place which may not be visible.

Request a boundary map

A printable boundary map report can be emailed to you.

Email

*

Significance

Criterion A

The place is important in demonstrating the evolution or pattern of Queensland's history.

Greycliffe homestead illustrates the pattern of early European exploration and settlement of Queensland where the development of pastoral properties preceded agriculture and the establishment of towns. As an early homestead in the Leichhardt Pastoral District, it has associations with the development of the pastoral industry in Queensland.

Criterion D

The place is important in demonstrating the principal characteristics of a particular class of cultural places.

Greycliffe demonstrates the principal characteristics of an early homestead building constructed from materials found on the property and illustrates the building techniques traditionally used for such buildings.

Criterion G

The place has a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.

The homestead is valued by the community as demonstrated by the project to preserve it as an important part of the history of the area, and it is associated with the historical society whose focus it has been since the late 1970s.

Criterion H

The place has a special association with the life or work of a particular person, group or organisation of importance in Queensland's history.

Greycliffe homestead is associated with the Nott family who, as early pastoralists, contributed to the development of the area.

History

Greycliffe homestead is a slab dwelling formerly on Greycliffe station and relocated to Biloela where it has served as the headquarters of the Banana Shire Historical Society association since 1979.

Leichhardt explored the Callide and Dawson Valleys in 1844. Thomas Archer took up Eidsvold run and Charles Archer moved further north settling in the region of what is now Biloela. Other

European pastoralists soon followed them in the 1850s, when this district was still a part of New South Wales. In 1863 Frederick Barton took up Greycliffe.

It is not certain when William Nott moved onto the run, but in 1871 he married Sophia Collins. Their first two children died, but in November 1875 Helen Brenda Nott was born and as she was the only one of their subsequent children not to have been born on Greycliffe, the Nott family may have moved to Greycliffe in 1876. In January 1877 Alfred David became the first of seven more children born on the property. In 1878 the lease was transferred to Frederick Brackner, but in 1879 Nott acquired the lease himself. In 1884 he took up further land and in later years further leases extended the run.

The original form of the house was a large rectangular room with a fireplace at one end. This was extended and eventually included two bedrooms separated by a passage in the core section, an encircling verandah with subsidiary rooms and a detached kitchen. The rooms were ceiled with stretched calico and walls were decorated by gluing chintz directly to the timber.

In 1903, William Nott died and the eldest of his surviving sons, William Ingliss, managed the property. His two brothers and a sister, Emma, served overseas in WWI while another sister, Jessie, helped to run the station.

In the 1920s the homestead was repaired and the roof shingles were replaced by corrugated iron sheeting. In 1923, Frederic Nott and his family moved to Darling Plain and in 1924, Bill Nott also moved away, although Greycliffe remained in the family. In 1929 Sophia Nott died aged 83. Emma and a nephew, Robin Nott, lived on the property. In 1972 she died at the age of 92, being the last person to live in the homestead building. When Robin Nott also died, his wife and sons took over the running of the property. It was sold in the late 1970s.

After the sale of Greycliffe station, the Banana Shire Historical Society feared that the vacant homestead might decay or catch fire. They therefore acquired the building in 1979 and removed it from the site in two sections. At the time this approach to preserving buildings was considered by many to be a valid way to save places valued by the community. It was relocated 37 kilometres away at Gladstone Road, Biloela where it became premises for the Society. It is open to the public by arrangement. The detached kitchen has not survived the move.

Description

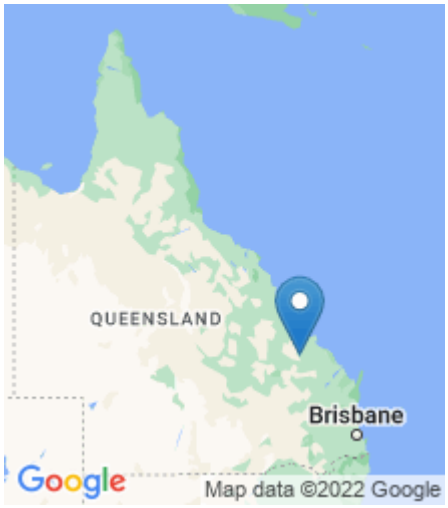
The former Greycliffe homestead is now located on the corner of Gladstone Road and Lawrence Street, Biloela. The site has several other buildings on it including a slab hut, a new timber shelter for machinery and a concrete toilet block.

The homestead is a single storey timber building set on low timber stumps. The roof is hipped and clad in corrugated iron. The house is constructed of timber slabs on a pole frame and has an encircling verandah incorporating subsidiary rooms. There is a tourist office in the room on the front left hand side of the verandah. The rear verandah has storage rooms and a kitchen. At least one room has a modern steel security door and some rooms are lined with modern material.

The core of the building consists of a large living room with a fireplace at one end. This has a simple timber mantelpiece and is brick lined. There are two bedrooms separated by a passage. The fabric ceilings have not survived the removal. There are timber steps to the front of the building and the rear is reached by a ramp.

Image gallery

Location



Last updated 20 January 2016

Document Status

Rev No.	Author	Reviewer	Approved for Issue		
		Name	Name	Signature	Date
0	A.H	G.R	G.R		14/11/2022