COTERRA ENVIRONMENT



Environmental Assessment Report

Baru-Marnda Renewable Energy Project

Rev A 3 September 2026

CALIBRE | COMMITMENT | COLLABORATION

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Glossary

Term	Definition
Bargunyji*	Pilbara Olive Python (*Liasis olivaceus barroni*). The Yindjibarndi people used to use this species as food but is no longer eaten. The bones on the rib cages can be used to make hooks for fishing
Barraburratha	*Pentalepis trichodesmoides* subsp. *hispida*
Baru*	Generic term for all spinifex species
BC Act	*Biodiversity Conservation Act 2016*
BESS	Battery Energy Storage System
Burndud*	The song cycle which is Yindjibarndi law. The Burndud contains over 500 song stories.
DBCA	Department of Biodiversity, Conservation and Attractions
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DWER	Department of Water and Environmental Regulation
EBoP	Electrical Balance of Plant
EP Act	*Environmental Protection Act 1986*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
Ganyji*	*Acacia pyrifolia* (Kanji bush).
Garrawarn*	The hot season
Gurdi*	Western Pebble-mound Mouse (*Pseudomys chapmani*). This species is sung about in the Burndud. Ngjarlee – This species is considered sacred and not used. It is forbidden to harm or eat this animal as it is culturally and religiously significant. This species is known to be food for large Varanus spp. which is considered a food source for the Yindjibarndi people, therefore the Gurdi is considered important.
Ha	Hectares
Jinbi*	Small permanent spring
Km	Kilometres
Leramugadu	Roebourne
Muji*	Caves, overhangs
Muyu*	The cool season
MWac	Megawatts Alternating Current
NYFL	Ngarluma Yindjibarndi Foundation Limited
Ngurra*	Ground; country
NT Act	*Native Title Act 1993*
NWIS	North West Interconnected System
PD Act	*Planning and Development Act 2005*
RIWI Act	*Rights in Water and Irrigation Act 1914*
Thurndu*	Seed season. Defined by the seeding of the Ganyji plant
TSI	Transport and Install
YAC	Yindjibarndi Aboriginal Corporation

Term	Definition
YEC	Yindjibarndi Energy Corporation
Yirriwardu*	Northern Quoll (*Dasyurus hallucatus*). Ngjarlee – This species is considered sacred and not used by Yindjibarndi. It is forbidden to harm or eat this animal as it is culturally and religiously significant. The Yindjibarndi people enjoy it when this species is observed

**Yindjibarndi words and phrases informed by Greening Australia (2016), Juluwarlu Aboriginal Corporation (2004), and Juluwarlu Aboriginal Corporation (2005).*

Executive Summary

Yindjibarndi Energy Corporation is proposing to develop the Baru-Marnda Renewable Energy Project approximately 50 kilometres south of Karratha, Western Australia on Yindjibarndi ngurra. The Baru-Marnda Renewable Energy Project will comprise wind and solar energy generation facilities (including up to 108 turbines) of up to 810 and 500 Megawatts ac respectively with option for energy storage, and associated hardware and infrastructure.

Renewable energy generated and stored by the Baru-Marnda Renewable Energy Project will be made available for use throughout the Pilbara region, with the Rio Tinto Iron Ore owned Millstream substation providing one such point of connection.

The generation of renewable energy is aligned with the Yindjibarndi Community's vision to create profitable and sustainable community owned commercial businesses that protect ngurra, build a stronger community, and respect culture. It is anticipated that the Baru-Marnda Renewable Energy Project will negate carbon dioxide emissions which would otherwise have been generated through the burning of fossil fuels, and therefore represents meaningful action toward meeting the State and Federal Government's targets of achieving net zero emissions by 2050.

This report has been prepared to support an application for Development Approval, and to provide information to Decision Making Authorities on the nature of the proposal, the receiving environment, potential environmental impacts, the impact mitigation approach, and anticipated social and environmental outcomes. In preparing this report, due regard has been given to the Western Australian Planning Commission's *Draft Renewable Energy Planning Code* (2025) and the associated guidelines, and specifically WF Element 6 – Natural Environment.

A summary of potential impacts, proposed mitigation, and proposed environmental outcomes is provided in Table ES-1 overleaf.

Table ES-1: Summary of potential impacts, proposed mitigation, and proposed environmental outcomes

Item	Discussion
Flora and Vegetation	
Potential impacts	**Direct impacts:** • 642.5 ha of temporary and 2,395.6 ha of long-term clearing of native vegetation, including: • 19.8 ha of temporary and 179.1 ha of long-term clearing of the Cracking Clays of the Chichester and Mungaroona Range Priority Ecological Community (Cracking Clays PEC) • Clearing of no more than: ▪ Two individuals of *Neptunia longipila* (P2) representing less than 1% of the mapped total ▪ 10 individuals of *Pentalepis trichodesmoides* subsp. *hispida* (Barraburratha) (P2) representing 11.23% of the mapped total ▪ 52 individuals of *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (P2) representing 10.36% of the mapped total ▪ Four individuals of *Euphorbia inappendiculata* var. *inappendiculata* (P3) representing 80% of the mapped total ▪ 2 individuals of *Rhynchosia bungarensis* (P4) representing 3.5% of the mapped total **Indirect impacts:** • Introduction and/or spread of weed species and/or plant pathogens within the project area • Dust emissions • Altered fire regimes • Altered hydrological flows **Cumulative impacts:** • Combined impacts with the Jinbi Solar Facility, including the cumulative clearing of up to 3,555.96 ha of native vegetation

Item	Discussion
Mitigation hierarchy	**Avoid:** • The proposal completely avoids impacts to mapped occurrences of the Riparian Flora and Plant Communities of Springs and River Pools with High Water Permanence of the Pilbara Region Priority Ecological Community • The proposal avoids approximately 93.2% of the mapped extent of the Cracking Clays PEC • The proposal completely avoids all mapped occurrences of *Trianthema* sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023) and *Euphorbia stevenii* **Minimise:** • Utilisation of terrain following technology for solar arrays which minimise the requirement for extensive ground disturbance and associated vegetation clearing • Preparation and implementation of a Construction Environmental Management Plan or similar which prescribes construction methods to mitigate potential impacts **Rehabilitate:** • Rehabilitation of 642.5 ha of the indicative disturbance footprint following the construction phase of the proposal • Rehabilitation of the substantial remainder of the indicative disturbance footprint (2,395.6 ha) during the decommissioning phase • All rehabilitation to be undertaken in accordance with a Decommissioning and Rehabilitation Management Plan, or similar • All rehabilitation being undertaken with the aim of returning land to its pre-development uses where possible.
Proposed Environmental Outcomes	• No direct, indirect, or cumulative impacts on threatened flora or ecological communities • Retention of all mapped occurrences of the Riparian Flora PEC • Retention of all occurrences of *Trianthema sp*. Python Pool and *Euphorbia stevenii* • No meaningful reduction in the remaining extents of each pre-European vegetation system association mapped within the project area • No introduction of weeds or plant pathogens to the project area as a result of the proposal's implementation • Successful rehabilitation of the substantial majority of the indicative disturbance footprint, to a standard consistent with its pre-development land uses where possible • Increased understanding and awareness of flora and vegetation values across Yindjibarndi ngurra

Item	Discussion
Terrestrial Fauna	
Potential impacts	**Direct impacts:** • No more than 5.3 ha of temporary and 19.7 ha of long-term clearing of Bargunyji (Pilbara Olive Python) dispersal habitat • No more than 642.5 ha of temporary and 2,395.6 ha of long-term clearing of Yirriwardu (Northern Quoll) dispersal habitat • No more than 5.3 ha of temporary and 19.7 ha of long-term clearing of preferred habitat for the Grey Falcon • No more than 634.3 ha of temporary and 2,371.1 ha of long-term clearing of dispersal habitat for the Grey Falcon • No more than 5.3 ha of temporary and 19.7 ha of dispersal habitat for the Pilbara Leaf-nosed Bat • No more than 5.3 ha of temporary and 19.7 ha of long-term clearing of Ghost Bat foraging and dispersal habitat • Potential turbine collision risk for the Grey Falcon and Fork-tailed Swift **Indirect impacts:** • Potential vehicle fauna strike • Limitations on fauna dispersal opportunities within the project area • Solar arrays replicating the appearance of standing water bodies, and attracting aerial fauna • Excavations during construction incidentally causing the entrapment of ground-dwelling fauna • Potential sedimentation of water resources utilised by terrestrial fauna • Light emissions from infrastructure attracting invertebrate fauna • Changes in the behaviour, and displacement of aerial fauna **Cumulative impacts:** • Combined impacts with the Jinbi Solar Facility, including the cumulative clearing of: ▪ 26 ha of dispersal habitat for the Bargunyji (Pilbara Olive Python) ▪ 3,554.95 ha of dispersal habitat for the Yirriwardu (Northern Quoll) ▪ 26 ha of preferred habitat for the Grey Falcon ▪ 3,522.25 ha of dispersal habitat for the Grey Falcon ▪ 26 ha of dispersal habitat for the Pilbara Leaf-nosed Bat ▪ 26 ha of foraging and dispersal habitat for the Ghost Bat.

Item	Discussion
Mitigation hierarchy	**Avoid:** • All preferred habitat for the Bargunyji (Pilbara Olive Python) and Yirriwardu (Northern Quoll), as well as the most suitable habitat for Short Range Endemic fauna will be completely avoided by the proposal • All caves identified within the project area will be completely avoided by the proposal • Prioritisation has been given to avoiding creek line habitats, which represent habitat for the widest array of fauna. • No wind turbine is proposed within creek line vegetation • Minimum buffer distances of 57 m have been established between creek line vegetation and proposed turbines • Minimum buffer distance of 4,408 m between proposed wind turbines and the Ngurrawaana community, which is known to be frequented by Grey Falcons • Minimum buffer distances of 428 m between the nearest proposed wind turbine and any recorded cave. **Minimise:** • Construction of solar arrays in a manner which maintains effective distances between panel rows, so as to facilitate fauna dispersal and break up the lake-like appearance of arrays from above • Implementation of dark sky lighting principles so as to mitigate the potential for infrastructure to serve as a fauna attractant • Implementation of a Bird and Bat Management Plan, to mitigate turbine collision risk • Development and implementation of a Construction Environmental Management Plan or similar which prescribes construction methods to mitigate potential impacts **Rehabilitate:** • Rehabilitation of 642.5 ha of the indicative disturbance footprint following the construction phase of the proposal • Rehabilitation of the substantial remainder of the indicative disturbance footprint (2,395.6 ha) during the decommissioning phase • All rehabilitation to be undertaken in accordance with a Decommissioning and Rehabilitation Management Plan, or similar • All rehabilitation being undertaken with the aim of returning land to its pre-development uses where possible.
Proposed environmental outcomes	• The retention of all identified caves within the project area • The retention of all preferred habitat for the Bargunyji (Pilbara Olive Python) and Yirriwardu (Northern Quoll), as well as the most suitable habitat for SRE fauna • The establishment of minimum buffer distances between proposed wind turbines and important terrestrial fauna habitat features, including creek line vegetation, caves, and the Ngurrawaana community

Item	Discussion
	• Successful rehabilitation of the substantial majority of the indicative disturbance footprint, to a standard consistent with its pre-development land uses where possible • Increased understanding and awareness of terrestrial fauna values across Yindjibarndi ngurra.
Inland Waters	
Potential impacts	**Surface Water** • Alteration of surface water volume and flow regimes • Erosion of exposed surfaces by wind, water and construction activities generating sediment loads in surface water runoff flows • Groundwater Dependent Ecosystem (GDE), riparian vegetation, and fauna habitat loss • Reduction in water quality through the release of sediment or contaminated material/hydrocarbon or chemicals to nearby surface water and/or groundwater environments across the following project phases: ▪ Construction phase: ▪ Construction of internal access routes, specifically creek crossings. ▪ The installation and use of a turkey's nest. ▪ Construction of substations, switchyards, BESS, borrow pits and laydown/storage areas. ▪ The installation of the temporary concrete plants. ▪ Operational and maintenance phase: ▪ Substations and switchyards ▪ Laydown and storage areas ▪ Operations and maintenance facilities ▪ Satellite offices ▪ Borrow pits ▪ BESS **Groundwater** • Changes to groundwater levels in the Fractured Rock Aquifer
Mitigation hierarchy	**Avoid:** • No incompatible land uses (such as concrete bat ching plants, workshop and fuel and chemical storage and re-fuelling areas) being proposed within the mapped Harding Dam P1 Public Drinking Water Source Area (PDWSA) pursuant to Water Quality Protection Note 25 (DWER 2021) • All power infrastructure support poles are to be located outside the 1% Annual Exceedance Probability (AEP) creek flood areas • Concrete batching plant, fuel and chemical storage and refuelling area and workshop will be located a minimum of 500 m from any creek or waterway

Item	Discussion
	• The proposed wind and solar infrastructure areas will only be located in areas that are culturally, socially, and environmentally acceptable to YAC and YNAC **Minimise:** • Co-location of linear infrastructure where possible, to minimise the number and extent of creek line crossings required • Construct stormwater infrastructure including bunding and sedimentation basis to: ▪ Divert surface water flows around high risk activities such as the concrete batch plant and fuel storage areas, workshop, and solar farms ▪ Capture and treat dirty water run-off prior to release downstream • The modification of creek or waterways through new or upgraded road crossings will be subject to the following DWER approval: ▪ Application to Interfere with Bed and Banks (Form 3P) • A key focus of the Bed and Banks application and approval will be the following elements: ▪ Demonstrating the maintenance of pre-development surface water flows ▪ The protection of riparian vegetation ▪ Sediment and erosion controls during the construction phase **Rehabilitate:** • Rehabilitation of 642.5 ha of the indicative disturbance footprint following the construction phase of the proposal • Rehabilitation of the substantial remainder of the indicative disturbance footprint (2,395.6 ha) during the decommissioning phase • All rehabilitation to be undertaken in accordance with a Decommissioning and Rehabilitation Management Plan, or similar • All rehabilitation being undertaken with the aim of returning land to its pre-development uses where possible.
Proposed environmental outcomes	• Existing seasonal water flows along waterways and creek lines towards major river systems and the Harding Dam within and downgradient of the project area shall be preserved. Surface water flow will follow the pre-existing waterways and creeks and consequently will continue to sustain: ▪ Riparian vegetation and GDE's - The creek line vegetation communities - Riparian Flora and Plant Communities PEC (P2) - Cracking Clays of the Chichester and Mungaroona Range PEC (P1). ▪ Aquifers - Replenish semi-permanent and permanent pools and the adjacent alluvial aquifers - Sustain and replenish water within the deeper Fractured Rock Aquifer ▪ Harding Dam catchment - Surface water flows along creek lines and waterways towards the Harding Dam remain unaltered. The flow volumes across the Harding Dam catchment remain unaltered.

Item	Discussion
	• Implementation of effective management measures will be employed to mitigate the impacts, including the management of flood events, scouring and sediment during the construction and operational phases • Surface and groundwater quality will be monitored and managed to prevent significant impacts to the following water features: ▪ Riparian vegetation, GDEs, and PECs ▪ Harding Dam Catchment (P1) PDWSA ▪ Alluvial and Fractured Rock Aquifers.
Social Surroundings	
Potential impacts	**Direct impacts:** • Disturbance to registered, lodged, and/or yet to be identified Aboriginal Cultural Heritage sites • The clearing of culturally significant flora and/or ecological communities • The loss of culturally significant fauna and/or the clearing of habitat for culturally significant fauna • The abstraction of culturally significant groundwater • Disturbance to culturally significant creek lines **Indirect** • Dust emissions which could potentially impact amenity and/or cultural heritage • Noise emissions from construction, operation and decommissioning activities, which could potentially impact amenity and/or cultural heritage • Changes to the visual amenity of the project area and surrounds **Cumulative impacts:** • N/A
Mitigation hierarchy	**Avoid** • No project will be developed in an area that is culturally, socially, or environmentally not acceptable to YAC and/or YNAC • No disturbance to places and objects of cultural significance without the express consent of YAC and/or YNAC • Avoidance of Gurdi Maya (Western Pebble-mound Mouse mounds) at the request of YAC and/or YNAC, with the application of appropriate buffers • Establishment of a 4,408 m buffer between the Ngurrawaana community and any proposed turbine • Utilisation of an access route during construction which does not run through the Ngurrawaana community **Minimise** • Undertake further detailed heritage surveys across the project area in collaboration with Yindjibarndi representatives and in accordance with the ILUA and associated Heritage Protection Agreement

Item	Discussion
	• Based on the results of surveys and in collaboration with YAC and YNAC, develop and implement a Cultural Heritage Management Plan **Rehabilitate** • N/A
Proposed environmental outcomes	• The creation of a profitable and sustainable community owned commercial business that protects country, builds a stronger community, and respects culture • The facilitation of cultural knowledge building and intellectual property of Yindjibarndi ngurra • An enhanced understanding by YEC of the community context and social locality of the proposal • No disturbance to Yindjiabrndi Cultural Heritage without the express consent of YAC and/or YNAC • The management of both tangible and intangible heritage and notions of Aboriginal cultural heritage that captures the rights and responsibility of Yindjibarndi People to care for their own heritage, exercise responsibility for ngurra and transmit cultural practices to new generations.

1 Introduction

1.1 Proposal Overview

Yindjibarndi Energy Corporation (YEC; the proponent) is proposing to develop the Baru-Marnda Renewable Energy Project (the proposal), approximately 50 kilometres (km) south of Karratha, Western Australia on Yindjibarndi ngurra (ground; country). The Baru-Marnda Renewable Energy Project will comprise wind and solar energy generation facilities (including up to 108 turbines) of up to 810 and 500 Megawatts ac (MWac) respectively with option for energy storage, and associated hardware and infrastructure.

Renewable energy generated and stored by the Baru-Marnda Renewable Energy Project will be made available for use throughout the Pilbara region, with the Rio Tinto Iron Ore owned Millstream substation providing one such point of connection.

The generation of renewable energy is aligned with the Yindjibarndi community's vision to create profitable and sustainable community owned commercial businesses that protect ngurra, build a stronger community, and respect culture. Development of the Baru-Marnda Renewable Energy Project is achieving this through:

- The participation of Yindjibarndi people in ecological assessments and studies to facilitate cultural knowledge building and intellectual property of country
- A joint ownership structure so that the benefits of the Baru-Marnda Renewable Energy Project contribute to self determination for Yindjibarndi people
- Supply chain access security for Yindjibarndi owned businesses.

It is anticipated that the Baru-Marnda Renewable Energy Project will negate carbon dioxide emissions which would otherwise have been generated through the burning of fossil fuels, and therefore represents meaningful action toward meeting the State and Federal Government's targets of achieving net zero emissions by 2050.

1.2 Yindjibarndi Energy Corporation

Yindjibarndi Energy Corporation is a partnership between Yindjibarndi Aboriginal Corporation (YAC) and renewable energy company ACEN Corporation. YEC was formed as a partnership to develop, own, and operate large scale renewable energy projects on Yindjibarndi ngurra in Western Australia's Pilbara region.

YAC is a Registered Native Title Body Corporate (RNTBC) of the Yindjibarndi people and the institution appointed by the federal court to represent Yindjibarndi rights and interests under the *Native Title Act 1993* (NT Act). Operating under YAC is the Yindjibarndi Wealth Trust, which 100% owns Yiyangu Pty Ltd. Through Yiyangu Pty Ltd as an equity owner of YEC, and as the primary tenure holders of the proposal, the Yindjibarndi people will receive long term revenue from the Baru-Marnda Renewable Energy Project.

ACEN Corporation is the listed energy platform of the Ayala Group. The company owns and operates approximately 4.4 GW of renewable energy facilities across the Philippines, Australia, Vietnam, Indonesia and India, with a renewable share of 98%, which is among the highest in the region. In Australia, ACEN Corporation has more than 1 GW capacity in construction and more than 8 GW in the development pipeline. ACEN Corporation's renewable energy assets include solar, wind, battery, and pumped hydro storage projects across Australia.

Further information on YEC, YAC, and ACEN corporation can be found on the YEC website at https://yindjibarndienergy.com.au/.

1.3 Purpose of this Report

YEC is seeking Development Approval to implement the Baru-Marnda Renewable Energy Project under the *Planning and Development Act 2005* (PD Act). This report has been prepared to support the application for Development Approval, and to provide information to Decision Making Authorities (DMAs) on the nature of the proposal, the receiving environment, potential environmental impacts, the impact mitigation approach, and anticipated social and environmental outcomes.

In preparing this report, due regard has been given to the Western Australian Planning Commission's (WAPC's) Draft Renewable Energy Planning Code and Guidelines (2025), and specifically WF Element 6 – Natural Environment.

2 The Proposal

2.1 Land Tenure Overview

The majority of the proposal is located within a section 91 license area, granted to Yiyangu Pty Ltd under the *Land Administration Act 1997* (LA Act). Yiyangu Pty Ltd has granted authority to YEC to enter upon and use those portions of the proposal covered by this section 91 license. YEC are also progressing an Option to Lease crown land under Section 88 of the LA Act, which is anticipated to be converted into a Crown Lease pending receipt of Development Approval.

A portion of the proposal (namely the access route; Figure 1) is located within the Millstream Chichester National Park, which is managed by the Department of Biodiversity, Conservation and Attractions (DBCA) under the CALM Act). YEC is currently working with DBCA to progress a license to enter and use land within the National Park for the purpose of this access route under section 101 of the *Conservation and Land Management Act 1986* (CALM Act). This portion of the proposal has therefore been excluded from the application for Development Approval.

YEC is also working collaboratively with Main Roads Western Australia, the Water Corporation, and Ngurrawaana community to secure relevant land access permissions where relevant, for the remainder of the proposal.

Further information on the relevant legislation pertaining to the proposals' land tenure arrangements is provided in section 4, while a discussion on YEC's stakeholder engagement approach is provided in section 5.

2.2 Proposal Content

For the purposes of this Environmental Assessment Report, the proposal has been divided into the following spatial components:

- The project area – generally aligns with the relevant tenure mechanisms utilised by YEC for the purposes of the proposal. All components of the proposal for which development approval is sought are located within the project area. While the proposed external access route through Millstream Chichester National Park is located outside of the project area, it is understood that this component of the proposal will be subject to the provisions of the CALM Act, and so no development approval is required.
- The indicative disturbance footprint – represents the areas subject to potential physical disturbance necessitated by the proposal, including both temporary and longer-term disturbance. Potential direct environmental impacts will be limited to the indicative disturbance footprint, only. Refinement of the proposal's layout is ongoing, and therefore disturbance estimates that have been put forward in this report are indicative only, at this stage.

The spatial extents of the above areas are illustrated in Figure 1.

Further information on the proposed infrastructure components which make up the indicative disturbance footprint is provided in the following sections.

2.2.1 Wind Energy Generation

Up to 810 MWac of wind energy generating infrastructure is proposed to be installed as part of the Baru-Marnda Renewable Energy Project, across up to 108 individual turbines (Figure 1).

At this stage, a reference wind turbine is being utilised which assumes a hub height of 150 m, a rotor diameter of 172 m, and a blade tip clearance above ground level of 64 m. These dimensions and further environmentally relevant specifications are listed in Table 2-1 overleaf and illustrated in Plate 2-1.

Table 2-1: Reference turbine specifications

Subject	Value
Hub height	150 m
Rotor diameter	172 m
Blade tip clearance above ground level	64 m
Cut-in wind speed	3 m/s
Cut-out wind weed	25 m/s
Rotor sweep area	23,235 m^2
Recyclability rate	86%
Carbon footprint	6.4gCO^2E/KWh

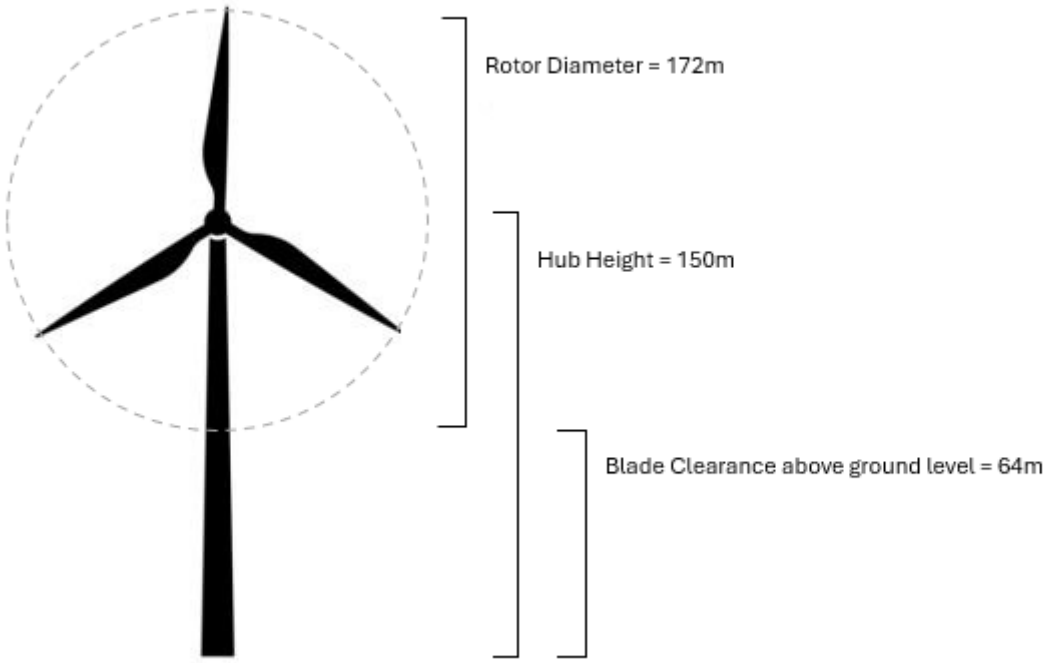


Plate 2-1: Reference turbine dimensions

As a general rule, approximately one third of the total area of vegetation clearing required for the construction of wind turbines will be needed for the construction phase, only. These areas can therefore be subject to rehabilitation activities immediately following cessation of construction activities, as a means of mitigating environmental impacts. Detailed consideration of temporary and long-term disturbance is provided in sections 2.3and 7.3 of this report.

2.2.2 Solar Energy Generation

Up to 500 MWac of solar energy generating infrastructure is proposed to be installed as part of the Baru-Marnda Renewable energy project. Two potential solar arrays have been identified, which are identified on Figure 1 as Baru(B)2 and Marnda(M)1.

Solar arrays will comprise a series of solar panels installed in strings, which generally follow existing terrain features. Reference solar trackers currently being utilised by YEC provide for solar strings being mounted on steel piles, installed approximately 8 m apart.

Further information on YEC's design and impact mitigation process is provided at section 2.5.

2.2.3 Supporting Infrastructure

In addition to wind and solar energy generating infrastructure, the following supporting infrastructure and facilities are also proposed:

- Electrical reticulation and transmission lines (overhead and/or underground)
- Substations and switchyards
- Laydown and storage areas
- Operations and maintenance facilities
- Satellite offices
- Borrow pits
- Internal access routes, including creek crossings
- Battery Energy Storage Systems (BESS)
- Production bores and associated pipelines and turkey's nests.

With regard to the proposal's construction phase, YEC may utilise a temporary workforce accommodation camp which is currently under construction for the Jinbi Solar Facility (see section 2.5). No separate construction accommodation camp is therefore being proposed for the Baru-Marnda Renewable Energy Project, at this stage. It is anticipated that this approach will serve to both reduce the cumulative extent of clearing required, as well as minimise overall human presence within the project area and potential for unauthorised access.

2.2.4 Access

At the time of writing, Pilbara Ports is developing a new multi-user facility and logistics hub at Lumsden Point within the Port of Port Hedland. This development has been designated to facilitate the import of renewable energy infrastructure including wind turbines and blades (Pilbara Ports 2024). Lumsden Point is therefore considered the preferred port of entry for all necessary infrastructure components proposed to be transported to site.

Of the multiple elements of renewable energy infrastructure to be transported, turbine blades present the largest logistical challenge, as they must be transported as a single piece. A profile for the vehicle expected to deliver components to the main infrastructure project area is shown indicatively in Plate 2-2. Based on the dimensions for the current reference turbine (Table 2-1), individual blades could be up to 86 m long.

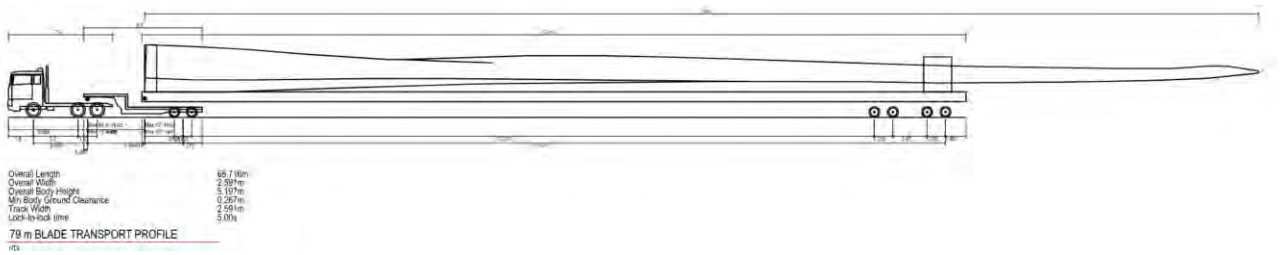


Plate 2-2: Indicative blade transportation profile

Recognising the inherent transport constraints applicable to these vehicles (including steep topography, waterways, railways, other existing land uses, and environmental constraints), few site access opportunities are available between the project area and the port of entry. Notwithstanding, through the undertaking of a dedicated site access corridor selection study, YEC has identified an access route which connects the project area with Warlu Road/Manuwarra Red Dog Highway to the east, utilises existing cleared access tracks, and considers other existing infrastructure. This includes the Water Corporation's above ground water pipeline which offers very few crossing points, existing Rio Tinto rail crossings, and the current access route to the Ngurrawaana community. While this route crosses some waterways, these are considered mostly unavoidable given their generally north-south alignment, which is perpendicular to the direction of travel. Minor vegetation clearing (less than 0.8 ha in total) will be required at three existing intersections between the project area and Lumsden Point, to enable vehicle blade sweep at these locations.

It is anticipated that the development of this access route will provide an opportunity for improved ease of access to the Ngurrawaana community, by the Yindjibarndi community.

2.3 Proposal Timeframes

Construction of the Baru-Marnda Renewable Energy Project is anticipated to commence in 2028. The construction process is expected to progress in a staged manner over the following three to six years, with various infrastructure components becoming operational during and following this period. Some clearing necessitated by the proposal (approximately 642.5 ha) will be required for construction purposes only, and is therefore proposed to be rehabilitated at the conclusion of construction activities.

At this stage, the minimum operational life of the proposal is anticipated to be approximately 50 years, at which point consideration will be given to an extension of this provisional period, prior to decommissioning. Decommissioning will ultimately be undertaken in accordance with a Decommissioning and Rehabilitation Plan, which is anticipated to be required as a condition of Development Approval. YEC anticipates that most of the indicative disturbance footprint will be rehabilitated during this decommissioning phase. On this basis, all clearing necessitated by the proposal will either be temporary (rehabilitated at the conclusion of construction activities) or longer term (likely to be rehabilitated during the decommissioning phase).

Further information on the preliminary rehabilitation approach is provided in section 7.3.3.

2.4 Proposal Alternatives

The proposed location for the Baru-Marnda Renewable Energy Project represents the ideal location for renewable energy infrastructure. In terms of the Pilbara region generally, the region accounts for more than 40% of Western Australia's emissions, despite utilising less than 2% of renewable energy generation. The Western Australian Government estimates that the Pilbara will require between 24 and 41 Gigawatts of newly generated renewable energy by 2050. The location of the project area specifically balances between proximity to multiple Pilbara Strategic Industrial Areas (SIAs) (including the Maitland SIA, Burrup SIA, and Anketell SIA), whilst remaining outside of the Wind Category D zone which is associated with potentially extreme wind events. Further, the majority Yindjibarndi owned contracting entity, Yurra Pty Ltd represents an established and local civil and maintenance workforce. On this basis, there are considered to be few alternative locations for the proposal which provide the same level of opportunities as those associated with its current location.

Preliminary project layouts developed by YEC originally identified nine potential solar array areas distributed across the project area. Since this time, in light of environmental survey information being made available for these areas and through engagement with the Yindjibarndi peoples, YEC has refined these nine potential solar areas down to two, with the objective of avoiding potentially significant environmental impacts.

Similarly, the original wind turbine layout included 133 individual turbines. Twenty five of these have since been removed from the proposal, along with the access and transmission infrastructure required to support these. No more than 108 individual wind turbines are now proposed to be installed, which are anticipated to

have a combined capacity of approximately 810 MWac. All removed turbines were originally proposed within the south-east of the project area, in close proximity to the following environmental and social values:

- Cracking Clays of the Chichester and Mungaroona Range PEC (P1)
- Known flight paths of the Grey Falcon (Vulnerable)
- Ngurrawaana Community
- Registered Aboriginal Heritage Site 10894
- A Yindjibarndi Lore Ceremony Site.

Were no version of the Baru-Marnda Renewable Energy Project to proceed, then it is reasonable to consider that the renewable energy otherwise generated by the proposal would instead be generated through the burning of fossil fuels. The North West Interconnected System (NWIS) is currently almost exclusively powered through open-cycle gas turbines, and as of 2023 has a scope 2 emissions intensity of 620 grams of CO2 equivalent (CO2e) per kilowatt hour (DCCEEW 2023a). Assuming the Baru-Marnda Renewable Energy Project's 1,310 MWac potential is instead produced at this intensity, then this could foreseeably result in the emission of approximately 6,706,521 t CO2e, per year. The Baru-Marnda Renewable Energy project therefore represents the potential for significant and quantifiable action toward achieving the state and federal government's targets of net zero emissions by 2050. Further consideration of the proposal's greenhouse gas emissions mitigation potential is provided at section 11.1.

2.5 Other Renewable Energy Projects

The Baru-Marnda Renewable Energy Project represents the second such project to be developed by YEC on Yindjibarndi ngurra, with the first being the Jinbi Solar Facility. The Jinbi Solar Facility is a proposed renewable energy project located to the northeast of the Baru-Marnda Renewable Energy Project, comprising up to 150 MWac of solar arrays with option for BESS across 527.21 ha.

Unlike the Baru-Marnda Renewable Energy Project, energy generated and stored by the Jinbi Solar Facility will be available for the exclusive use of Rio Tinto. Energy will be fed directly into existing transmission infrastructure owned and operated by Rio Tinto, thereby avoiding the need for substantial additional transmission infrastructure, and making the Jinbi Solar Facility in effect a 'ring fenced' project.

Environmental approval was granted for the Jinbi Solar Facility at the state level under Part V of the *Environmental Protection Act 1986* (EP Act) in February 2024, through clearing permit CPS 10494/1. The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received. In making the decision to approve the proposed clearing, the delegated officer considered that the Jinbi Facility's implementation is unlikely to significantly impact flora, ecological communities, or fauna.

In terms of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), a self-assessment was undertaken by YEC to determine whether the Jinbi Solar Facility has the potential to significant impact MNES. Based on the limited extent of clearing required to facilitate the proposal, as well as the suite of avoidance and mitigation measures proposed by YEC to reduce the potential for impacts on MNES, it was determined that referral of the Jinbi Solar Facility under the EPBC Act was not required.

The Jinbi Solar Facility is considered a separate, independent project to the Baru-Marnda Renewable Energy Project based on the following (DSEWPaC 2013):

- Both projects are stand-alone projects. No other actions must be taken before or after either action for them to be viable
- The projects are not co-dependent. The viability of each project is not dependent on the other project proceeding

- Timeframes for the implementation of each project are separate; construction of the Jinbi Solar Facility has now commenced, whereas construction of the Baru-Marnda Renewable Energy Project is anticipated to commence in 2028
- The projects are geographically distinct. No component of the Baru-Marnda Renewable Energy Project overlaps any component of the Jinbi Solar Facility
- There is no combined or overall plan or vision for the two projects
- Each project will be pursuing independent planning environmental approvals under state legislation.

Beyond the Jinbi Solar Facility and Baru-Marnda Renewable Energy Project, YEC's vision of empowering first nations renewable energy will see the formulation and development of additional renewable energy projects across Yindjibarndi ngurra to further contribute to the state and federal government's net zero aspirations. To date, YEC has identified the potential for up to 3 Gigawatts of wind, solar, and battery storage potential across Yindjibarndi ngurra. The realisation of this potential into shovel-ready, independent projects will be a process undertaken over the next several years, in close consultation with YAC, YNAC, DWER/Environmental Protection Authority (EPA), Department of Climate Change, Energy, the Environment and Water (DCCEEW) and other key stakeholders.

3 Local and Regional Context

The entirety of the project area is located within the Pilbara bioregion, and predominately the Chichester (PIL01) subregion, according to the Interim Biogeographical Regionalisation for Australia (IBRA) version 7 (Thackway and Cresswell 1995). The Pilbara administrative region, which encompasses the Shires of Ashburton and East Pilbara, the City of Karratha, and the Town of Port Hedland covers an area of over 500,000 km2 – approximately twice the size of the United Kingdom. Despite its area, the Pilbara is relatively thinly populated with an estimated resident population of 59,961 as at 2023, of which the Shire of Ashburton comprised 8,076 (ABS 2024).

3.1 Climate

The coastal towns of the Pilbara region are humid with a typical wet season from December to February. Inland, the towns can experience extreme high temperatures and dry conditions for extended periods. The region is prone to cyclones from November to April each year.

Two distinct seasons are recognised by the Yindjibarndi, which are (Greening Australia 2016):

- **Garrawarn** – the hot season, which approximates to between late September and April. Thunderstorms and cyclones are prevalent in this season with widespread flooding after heavy rains being common
- **Muyu** – the cool season, which approximates to the months of May through to early September. Typical daily temperatures are mild with night temperatures occasionally falling below zero degrees centigrade inland from the coast. Rainfall during this period is low.

A third season; **Thurndu** (seed season) is also recognised by the Yindjibarndi, which is defined by the seeding of the **Ganyji** plant (*Acacia pyrifolia*). This season typically occurs in late September to mid-October, but is ultimately defined by seasonal conditions and local landscape features (Greening Australia 2016).

3.2 Land Systems and Geology

At a landscape scale, land systems of the Pilbara were classified and mapped by Van Vreeswyk et al. (2004) according to similarities in landform, soil, vegetation, geology and geomorphology. Land systems which intersect the project area are described in Table 3-1 and illustrated in Figure 2.

Table 3-1: Land Systems mapped within the project area

Land System	Description
Boolaloo System	Granite hills, domes, tor fields and sandy plains supporting spinifex grasslands with scattered shrubs
Boolgeda System	Stony lower slopes and plains below hill systems supporting hard and soft spinifex grasslands or mulga shrublands
Capricorn System	Rugged sandstone hills, ridges, stony foot slopes and interfluves supporting low acacia shrublands or hard spinifex grasslands with scattered shrubs
Macroy System	Stony plains and occasional tor fields based on granite supporting hard and soft spinifex shrubby grasslands
River System	Narrow, seasonally active flood plains and major river channels supporting moderately close, tall shrublands or woodlands of acacias and fringing communities of eucalypts sometimes with tussock grasses or spinifex
Rocklea System	Basalt hills, plateaux, lower slopes and minor stony plains supporting hard spinifex and occasionally soft spinifex grasslands with scattered shrubs

Land System	Description
Wona System	Basalt updland gilgai plains supporting Roebourne Plains grass and Mitchell grass tussock grasslands, minor hard spinifex grasslands or annual grasslands/herbfields

Geology across the project area is represented by recent and quaternary sediments, intrusive and extrusive volcanic rock, as well as volcanoclastic sedimentary rocks (DMIRS 2020). Geological units within the project area are illustrated in Figure 3.

3.3 Topography

The project area's topography is diverse. Generally, the project area is dominated by undulating hills and valleys, intersected with flat, low relief creek lines and floodplains. Smoother terrain is present at lower elevations in the north west, north east and south of the project area. Elevation ranges from approximately 340 m Australian Height Datum (mAHD) in the centre of the project area to approximately 140 mAHD in the north west. Broadscale topographic contours are illustrated in Figure 3.

3.4 Conservation Areas

The project area is located immediately adjacent to the Millstream Chichester National Park (R 30071), a class A reserve managed by DBCA and the Yindjibarndi and Ngarluma traditional owners on behalf of the Conservation and Parks Commission of Western Australia under the CALM Act (DEC 2011).

A substantial portion of the Millstream Chichester National Park corresponds to the mapped extent of an Environmentally Sensitive Area (ESA), as declared by the Minister for Environment in the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005*. ESAs are primarily relevant in the context of clearing native vegetation, where the exemptions for clearing vegetation under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* do not apply. It is understood that the ESA associated with the Millstream Chichester National Park corresponds to a listing in the Register of the National Estate, which was closed in 2007 and is no longer a statutory list.

4 Legislative Context

4.1 Commonwealth Legislation

4.1.1 Environment Protection and Biodiversity Conservation Act 1999

At a national level, impacts on the environment are regulated through the EPBC Act. Matters protected under the EPBC Act (collectively referred to as Matters of National Environmental Significance [MNES]) include:

- World Heritage Areas
- Commonwealth Heritage Places
- Wetlands of International Importance (listed under the Ramsar Convention)
- Listed threatened species and ecological communities
- Listed migratory species (protected under international agreements)
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mines)
- Water resources relating to coal seam gas development and large coal mining development.

Under the EPBC Act, an action will require approval from the Minister if the action has, will have, or is likely to have, a significant impact on an MNES.

Based on the potential for the Baru-Marnda Renewable Energy Project to impact MNES (namely threatened species and ecological communities), YEC proactively referred the proposal under the EPBC Act in June 2025 for consideration by DCCEEW. Following a period of public consultation, the proposal was determined to be a controlled action, requiring formal assessment. The method of assessment was set at 'accredited assessment', in alignment with the state EP Act assessment process (see section 4.2.1).

4.1.1.1 National Renewable Energy Priority List

To simultaneously ensure that Australia maintains a reliable power supply while lowering energy prices, the federal government has identified 56 priority projects across Australia to receive coordinated support for regulatory planning and environmental approval processes. These projects were identified based on a consideration of access to transmission and contribution to reliability, environment, heritage, regional economic importance, and community engagement. The Baru-Marnda Renewable Energy Project is one of five such projects identified in Western Australia.

4.1.2 Native Title Act 1993

Native title and its coexistence with the national land management system is recognised and protected through the NT Act, at a federal level.

In 1994, the Yindjibarndi people launched one of Australia's very first native title claims which was determined by the Full Federal Court in 2005. This High Court affirmed Yindjibarndi Exclusive Possession rights in a second determination claim in 2020. YAC currently serves as the Registered Native Title Body Corporate for the area in which the Baru-Marnda Renewable Energy Project is proposed. In this area, YAC holds exclusive possession native title rights and interests, the highest form of native title.

Most recently, an Indigenous Land Use Agreement (ILUA) was endorsed between Yiyangu, YAC and YNAC regarding the development of renewable energy facilities on Yindjibarndi ngurra. The ILUA was subsequently registered with the Native Title Tribunal under the NT Act on 8 April 2024. Most notably, the ILUA requires that all renewable energy projects on Yindjibarndi Ngurra require the approval of both YAC and YNAC, and

that the proposed location of the project is culturally, socially and environmentally acceptable to YAC and YNAC.

From an environmental perspective, the ILUA includes a Heritage Protection Agreement between the two parties, which prescribes how environmental surveys on Yindjibarndi Ngurra are to be undertaken, when and how the Yindjibarndi community will be involved in such surveys, and whether heritage surveys are necessary before environmental surveys are undertaken.

4.2 Western Australian Legislation

4.2.1 Environmental Protection Act 1986

The EP Act is Western Australia's primary piece of legislation concerning environmental protection and impact assessment within the state. Part IV, Division 2 of the EP Act provides for the consideration and assessment of schemes and proposals by the EPA that may have a significant impact on the environment. Based on the potential for environmental impacts associated with the Baru-Marnda Renewable Energy Project's implementation, YEC proactively referred the proposal to the EPA under Part IV, Section 38 of the EP Act, in July 2025. Following a public comment period, the EPA determined that the proposal required formal assessment, and set the level of assessment at 'Additional Assessment Information with public review'.

On 15 September 2025, a notice was issued to YEC from the EPA requesting additional information on the environmental values of the project area, potential impacts associated with the proposal, and the measures to be employed by YEC to mitigate those impacts. In undertaking the additional works required to respond to this request and as an outcomes of further consultation with key stakeholders, YEC identified opportunities to amend the proposal scope and layout so as to substantially reduce potential environmental impacts. These include removing those wind turbines in closest proximity to the Ngurrawaana community and known Grey Falcon habitats, and reducing the number of proposed solar arrays from four, to two.

To ensure these amendments are appropriately considered in the EPA's assessment, YEC submitted a request to the EPA under section 43A of the EP Act in March 2026 to amend the proposal during the assessment. This request is currently under consideration by the EPA, pending a request for further information from YEC.

Under Part V, Division 3 of the EP Act, the DWER regulates certain premises through a works approval (for the construction stage) and licensing / registration process (for the operation stage) to prevent, control, abate and mitigate pollution or environmental harm. Those premises with the potential to cause pollution or environmental harm to the environment, water resources, public health and/ or amenity are known as 'prescribed premises'. Prescribed premises categories are outlined in Schedule 1 of the *Environmental Protection Regulations 1987*. Should any component of the proposal meet the criteria of a prescribed premises, then separate approval will be sought by YEC under Part V of the EP Act.

4.2.2 Land Administration Act 1997

The acquisition and use of Crown Land in WA is regulated through the LA Act.

On 1 August 2023, authorisation to enter upon and use the majority of the project area for feasibility and investigative works was granted to Yiyangu Pty Ltd under section 91 of the LA Act. The license was subsequently extended in February 2026, and is due for expiry on 1 August 2027. The license is applicable to an area encompassing:

- Portion Lot 33 on Deposited Plan 240249 currently comprising a portion of Reserve 38991
- Portion Lot 190 on Deposited Plan 240249 currently comprising a portion of Reserve 38991
- Reserve 5510
- Portions unallocated crown land comprising PINs 1017635, 1017648, 1017652, and 1017640.

Development and environmental approvals are identified as one of the Licensee's works (Milestones) in Annexure B.

4.2.3 Conservation and Land Management Act 1984

The CALM Act is the state's legislation dealing with the management of national parks, state forests and the conservation estate generally.

The proposed access route to the project area runs through a portion of the Millstream Chichester National Park, a class A reserve vested with the Conservation and Parks Commission of Western Australia, and managed on the commission's behalf by DBCA. YEC are currently working with DBCA to progress a license to enter and use land within the National Park for the purpose of this access route under section 101 of the CALM Act.

4.2.4 Planning and Development Act 2005

The PD Act provides the legislative framework for planning and development in Western Australia. It consolidates various planning statues to streamline the land use and development processes. The PD Act's primary function is to guide the orderly and sustainable development of land by regulating land use, zoning, ad development approvals.

The project area lies within the Shire of Ashburton Local Government Area, and is subject to the Shire's Local Planning Scheme No 7 (LSP 7). Under the provisions of LPS 7, the project area is reserved for 'Public Purposes – Water and Drainage'. LPS 7 does not set out any purpose or objective associated with the Public Purpose – Water and Drainage'' reserve.

This Environmental Assessment Report has been prepared to support an application for Development Approval under the PD Act. It is understood that the Development Assessment Panel (DAP) is the principal planning approval mechanism for the Development Approval. It is understood that the DAP will examine the Development Approval application in accordance with relevant statutory policies and guidelines, and with due regard for the draft Renewable Energy Planning Code and associated guidelines (WAPC 2025).

5 Stakeholder Engagement

YEC understands that stakeholder engagement is fundamental to ensuring that the voices and concerns of all stakeholders are heard and addressed, leading to more inclusive and sustainable project outcomes. By actively involving the community, YEC aims to better understand and mitigate potential social impacts, fostering trust and collaboration.

5.1 YEC Stakeholder Engagement Framework – Summary

YEC applies a comprehensive Stakeholder Engagement Framework to ensure all engagement associated with the Baru-Marnda Renewable Energy Project is transparent, inclusive, culturally respectful and aligned with statutory requirements. The Framework provides a consistent organisation-wide structure for how YEC identifies, consults, informs, collaborates with and responds to stakeholders throughout the lifecycle of its renewable energy developments.

The Framework comprises five core components:

- Community and Stakeholder Engagement Strategy
- First Nations Engagement Strategy
- Stakeholder Engagement Implementation Plans
- Complaints Procedure
- Borealis Stakeholder and Issues Management System, which supports organisation-wide record keeping, engagement tracking and transparent reporting.

Together, these components ensure that YEC's engagement approach reflects the regional social context, regulatory expectations, Yindjibarndi cultural governance, and the principles of responsible renewable energy development.

YEC commenced engagement with key stakeholders regarding the Baru-Marnda Renewable Energy Project specifically in 2023. The key objectives of the engagement to-date have been:

- To inform stakeholders of the proposal and its potential impacts to the environment and community (positive and negative)
- To identify community values and aspirations in relation to the Baru-Marnda Renewable Energy Project
- To understand the perspectives of local community stakeholders and stakeholder groups such that these perspectives can be considered as part of the proposal design evolution
- To engage early with regulators to understand areas of interest and potential concerns, such that these can be considered as part of the proposal design evolution.

YEC has and continues to undertake extensive consultation with key Federal, State, and Local regulatory authorities in addition to the Traditional Owners – the Yindjibarndi people. The outcomes of this consultation have directly informed the design and implementation of this proposal, as detailed in this application.

6 Environmental Factors

Environmental factors are used as an organising principle by the EPA for environmental impact assessment. The EPA has 14 environmental factors, divided into the five themes of Sea, Land, Water, Air and People.

In considering the proposal's referral under the EP Act, the EPA identified the following preliminary key environmental factors associated with the proposal:

- Flora and vegetation
- Terrestrial fauna
- Inland waters
- Subterranean fauna
- Social surroundings

The environmental impact assessment presented in this report has therefore been organised against the above preliminary environmental factors.

7 Flora and Vegetation

7.1 Receiving Environment

7.1.1 Pre-European Vegetation

Vegetation of the Pilbara region was reviewed and mapped by Beard in 1990 as vegetation system associations. Ten such associations are mapped within the project area. These associations and their extents are described in Table 7-1 and illustrated in Figure 4.

Table 7-1: Pre-European Vegetation within the Project Area

Vegetation Association	Description	Extent remaining*
Chichester Plateau_93	Hummock grassland with scattered shrubs or mallee Triodia spp. Acacia spp., Grevillea spp. Eucalyptus spp	40,988.83 ha (100%)
Chichester Plateau_173	Hummock grassland with scattered shrubs or mallee Triodia spp. Acacia spp., Grevillea spp. Eucalyptus spp.	1,124,734.22 ha (99.9%)
Chichester Plateau_175	Annual grasses Enneapogon spp. Arista spp. etc on dry plains and salt water grasses Sporobolus virginicus on the coast.	139,642.69 ha (99.98%)
Chichester Plateau_587	Sparse low tree-steppe / Sparse shrub-steppe	462,038.96 ha (100%)

Extents Remaining taken from Government of Western Australia (2019).

7.1.2 Studies Undertaken

To date, the following studies have been undertaken within and beyond the project area to understand the existing environment as it relates to flora and vegetation (Table 7-2). The spatial coverage of each study is illustrated in Figure 5.

Table 7-2: Flora and vegetation studies undertaken to-date

Responsible Party	Type of Study	Dates of Study	Coverage of Study
Mattiske Consulting	Reconnaissance Flora and Vegetation Assessment (Mattiske Consulting 2025)	30th October to 3rd November 2023	Jinbi project area, including portions of the Baru-Marnda Renewable Energy Project Area
Mattiske Consulting	Detailed Flora and Vegetation Survey – Pre-wet season (Appendix 1). This survey report captures the results of the September 2024 survey as well as the November 2023 survey of the Jinbi Project Area, which is partially outside the project area	2nd to 7th September 2024	34,718 ha, including the majority of the project area

Responsible Party	Type of Study	Dates of Study	Coverage of Study
RPS Group	Detailed Flora and Vegetation Survey – Pre-wet season (Appendix 2)	11th to 15th November 2024	External access route, including portions of the project area

In addition to the above, YEC is in the process of finalising further survey work that was undertaken at the request of the EPA. It is understood that once complete, these survey reports will be made publicly available through the EP Act Part IV public review process.

7.1.3 Vegetation Communities and Condition

A total of 18 vegetation communities have been described and mapped as a part of the studies undertaken to-date. These communities and their total mapped extents are described in Table 7-3 and illustrated in Figure 6.

Table 7-3: Mapped Vegetation Communities

Vegetation Community	Description	Mapped area (ha)
Boulder Fields		
B1	*Terminalia circumalata*, *Brachychiton acuminatus* low sparse trees over *Flueggea virosa* subsp. *melanthesoides*, *Jasminum didymum subsp. lineare* mid isolated shrubs on rocky basalt hills.	169.85
Creek Lines		
C1	*Eucalyptus victrix* low open woodland over *Melaleuca linophylla, Acacia bivenosa, Acacia coriacea* subsp. *pendens* mid sparse shrubland over *Cyperus vaginatus, Stemodia grossa, Tephrosia rosea* *var. clementii* low sparse shrubland in ephemeral drainage channels.	1,461.09
C2	*Melaleuca argentea, Eucalyptus ?camaldulensis*, *Eucalyptus victrix* mid woodland over *Acacia ampliceps, Acacia coriacea subsp. pendens, Melaleuca linophylla* mid open shrubland over *Cyperus vaginatus, Typha domingensis, Schoenoplectus subulatus* tall open sedgeland surrounding pools with high water permanence.	31.19
C3	*Eucalyptus victrix, Eucalyptus camaldulensis* low woodland over *Acacia coriacea subsp. pendens, Melaleuca glomerata, Acacia spp.* (*A. bivenosa, A. pyrifolia var. pyrifolia, A. tumida*) mid sparse shrubland over *Cyperus vaginatus, Stemodia grossa, Eriachne benthamii* low sparse shrubland in drainage channels.	133.44
C4	*Eucalyptus victrix, Eucalyptus camaldulensis* low open woodland over *Acacia coriacea subsp. pendens, Flueggea virosa subsp. melanthesoides, Terminalia circumalata* mid sparse shrubland over *Cyperus vaginatus, Typha domingensis, Schoenoplectus subulatus* sedgeland around pools with high water permanence.	10.85
C5	*Terminalia circumalata* low sparse woodland over *Acacia coriacea subsp. pendens, Flueggea virosa subsp. melanthesoides, Cynanchum viminale subsp. australe* low sparse shrubland over *Cyperus vaginatus, Triodia wiseana,*	31.71

Vegetation Community	Description	Mapped area (ha)
	Cymbopogon ambiguus low sparse grassland in narrow rocky sandstone gorges.	
C6	*Eucalyptus victrix*, *Corymbia hamersleyana* low sparse woodland over *Acacia tumida var. pilbarensis, Acacia pyrifolia, Acacia bivenosa* low open shrubland over *Triodia wiseana, Cymbopogon ambiguus, Enneapogon lindleyanus* low sparse hummock grassland in minor drainage channels.	481.29
Grasslands		
G1	*Acacia inaequilatera*, *Corymbia hamersleyana* low isolated trees over *Indigofera monophylla, Acacia pyrifolia, Acacia bivenosa* low sparse shrubland over *Triodia wiseana*, *Triodia epactia* low open hummock grassland on rocky sandstone hilltops and plains.	33,776.48
G2	*Aristida latifolia, Triodia wiseana* low sparse tussock grassland over *Rhynchosia minima, Streptoglossa bubakii* low isolated shrubs with diverse annual herbs and grasses on friable cracking clay on hilltops and flats.	2,923.57
Shrublands		
S1	*Corymbia hamersleyana* low isolated trees over *Acacia ancistrocarpa, Acacia pyrifolia var. pyrifolia, Grevillea wickhamii* mid sparse shrubland over *Triodia epactia, Triodia wiseana* low sparse hummock grassland on stony plains and granite tor fields.	1,758.94
S2	*Acacia xiphophylla* tall open shrubland over *Senna artemisioides* subsp. *helmsii, Acacia coriacea* subsp. *pendens* low isolated shrubs over *Triodia wiseana* low isolated hummock grasses on orange-brown clay flats.	20.52
Woodlands		
W1	*Eucalyptus leucophloia subsp. leucophloia* low open woodland over *Acacia bivenosa, Acacia spp*. (*A. ancistrocarpa, A. inaequilatera, A. maitlandii, A. pyrifolia*), *Senna glutinosa subsp. glutinosa* low isolated shrubs over *Triodia wiseana* low sparse hummock grassland on sandstone hilltops.	1,013.54
W2	*Corymbia hamersleyana* low open woodland over *Acacia bivenosa, Acacia pyrifolia, Acacia arida* low isolated shrubs over *Triodia wiseana, Themeda triandra* low sparse hummock grassland on rocky sandstone alluvium.	6.08
W3	*Eucalyptus leucophloia* subsp. *leucophloia, Corymbia hamersleyana* low open woodland over *Acacia ancistrocarpa, Hakea spp*. (*H. chordophylla, H. lorea*), *Acacia pyrifolia* low sparse shrubland over *Triodia wiseana, Triodia epactia* low open hummock grassland on orange rocky sandstone slopes.	167.03
Access route intersections		
North West Coastal Highway / Great Northern Highway	Isolated trees of *Owenia reticulata* over *Acacia ancistrocarpa, Acacia colei, Acacia tumida* subsp. *pilbarensis* tall sparse shrubland over *Acacia stellaticeps* low open shrubland over *Triodia epactia* hummock grassland.	5.26

Vegetation Community	Description	Mapped area (ha)
North West Coastal Highway / Cherrata Road	Creek line: *Eucalyptus victrix* woodland over *Melaleuca argentea* tall shrubland over *Acacia trachycarpa* tall open shrubland over *Eulalia aurea*, **Cenchrus ciliaris* tussock grassland.	1.4
	Non-creek line: *Eucalyptus victrix* sparse trees over *Triodia wiseana, T. epactia* open grassland. Sparse *Sclerolaena* sp.	4.69
North West Coastal Highway / Warlu Road/Manuwarra Red Dog Highway	*Acacia bivenosa, Acacia pyrifolia* tall sparse shrubland over *Triodia epactia* hummock grassland over **Cenchrus ciliaris* tussock grassland.	4.45

Generally, vegetation within the project area was observed to be in a largely excellent condition, however some signs of cattle grazing were observed throughout, particularly in the south and south-east of the project area in association with the G2 and S2 vegetation communities. In the S2 vegetation community in particular, understory taxa were sparse and cattle scats were abundant. Vegetation condition of the G2 and S2 communities was therefore assessed as being Very Good and Poor, respectively (Mattiske Consulting 2025).

More broadly, some portions of the access route in proximity to existing development (including the Ngurrawaana community and Rio Tinto rail lines) were also observed to be in a somewhat degraded condition (RPS Group 2025).

7.1.4 Conservation Significant Vegetation

No vegetation within the project area is considered to represent a Threatened Ecological Community listed under either the *Biodiversity Conservation Act 2016* (BC Act) or EPBC Act. No Threatened Ecological Communities are known to occur within the vicinity of the project area.

Two Priority Ecological Communities (PECs) as listed by the DBCA were identified to occur within the project area, being:

- Four Plant Assemblages of the Wona Land System, specifically the Cracking Clays of the Chichester and Mungaroona Range (Priority 1; Cracking Clays PEC)
- Riparian Flora and Plant Communities of Springs and River Pools with High Water Permanence of the Pilbara Region (Priority 2; Riparian Flora PEC)

In terms of the Cracking Clays PEC, this was considered highly likely to correspond to the G2 vegetation community, covering approximately 2,923.57 ha across approximately 33 distinct patches (Figure 6). At the time of the survey, living vegetation within this vegetation community was extremely low, however where annuals were present, these could be identified to genus level. Notwithstanding, the observed characteristics of quadrats established within the community, including distinctive cracking clay soil, low dry-season foliage cover, diverse annual taxa, and poorly known taxa, are in line with those used by the DBCA (2023) to define this PEC.

Regarding the Riparian Flora PEC, this was considered highly likely to correspond to the C2, C3, and C4 vegetation communities, which collectively have been mapped across approximately 175.48 ha (Figure 6). These vegetation communities are considered to represent the PEC based on the presence of isolated pools of water along creek lines, and/ or the presence of water dependent indicator species. Across the majority of the project area, namely the centre and centre-east), the PEC was found to be closely associated with deeper gorges and valleys. This characteristic was not uniform across all occurrences of the PEC; however, this rugged terrain was notably absent from some patches in the south-western corner of the project area.

Vegetation communities considered to correspond to the Riparian Flora PEC are also considered to represent Groundwater Dependent Ecosystems (GDEs).

It was noted that one observed permanent pool at site R024 (Figure 6 of Appendix 1) is likely an artificial drain constructed in association with the adjacent railway, and may not represent a natural occurrence of this PEC.

Permanent and semipermanent pools such as those present within the Riparian Flora PEC (known as Jinbi) are of cultural significance to the Yindjibarndi community. Through early engagement with the Yindjibarndi community as a part of the Jinbi project, it has been requested that ongoing access to such areas by the Yindjibarndi community be maintained.

7.1.5 Flora

A total of 297 vascular plant taxa across 49 families have been recorded by Mattiske Consulting (2025) and 89 taxa across 25 families have been recorded by RPS Group (2025). Nine of these recorded species are introduced (exotic) plant species, although none of these are declared plant species pursuant to the *Biosecurity and Agriculture Management Act 2007*.

No threatened flora species listed under either the BC Act or EPBC Act have been recorded within the project area. No threatened flora species are considered likely to occur within the project area, based on a likelihood of occurrence assessment (Table 5 of Appendix 1).

Seven priority flora species as listed by the DBCA have been recorded by Mattiske Consulting (2025) or RPS Group (2025) (Figure 7). These are (Table 7-4):

Table 7-4: Priority-listed flora recorded to-date

Species	Conservation category	Number of records (individuals)
Neptunia longipila	Priority 2	11 (178)
Pentalepis trichodesmoides subsp. *hispida* (**Barraburratha)**	Priority 2	15 (89)
Trianthema sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023)	Priority 2	9 (146)
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479)	Priority 3	5 (502)
Euphorbia inappendiculata var. *inappendiculate*	Priority 3	2 (5)
Euphorbia stevenii	Priority 3	3 (3)
Rhynchosia bungarensis	Priority 4	27 (57)

In addition to the above seven identified species, a further eight Priority-listed flora species are considered to have the potential to occur within the project area, but were not recorded in 2023 or 2024 (Mattiske Consulting 2025). These species, and a description of their habitat requirements are listed in Table 7-5. It is considered that the additional survey work requested by the EPA will serve as an opportunity to identify occurrences of these species and if present, determine how these relate to the indicative disturbance footprint.

Table 7-5: Priority flora species considered to have the potential occur within the project area

Species	Conservation category	Habitat (Mattiske Consulting 2025)
Tephrosia lithosperma	Priority 1	Known from one record within Western Australia in vegetation described as *Eucalyptus leucophloia* woodland over *Acacia bivenosa* over *Triodia brizoides* on light brown pebbly, gravelly loam on a low rise.
Ipomoea racemigera	Priority 2	Annual taxa known to occur in creeks within Millstream Chichester National Park.
Paspalidium retiglume	Priority 2	Known to occur on clay and cracking clay soils.
Owenia acidula	Priority 3	Plains, in grasslands of various types on various substrates, or thin woodlands.
Solanum albostellatum	Priority 3	Cracking clay soils on open floodplains in open scrubland over grasses.
Swainsona thompsoniana	Priority 3	Open floodplains on heavy clay soils.
Triodia basitricha	Priority 3	Slopes or crests of rocky hills.
Vigna triodiophylla	Priority 3	Basalt rockpiles.

7.2 Potential Environmental Impacts

7.2.1 Potential Direct Impacts

Potential direct impacts on flora and vegetation resulting from implementation of the Baru-Marnda Renewable Energy Project are anticipated to bel limited to the clearing of native vegetation, only. The potential extent of clearing for each flora and vegetation value identified in section 7.1 is presented in Table 7-6 below.

To note, those portions of the proposal for which development approval is not being sought (such as the external access route) have been considered in Table 7-6 to ensure a holistic analysis of the proposal's environmental impacts.

Table 7-6: Potential extent of direct impacts on flora and vegetation values

Flora and Vegetation value	Extent of potential direct impacts		
	Temporary clearing (ha)	Long-term clearing (ha)	Collective percentage (%) of mapped total
Vegetation			
Native vegetation in predominately excellent condition	642.5	2,395.6	7.23
Riparian Flora PEC (C2, C3, and C4)	0	0	0
Cracking Clays PEC (G2 vegetation community)	19.8	179.1	6.8

Flora and Vegetation value	Extent of potential direct impacts		
	Temporary clearing (ha)	Long-term clearing (ha)	Collective percentage (%) of mapped total
Vegetation community B1	0.3	1.5	1.05
Vegetation community C1	3.9	17	1.43
Vegetation community C2	0	0	0
Vegetation community C3	0	0	0
Vegetation community C4	0	0	0
Vegetation community C5	0	0	0
Vegetation community C6	1.4	2.7	0.85
Vegetation community G1	577.5	1,555.1	6.31
Vegetation community G2	19.8	179.1	6.8
Vegetation community S1	9.8	599.5	34.64
Vegetation community S2	0	0	0
Vegetation community W1	26.2	35.2	6.06
Vegetation community W2	0	0	0
Vegetation community W3	0.7	0.7	0.84
North West Coastal Highway / Great Northern Highway (IT)	0	0.5	9.5
North West Coastal Highway / Cherrata Road – Creek line vegetation (EVW)	0	0	0
North West Coastal Highway / Cherrata Road – Non-creek line vegetation (EVS)	0	0.2	4.5
North West Coastal Highway / Warlu Road /	0	0.1	2.2

Flora and Vegetation value	Extent of potential direct impacts		
	Temporary clearing (ha)	Long-term clearing (ha)	Collective percentage (%) of mapped total
Manuwarra Red Dog Highway (AB)			
Flora			
Neptunia longipila (P2)	0	Two individuals across two records	<1
Pentalepis trichodesmoides subsp. hispida (Barraburratha) (P2)	0	10 individuals across 5 records	11.23
Trianthema sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023) (P2)	0	0	0
Dolichocarpa sp. Hamersley Station (A.A. Mithcell PRP 1479) (P2)	0	52 individuals across three records	10.36
Euphorbia inappendiculata var. inappendiculata (P3)	0	Four individuals across one record	80
Euphorbia stevenii (P3)	0	0	0
Rynchosia bungarensis (P4)	0	Two individuals across one record	3.5

In assessing the significance of potential direct impacts on flora and vegetation, consideration is given to the following:

- Of the total maximum clearing extent necessitated by the proposal (3,038.1 ha), approximately 642.5 ha (21 %) will be temporary clearing only and will be subject to rehabilitation following construction.
- The proposed extent of native vegetation clearing represents approximately 1% of the extent remaining of the Chichester Plateau_587 vegetation association, which covers most of the project area (Figure 4). The current extent remaining of this vegetation association, and all others mapped within the project area, is at or near 100% of the pre-European extent.
- A substantial proportion of the potential impacts on the Cracking Clays PEC is associated with the site access route. However, based on the considerable mapped extent of the PEC in this area (Figure 6), there appear to be no opportunities to avoid these impacts. Alignment of the proposed route with the existing track from Warly Road / Manuwarra Red Dog Highway will mean that approximately 31.8 ha of previously cleared land will be utilised, which would otherwise need to be cleared for any alternative route.
- Approximately 2,923.57 ha of the Cracking Clays PEC has been mapped to-date, of which up to 198.9 ha (6.8 %) will potentially be impacted by the proposal. However, the mapped occurrences of this PEC closely align with the Wona Land System (Figure 2; Figure 6), and the Wona Land System is specifically referenced with regard to this community on the DBCA's PEC list. In reviewing the regional extent of the Wona Land system as a proxy for the Cracking Clays PEC, it could be inferred

that approximately 49,503.98 ha of the Cracking Clays PEC is located within 50 km of (and outside of) the project area, of which 20,454.14 ha are located within and afforded protection by, the Millstream Chichester National Park. The potential clearing of 198.9 ha represents approximately 1 % of this protected extent.

- All mapped occurrences of the Riparian Flora PEC will be completely avoided by the proposal.
- All mapped occurrences of *Trianthema* sp. Python Pool (G.R. Guerin and M.E. Trudgen GG 1023) and *Euphorbia stevenii* will be completely avoided by the proposal.
- All Priority-listed flora species identified within the project area also have known occurrences within either the Karijini or Millstream Chichester National Parks, or Barlee Range Nature Reserve (Mattiske Consulting 2025)
- Vegetation clearing at three isolated intersections along the proposed access route will be limited to partial clearing only, so as to lower the overall vegetation height to enable the passage of wind turbine infrastructure. No substantial ground disturbance is proposed in these areas
- The clearing of native vegetation has been strategically located to align with existing cleared areas, where possible. This is predominately evident along the proposed access route, where part of an existing vehicle track to Ngurrawaana community will be widened and formalised, rather than a new road being created.
- Since the proposal was initially referred to the EPA, the indicative disturbance footprint has been reduced to a point where:
  - An additional 1,948.3 ha of native vegetation in predominately excellent condition has been retained, including:
    - 26.6 ha of the Cracking Clays of the Chichester and Mungaroona Range Priority Ecolgocial Community (Cracking Clays PEC)
    - 126.2 ha of riparian vegetation (mapped as ‘Creekline’) vegetation
    - One additional *Pentalepis trichodesmoides subsp. Hispida* (Barraburratha) individual (P2)
    - 16 additional *Rynchosia bungarensis* individuals (P4)

Based on the above, the clearing of native vegetation is considered unlikely to be significant at a local or regional scale.

7.2.2 Potential Indirect Impacts

Potential indirect impacts on flora and vegetation resulting from implementation of the Baru-Marnda Renewable Energy Project are anticipated to be limited to:

- The potential introduction and/or spread of weed species and/or plant pathogens within the project area
- Dust emissions potentially impacting proximal retained vegetation
- Altered fire regimes due to hot works and vehicle movements (which may increase fire risk) and bushfire mitigation practices (which may reduce fire risk)
- Altered hydrological flows (including drainage pathways) resulting from earthworks and creek crossings

In terms of the significance of potential indirect impacts on flora and vegetation, it is noted that:

- The majority of potential indirect impacts are associated with the construction phase of the proposal, only

- The spatial extent of potential indirect impacts is anticipated to be limited to areas in close proximity to directly impacts areas, only
- There is potential to manage the implementation of the proposal in a manner which effectively minimises these potential indirect impacts

Based on the above, potential indirect impacts on flora and vegetation are not considered to be significant.

7.2.3 Potential Cumulative Impacts

Cumulative environmental impacts are the total impacts on the environment of a proposal combined with one or more past, present, or future activities and pressures (EPA 2026). In terms of the Baru-Marnda Renewable Energy Project, the nearest project that could be considered to have comparable impacts in the Jinbi Solar Facility (see section 2.5).

Flora and vegetation surveys for the Baru-Marnda Renewable Energy Project have been undertaken in a manner subsequent to, and consistent with surveys undertaken for the Jinbi Solar Facility. This has enabled a like-for-like comparison to be made of vegetation communities within the project areas for each project, as well as a quantitative, cumulative impact assessment of each project for each vegetation community. A comparison of maximum potential direct impacts on flora and vegetation from each project against each identified vegetation community is presented in Table 7-7 below.

Table 7-7: Cumulative impacts on vegetation within both the Jinbi Solar Facility and Baru-Marnda Renewable Energy Project

Vegetation community	Maximum extent of potential impacts		Total cumulative impact
	Jinbi Solar Facility	Baru-Marnda Renewable Energy Project	
G1	217.69 ha	2,132.6 ha	2,350.29 ha
S1	299.17 ha	609.3 ha	908.47 ha
C1	1 ha	20.9 ha	21.9 ha
C2 (representing the Riparian Flora PEC)	0 ha	0 ha	0 ha
Native vegetation, total	517.86 ha	3,039.1 ha	3,555.96 ha

Based on the above, total cumulative impacts on vegetation between the two projects will be predominately limited to the G1 and S1 vegetation communities, neither of which are considered to be conservation significant. The total cumulative impacts on flora and vegetation are therefore not considered to be significant. It is noted that potential impacts associated with the clearing of native vegetation for the Jinbi Solar Facility were not considered to be so significant to warrant assessment by the EPA or DCCEEW under the EP Act or EPBC Act, respectively.

No flora listed as Threatened or Priority flora at the state or federal levels will be impacted from the Jinbi Solar Facility. Therefore, there are not anticipated to be any cumulative impacts on Threatened or Priority listed flora resulting from the Jinbi Solar Facility and Baru-Marnda Renewable Energy Project.

Other projects in the vicinity of the Baru-Marnda Renewable Energy Project include:

- West Angelas Iron Ore Project Deposits C, D and G (Robe River Mining Co. Pty Ltd) – Assessed under Part IV of the EP Act – approximately 5.4 km east of the project area

- AutoHaul Project - Construction Activities for Rail Infrastructure within the Millstream-Chichester National Park (Robe River Mining) – Referred under Part IV of the EP Act, not assessed – approximately 5.75 km east of the project area
- New Road from Tom Price to Karratha (Main Roads Western Australia) – Assessed under Part IV of the EP Act – approximately 6.6 km east of the project area.

All three of the above projects are located east of the project area, within Millstream Chichester National Park. All three projects are also limited to linear infrastructure only, which are co-located into the same northwest to southeast general alignment. While the West Angelas Iron Ore Project does comprise a main infrastructure development envelope (including mine pits and supporting infrastructure), this is located approximately 250 km south of the Baru-Marnda Renewable Energy Project, in a separate IBRA subregion.

While a review of each of these projects indicates potential impacts on matters similar to those within the project area (for example. The Wona, Capricorn and Rocklea land systems (see Figure 2), the linear nature of these projects means that their direct impacts on each of these matters is minimal. For example, the linear component of the West Angelas Iron Ore project has a width of approximately 100 m, only. Similarly, the Warlu Road / Manuwarra Red Dog Highway (formerly the new road from Tom Price to Karratha) has an approximate width of 45 m. While the total clearing extents of each of these projects may be significant when considered in their entirety, when considering impacts only to matters shared with the Baru-Marnda Renewable Energy Project, these cumulative impacts are not considered to be significant.

In terms of foreseeable future activities, YEC's vision of empowering first nations renewable energy will see the formulation and development of additional renewable energy projects across Yindjibarndi ngurra to further contribute to the state and federal government's net zero aspirations. To-date, YEC has identified the potential for up to 3 Gigawatts of wind, solar and battery storage potential across Yindjibarndi Ngurra. Where potential environmental impacts associated with these future projects have the potential to be significant, YEC will refer these under the EP Act and EPBC Act for consideration by the EPA and DCCEEW. It is anticipated that in assessing potential environmental impacts of these future projects, consideration will be given to potential cumulative impacts with respect to the Baru-Marnda Renewable Energy Project.

7.3 Mitigation

7.3.1 Avoidance

In considering opportunities to avoid potential impacts on flora and vegetation values within the project area, YEC has prioritised the avoidance of PECs and Priority flora, where possible.

In terms of PECs, YEC has developed a project layout which completely avoids all occurrences of the Riparian Flora EPC mapped within the project area. While some clearing of the Cracking Clays PEC is proposed, this is anticipated to be limited to no more than 198.9 ha, which represents only 6.8% of the mapped total, and approximately 1% of the likely extent afforded protection within the Millstream Chichester National Park.

It should also be noted that since the proposal was initially referred to the EPA, the proposal layout has been substantially amended to reduce the extent of potential direct impacts on the Cracking Clays PEC from 225.5 ha to 198.9 ha, representing a reduction of 26.6 ha.

In terms of Priority-listed flora, the proposal layout has been strategically designed to completely avoid direct impacts to both *Trianthema* sp. Python Pool (P2), and *Euphorbia stevenii* (P3). While the proposal has the potential to directly impact the remaining five Priority-listed flora identified within the project area, these impacts are all associated with the M1 solar area. There may therefore be potential to avoid occurrences of Priority-listed flora within this area, through the micro-siting of individual solar strings. These avoidance opportunities will be explored at subsequent stages of the design process.

Similar to previous comments, the proposal layout has been substantially amended to reduce the extent of potential direct impacts on Priority-listed flora. These amendments have resulted in the retention of one

additional *Pentalepis trichodesmoides subsp. Hispida* (Barruburratha) individual (P2), and an additional 16 *Rynchosia bungarensis* individuals (P4).

7.3.2 Minimisation

Generally, land utilised for solar arrays is required to be extensively graded to establish a smooth, level surface, so as to maximise the orientation of panels toward the sun. However, recognising that such bulk earthworks necessitate expansive clearing of native vegetation, YEC has sought to design the Baru-Marnda Renewable Energy Project in a manner that minimises the extent of clearing required. To this end, YEC are investigating the utilisation of terran-following trackers in each solar array, which allow for the broadscale retention of landscape features. Reference terrain following technology being utilised by YEC provide for individual solar tables to be installed at angles of up to 36% from the previous table.

Recognising that the majority of potential impacts on flora and vegetation are anticipated to be associated with the construction phase of the proposal, YEC is committed to the preparation and implementation of a project-specific Construction Environmental Management Plan (CEMP), or similar. The CEMP will be prepared with the objective of minimising potential environmental impacts to the fullest extent practicable, and in accordance with both the DDCCEEW's *Environmental Management Plan Guidelines* (2024) and the EPA's *How to prepare Environmental Protection Act Part IV Environmental Management Plans* (2024).

YEC anticipates that the preparation of a CEMP or similar will be required as a condition of development approval, at which point the scope and content of the plan can be refined. Notwithstanding, it is anticipated that the CEMP will include, at minimum:

- An overview of the CEMP's legislative framework and policy context
- Clearly stated environmental objectives to be achieved
- Identification of those parties accountable to the CEMP, their roles, and responsibilities
- Description of the consultation with applicable stakeholders, and the outcomes of this consultation
- As assessment of inherent and residual risk associated with construction activities and their potential impacts on the environment
- Detailed management provisions, which with specific regard to flora and vegetation, address:
    - Means to delineate clearing areas and ensure all relevant personnel are aware of clearing and avoidance areas
    - Access limitations applicable to all on-site construction staff
    - Education and training for all on-site construction staff regarding the site's environmental values
    - Weed and pathogen introduction and spread prevention, including hygiene protocols for all vehicles entering and leaving clearing areas
    - Dust emission mitigation, including water suppression and wind fencing where appropriate
    - Hydrocarbon and hazardous materials management procedures
- Robust monitoring framework, which appropriately assesses the efficacy of management provisions
- Contingency actions and associated trigger criteria
- Provisions for regular review of the CEMP, and reporting on its implementation.

YEC considers that the development of the CEMP will serve as an opportunity to refine how the Baru-Marnda Renewable Energy Project is implemented, to ensure that this aligns with the Yindjibarndi community's vision of protecting ngurra.

7.3.3 Rehabilitation

Approximately 642.5 ha of the indicative disturbance footprint will be cleared for construction purposes only, and which is proposed to be rehabilitate at the conclusion of the construction phase. Further, YEC anticipates that the substantial majority of remaining clearing (2,395.6 ha) will be rehabilitated during the decommissioning phase, at the conclusion of the proposal's operational life.

Decommissioning activities (including rehabilitation) are proposed to be undertaken in accordance with a dedicated Decommissioning and Rehabilitation Plan (or similar), which is anticipated to be required as a condition of Development Approval. While the total extent of rehabilitation and the methodology to be employed are yet to be confirmed, YEC's general rehabilitation aim is to return the land to its pre-development uses where possible, in close consultation with YAC and YNAC.

It is anticipated that the Decommissioning and Rehabilitation Plan (or similar) will include:

- A summary of the outcomes of consultation with key stakeholders, including YAC and YNAC
- Identification of rehabilitation objectives and associated completion criteria
- Provisions for the retention of vegetative material and topsoil to be used in revegetation activities
- Methodologies for planting and direct seeding where this is necessary, utilising local provenance seeds and propagating material
- A robust monitoring program, to measure the efficacy of rehabilitation efforts
- A suite of potential contingency actions to be employed where monitoring indicates that completion criteria are not being met
- A description of the roles and responsibilities relevant to implementation of the plan.

Through the rehabilitation of the indicative disturbance footprint, in addition to the broader avoidance and minimisation measures proposed above, there are not anticipated to be any significant residual impacts resulting from the proposal.

7.4 Environmental Outcomes

Following the implementation of all aspects of the mitigation hierarchy (avoidance, minimisation, rehabilitation), YEC considers that the following outcomes for the flora and vegetation environmental factor will be achieved:

- No direct, indirect, or cumulative impacts on threatened flora or ecological communities
- Retention of all mapped occurrences of the Riparian Flora PEC
- Retention of all occurrences of *Trianthema sp*. Python Pool (P2) and *Euphorbia stevenii* (P3)
- No meaningful reduction in the remaining extents of each pre-European vegetation system association mapped within the project area
- No introduction of weeds or plant pathogens to the project area as a result of the proposal's implementation
- Successful rehabilitation of the substantial majority of the indicative disturbance footprint, to a standard consistent with its pre-development land uses where possible
- Increased understanding and awareness of flora and vegetation values across Yindjibarndi ngurra.

Through implementation of each component of the mitigation hierarchy, there are not anticipated to be any significant residual impacts resulting from the proposal. It is envisaged that the above environmental outcomes can be achieved through the application of outcome-based conditions on future environmental

approval/s, as well as through the application of environmental conditions on other approvals applicable to the proposal.

Based on the above, YEC is confidence that the Yindjibarndi community's vision of protecting ngurra can be met.

8 Terrestrial Fauna

8.1 Receiving Environment

8.1.1 Studies Undertaken

To date, the following studies have been undertaken within and beyond the project area to understand the existing environment as it relates to terrestrial fauna (Table 8-1). The spatial coverage of each study is illustrated in Figure 8.

Table 8-1: Terrestrial fauna studies undertaken to-date

Responsible Party	Type of Study	Dates of Study	Coverage of Study
Bamford Consulting Ecologists	Level 1 (Basic) Survey	6th and 7th December 2023	Jinbi Project Area
RPS Group	Level 1 (Basic) Survey	29th September to 1st October 2024	Site access route, including portions of the project area
Bamford Consulting Ecologists	Level 1 (Basic) Survey (Appendix 3)	16th July 2024, 6th to 8th August 2024	34,718 ha, including the project area
	Bird and Bat Site Utilisation Survey (Appendix 3)	16th July 2024, 6th to 8th August 2024	
	Bird and Bat Site Utilisation Survey (Appendix 3)	27th September to 1st October 2024	
	Bird and Bat Site Utilisation Survey (Appendix 3)	11th to 14th November 2024, 22nd December 2024	
	Bird and Bat Site Utilisation Survey (Appendix 3)	9th to 13th March 2025	
Bennelongia Environmental Consultants	Short Range Endemic (SRE) Desktop Assessment (Appendix 4)	January 2024	10,000 km2, centred on the Jinbi Project Area and including the project area

Data collected from Audio Recording Units (ARU's) distributed throughout the project area between July and December as a component of the site utilisation surveys was provided to Supersensory Technologies Pty Ltd, who provided an independent analysis of acoustic recordings and assessment on collision risk to bat species. The associated report (Supersensory Technologies 2025) is provided as an appendix to Bamford Consulting Ecologists (2025).

In addition to the above, YEC is in the process of undertaking further bird and bat utilisation surveys, including targeted Ghost Bat surveys in response to the EPA's request for additional information, to better understand the presence, behaviour and risk of impact to aerial fauna across the project area Similar surveys are proposed to continue throughout the construction and operation phases of the proposal, as a part of YEC's adaptive management approach

8.1.2 Fauna Habitat

As a component of the level 1 fauna survey undertaken by Bamford Consulting Ecologists, Vegetation and Substrate Associations (VSAs) were identified and mapped across the project area as a means of considering fauna habitat values at a broad scale. While informed by vegetation community mapping undertaken by Mattiske Consulting (2025) and RPS Group (2025), VSA's provide a greater level of fauna habitat information than vegetation communities alone, by also considering general geological units, soils, other substrates, and landforms (Bamford Consulting Ecologists 2025).

Five VSA's were identified, each of which generally correspond to a vegetation community defined by Mattiske Consulting (2025) and RPS Group (2025). These are (Table 8-2; Figure 9):

Table 8-2: Vegetation Substrate Associations (Bamford 2025)

VSA No.	Description	Most similar vegetation community (Mattiske Consulting 2025; RPS Group 2025)
VSA 1	Open hummock grassland on rocky basalt hills, plateaux and plains. This grassland is broadly distributed mostly across the higher slopes.	G1
VSA 2	Low and sparse shrubland over sparse hummock grasslands on stony plains and granite tor fields. This shrubland type lies on the lower areas in the north of the project area and is interspersed with fields of large boulders.	S1
VSA 3	Open woodland along ephemeral drainage channels incised into rocky creek lines. This vegetation dominates the creek lines in both the northern and southern catchment areas and is interspersed with permanent and ephemeral pools.	C1
VSA 4	Grassland with low isolated shrubs over friable cracking clay on basalt upland gilgai plains and flats. This grassland type is limited to the flats in the south of the project area.	G2
VSA 5	Low open woodland and isolated shrubs on sandstone hilltops. This woodland is confined to a band of higher ground and small patches that lies across the southern half of the project area with some small areas in the north-west. Corresponds roughly to the Capricorn Land System	W1

In addition to the VSA's, two small caves were also identified to the south-east of the Rio Tinto rail access line. While these caves' morphology was not considered to be appropriate as roosting habitat for conservation significant bat fauna, scats at the base of these caves suggest they may be utilised as shelter by terrestrial fauna such as the Northern Quoll (Yirriwardu; *Dasyurus hallucatus*) (Bamford Consulting Ecologists 2025).

Generally, it was observed that particular landscape features including drainage lines, springs, and rocky gorges are likely to support species that would not otherwise be present within the project area (Bamford Consulting Ecologists 2025). For example, the majority of bird observations made during vantage point surveys were taken along creek lines, and it was considered that permanent water sources can affect the abundance and movement pattern of a range of fauna species. For these reasons it is reasonable to infer that creek line vegetation communities (C1-C6; Table 7-3) and in particular those vegetation communities

exhibiting permanent water bodies (C2, C3 and C4) are likely to represent the greatest value fauna habitat within the project area.

8.1.3 Fauna Diversity

A total of 257 vertebrate fauna species were considered to occur within the area surveyed by Bamford Consulting Ecologists (2025). These included three fish, six frogs, 64 reptiles, 148 birds, 33 native mammals, and three introduced mammals. Of these species, 122 species have been confirmed to be present on-site during field investigations (Bamford Consulting Ecologists 2025; RPS Group 2025), including two fish, two frogs, eight reptiles, 58 birds, and 10 native and two introduced mammals.

8.1.4 Conservation Significant Fauna

Based on the results of fauna surveys undertaken to-date (Bamford Consulting Ecologists 2025; RPS Group 2025), seven fauna species listed under either the BC Act or EPBC Act are considered to have the potential to be either regular visitors or residents of the project area. These being:

- Bargunyji (Pilbara Olive Python; *Liaisis olivaceaus barroni*) – resident – listed as Vulnerable under the BC Act and EPBC Act
- Yirriwardu (Northern Quoll; Dasyurus hallucatus) – resident – listed as Vulnerable under the BC Act and EPBC Act
- Grey Falcon (Falco hypoleucos) – regular visitor – listed as Vulnerable under the BC Act and EPBC Act
- Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*) – regular visitor – listed as Vulnerable under the BC Act and EPBC Act
- Ghost Bat (*Macroderma gigas*) – regular visitor - listed as Vulnerable under the BC Act and EPBC Act
- Fork-tailed Swift (*Apus pacificus*) – regular visitor – listed as Migratory under the BC Act and EPBC Act
- Peregrine Falcon (Falco peregrinus) – regular visitor – listed as Specially Protected – Otherwise in Need of Special Protection under the BC Act.

It is noted that of the above fauna species, the Yirriwardu (Northern Quoll), Bargunyji (Pilbara Olive Python), Grey Falcon, and Pilbara Leaf-nosed Bat were confirmed to be present within the project area. This was based on the presence of scats and/or skins (Northern Quoll and Pilbara Olive Python), direct sightings (Grey Falcon and Fork-tailed Swift), and audio recordings (Pilbara Leaf-nosed Bat).

An additional 17 fauna species listed under either the BC Act or EPBC Act were considered to be either vagrant or irregular visitors to the project area. Six fauna species listed as Priority fauna species by DBCA were also considered to be either residents or regular visitors within the project area. One of these, the Gurdi (Western Pebble-mound Mouse; *Pseudomys chapmani*) is of particular cultural significance to the Yindjibarndi people, and so is discussed further in section 10.1.1.1.

Further discussion on BC Act and EPBC Act listed species potentially occurring within the project area is provided in the following sections.

8.1.4.1 Bargunyji – Pilbara Olive Python

The Bargunyji (Pilbara Olive Python) is restricted to ranges within the Pilbara region, usually in association with rocky landscapes. The species is usually found in close proximity to water, and is known to prefer deep gorges and waterholes (DEWHA 2008). The main potential threats to the species, as identified in the approved conservation advice (DEWHA 2008), include the loss of suitable prey species to fox predation (particularly in coastal areas), deliberate road kills, and death resulting from mistaken identification as a poisonous (venomous) brown snake.

Whilst there are no published records of the species within 40 km of the project area, the deep gorges and waterholes which are the species' preferred habitat are likely to be found in association with the Riparian

Flora PEC, corresponding to the C2, C3, and C4 vegetation communities (Figure 6). It was noted by Mattiske Consulting (2025) that the deeper gorges and valleys which are preferred by the Bargunyji (Pilbara Olive Python) are not uniform across all occurrences of the PEC, and are notably absent from some patches of the PEC in the southwestern corner of the project area.

Major drainage lines within the project area which do not form part of the Riparian Flora PEC (vegetation communities C1, C5, and C6) may also provide dispersal habitat for the species (Bamford Consulting Ecologists 2025).

Yindjibarndi people historically used Bargunyji (Pilbara Olive Python) as food, however it is no longer eaten. The bones on the rib cages can be used to make hooks for fishing (Greening Australia 2016).

8.1.4.2 Yirriwardu – Northern Quoll

This species was once widespread across much of northern Australia from the Pilbara to southeast Queensland, however is now isolated to a number of fragmented populations across its former range. Within the Pilbara, Yirriwardu (Northern Quoll) is often associated with rocky areas and structurally diverse woodland and forest which may provide shelter and refuge from fire and predation (DoE 2016). Vegetated habitats surrounding these areas may also provide foraging and dispersal opportunities for the species.

Within the project area, the most suitable habitat for the species is likely to be in association with the Riparian Flora PEC, where deeper gorges and valleys are likely to provide shelter. However, scats were also recorded on all creek lines within the project area during fauna surveys undertaken in 2024, suggesting that these areas also function as suitable habitat for the species (Bamford Consulting Ecologists 2025). Yirriwardu (Northern Quoll) scats were also found in small caves within the project area, and so are considered to represent shelter habitat for the species. It was noted though that generally, the species is likely to be most abundant low in the landscape (Bamford 2025).

The Yirriwardu (Northern Quoll) is considered sacred and not used by the Yindjibarndi. It is forbidden to harm or eat this animal as it is considered culturally and religiously significant. The Yindjibarndi people enjoy it when this species is observed (Greening Australia 2016).

8.1.4.3 Grey Falcon

The Grey Falcon is a moderately sized (400 to 500 g) diurnal (active during the day) predator that favours pigeons, parrots and other birds as prey, however may also take invertebrates, reptiles, and small mammals (Bamford 2025).

This species occurs at low densities across arid and semi-arid Australia, predominately in areas where annual rainfall is less than 500 mm (TSSC 2020). Throughout its extensive range, the Grey Falcon typically favours wooded ephemeral or permanent drainage lines interspersed with Acacia scrub (Bamford Consulting Ecologists 2025; TSSC 2020). While the species is resident and sedentary when seasonal conditions are favourable and when breeding, generally the species is known to be highly nomadic across its range.

When breeding, the species exclusively uses the nests of other raptors. Nests in tall trees are favoured, however they have also been known to utilise nests in man-made structures, such as telecommunication towers (Bamford Consulting Ecologists 2025; TSSC 2020).

Within the project area, preferred habitat for the species was observed in the form of tall trees along creek lines interspersed with Acacia scrub, particularly in the south east of the project area (Bamford Consulting Ecologists 2025). While this is considered likely to correspond to the C1 and C6 vegetation communities in this area (Figure 6), drainage lines in general are considered to be preferred by the species (Bamford Consulting Ecologists 2025). To date, direct observations have been made of the Grey Falcon both opportunistically and during dedicated site utilisation surveys, including opportunistic sightings on the 8th of August 2024 and March 2025, and during dedicated Vantage Point (VP) surveys on the 29th and 30th of September 2024, 1st of October 2024, and March 2025.

In terms of VP surveys, an adult pair was observed over VPs 04 and 08, and individuals were sighted at VPs 08 and 10. Opportunistic observations were made primarily around the Ngurrawaana community. Flight heights were estimated to be between 30 and 160 m for all observations. Observed flight lines of the Grey Falcon are illustrated in Figure 10.

While an adult pair was observed at the end of the known breeding season for the species (June to November) and may have bred, the only record of a possible juvenile was in March 2025 (VP 10).

All sightings of the species were confined to the southern half of the project area, and only following heavy rainfall (Bamford Consulting Ecologists 2025).

8.1.4.4 Pilbara Leaf-nosed Bat

The Pilbara Leaf-nosed Bat (also referred to as the Pilbara Diamond-faced Bat), is a relatively small (8 to 11 g) nocturnal insectivorous bat unique to the Pilbara region of Western Australia. While the species is native to much of northern Australia, the isolated Pilbara population represents a slightly divergent form, and is afforded a separate conservation status in its own right.

While records of the species have been made in a variety of habitat types, recent data shows that areas of complex vegetation structures, particularly with semi-permanent or permanent surface water features, are preferred as foraging habitat for the species (Bat Call WA 2021a).

Underground, diurnal roosts for the species which provide warm, humid microclimates are considered critical for the survival of the Pilbara Leaf-nosed Bat, given the species' inability to maintain heat and water balance (TSSC 2016a; Bat Call WA 2021a).

The geology in the project area is not considered to lend itself to the formation of such large, deep caves (Bamford Consulting Ecologists 2025). While some small caves have been identified within the project area (Figure 9), none of these are considered suitable for use as roosting habitat for the species (Bamford Consulting Ecologists 2025). As of 2021, there are only 48 confirmed permanent diurnal roosts known for the species (Bat Call WA 2021a).

Between August and December 2024, three recordings were captured of the Pilbara Leaf-nosed Bat on Audio Recording Units (ARUs) within the project area, all of which occurred in August 2024. These recordings are detailed below in Table 8-3. The two ARU's which recorded the species (ARU 16 and 26) were each located within creek lines in the eastern half of the project area, which is consistent with known preferred habitats for the species, which includes creek lines, gullies, and flooded gorges that contain vegetation with complex vertical structure (Bamford Consulting Ecologists 2025; Bat Call WA 2021a). This is considered to correspond with the C1 to C6 vegetation communities.

Based on the timing of recordings (the closest to sunrise/sunset being at 03:20:23; three hours and 21 minutes prior to sunrise), there is potential for the roost site used by the recorded individual to be up to 102 km away, based on a commuting speed of 8.5 m/s (Bat Call WA 2021a). Males of the species have been known to move up to 170 km (Bat Call WA 2021a).

Table 8-3: Acoustic records of Pilbara Leaf-nosed Bats detected along creek lines within the project area

ARU Ref	Date	No. Passes	Earliest Pass	Latest Pass	Sunset	Sunrise
ARU16	7-Aug-24	2	01:18:02	03:20:23	17:56	06:41
	14-Aug-24	1	02:16:26	02:16:26	17:59	06:36
ARU26	31-Aug-24	1	00:51:13	00:51:13	18:04	06:23

8.1.4.5 Ghost Bat

The Ghost Bat is a relatively large (130 to 175 g) nocturnal predatory bat native to northern Australia from the Pilbara region of Western Australia to the central Queensland coastal and hinterland regions (Bat Call WA 2021b). The species is predominately an ambush predator, capturing prey such as small mammals, birds, reptiles, frogs and large insects through attacks launched from perches in vegetation (Bamford Consulting Ecologists 2025; Bat Call WA 2021b).

During day time, the Ghost Bat may roost in caves, rock crevices, and old mines. In contrast, permanent roost sites are generally deep natural caves or disused mines with a relative stable temperature of 23°−28°C and a moderate to high relative humidity of 50 to 100 % (TSSC 2016).

No observations of the Ghost Bat within the project area have been made to-date, nor have any recordings of the species been collected on audio recording units distributed throughout the project area. Further, the geology of the project area is not considered to be conducive to the formation of caves appropriate for long-term shelter for the species (Bamford Consulting Ecologists 2025).

Notwithstanding, utilisation of the project area by small numbers of Ghost Bats for foraging or transiting purposes has not been ruled out, and targeted efforts to record the species within the project area are ongoing.

In terms of the species' foraging behaviours, approved conservation advice for the species distinguishes between two foraging strategies (TSSC 2016b). These include perching in vegetation to ambush passing prey, and gleaning surfaces such as the ground while in flight. In terms of the former strategy, Bat Call WA (2021b) elaborates on this behaviour by stating that the species typically utilises vantage points in trees, and that gullies or gorge systems which open out into plains or riparian lines provide the best foraging opportunities. Considering the Ghost Bat may only utilise the site for foraging or transiting purposes, it is likely that only creek lines within the project area (vegetation communities C1-6) would be utilised for this purpose.

8.1.4.6 Fork-tailed Swift

A moderately sized swift and aerial insectivore, this species often forages along the edges of low pressure systems in flocks of ten to 1,000 birds (DCCEEW 2023b; Higgins 1999). The Fork-tailed Swift breeds in Siberia (April to July) and spends the non-breeding season (October to mid-April) in Australia. Being aerial, it is effectively independent of terrestrial ecosystems when in Australia.

The Fork-tailed Swift is a largely aerial species of unpredictable occurrence in Western Australia. There are scattered records from the south coast, widespread in coastal and subcoastal areas between Augusta and Carnarvon, scattered along the coast from south-west Pilbara to the north and east Kimberley region. Sparsely scattered inland records, especially in the Wheatbelt, but more common in the north and north-west Gascoyne Region, north through much of the Pilbara Region, and the south and east Kimberley (DCCEEW 2023b; Higgins 1999). The species usually flies from as low as one metre to more than 300 m above the ground.

Within the project area, three sightings were made of the species in March 2025. Seven individuals were observed in total, including four birds at once during one sighting. All sightings were made at VP01 and VP10 (Figure 9), where birds were flying between 20 m and 40 m. The species was not observed during any other survey undertaken to-date.

8.1.4.7 Peregrine Falcon

A globally distributed species, the Peregrine Falcon is a predominately diurnal predator of birds. The species occurs in a variety of habitats, but is usually reliant on cliff faces or tall trees for nesting (Debus 2019).

No individuals have been sighted within the project area to-date, nor are there any records available of the species within 40 km of the project area. It is noted that if any breeding activity was occurring within the project area, then individuals would have been sighted during the bird and bat utilisation surveys (Bamford Consulting Ecologists 2025).

8.1.5 Short Range Endemic Fauna

In 2023, Bennelongia Environmental Consultants was commissioned by YEC to undertake a desktop assessment of SRE fauna to support and inform the Jinbi Solar Facility. The assessment was undertaken across a 100 km x 100 km study area centred on the Jinbi Solar Facility to provide a contextual understanding of the potential SRE assemblage. The 100 km^2 study area also encompassed the entirety of the Baru-Marnda Renewable Energy project area, and has therefore been used to also understand the likely SRE fauna assemblage and potential impacts associated with this proposal. The assessment cross referenced records from the Western Australian Museum, the Atlas of Living Australia and Bennelongia databases with site specific habitat information, surface geology and soils, land

systems and topography.

Of the 134 species recorded within the assessment area, three were considered to be confirmed SRE species, 65 were considered to be potential SRE species, and 69 were considered to be widespread. None of the records were identified to be Threatened or Priority listed species at the state or federal levels (Bennelongia Environmental Consultants 2024).

In terms of habitat for SRE fauna, isolated areas protected from extreme weather that retain moisture throughout drier months of the year are generally considered to be the most suitable, particularly where landforms provide a combination of habitat elements conducive to SRE habitat, such as soft sandy soils, tree coverage and litter, and gullies and ridges. Considering the known vegetation communities (Table 7-3), general topography, and patterns of water permanence across the project area, it could be reasonably concluded that the most suitable habitat for SRE species within the project area are vegetation communities C2, C3 and C4 (Figure 6).

The SRE assessment is provided at Appendix 4.

8.2 Potential Environmental Impacts

8.2.1 Potential Direct Impacts

Potential direct impacts on terrestrial fauna resulting from implementation of the Baru-Marnda Renewable Energy Project are anticipated to be limited to the clearing of vegetation representing suitable fauna habitat, and the potential collision of in-flight birds and bats with turbine structures.

8.2.1.1 Fauna Habitat Clearance

In terms of potential impacts from the clearing of fauna habitat, the extent of habitat being cleared by the proposal for each fauna identified in section 8.1.4 is quantified in Table 8.4 below.

Table 8-4: Potential extent of direct impacts on fauna habitat values

Terrestrial Fauna Habitat Value	Extent of Potential Direct Impacts		
	Temporary clearing (ha)	Long-term clearing (ha)	Collective percentage (%) of mapped total
Bargunyji (Pilbara Olive Python) – Preferred habitat (vegetation communities C2, C3, C4)	0	0	0
Bargunyji (Pilbara Olive Python) dispersal habitat (vegetation communities C1, C5, and C6)	5.3	19.7	1.27
Yirriwardu (Northern Quoll) preferred habitat (vegetation communities C2, C3, and C4)	0	0	0

Terrestrial Fauna Habitat Value	Extent of Potential Direct Impacts		
	Temporary clearing (ha)	Long-term clearing (ha)	Collective percentage (%) of mapped total
Yirriwardu (Northern Quoll) dispersal habitat (all other vegetation communities)	642.5	2,395.6	7.23
Grey Falcon preferred habitat (vegetation communities C1, C2, C3, C4, C5, C6)	5.3	19.7	1.16
Grey Falcon dispersal habitat (all other vegetation communities)	634.3	2,371.1	7.54
Pilbara Leaf-nosed Bat dispersal habitat (vegetation communities C1, C2, C3, C4, C5, C6)	5.3	19.7	1.16
Ghost Bat foraging and dispersal habitat (vegetation communities C1, C2, C3, C4, C5, C6)	5.3	19.7	1.16
Short Range Endemic Fauna most suitable habitat (C2, C3, and C4)	0	0	0

In assessing the significance of potential direct impacts on terrestrial fauna habitat, consideration is given to the following:

- The entirety of preferred habitat for the Bargunyji (Pilbara Olive Python) and Yirriwardu (Northern Quoll), as well as the most suitable habitat for SRE fauna, will be completely avoided by the proposal.
- With regard to the Grey Falcon, the species is estimated to have an extent of occurrence of 6.1 million km^2, and an area of occupancy of 6,000 km^2 (TSSC 2020). The maximum clearing extent of potential habitat for the species within the project area (2,430.4 ha) is considered to represent less than 0.001% and less than 1% of the species' extent of occurrence and extent of occupancy, respectively.
- No significant habitat features, including suitable roosts for the Pilbara Leaf-nosed Bat or Ghost Bat, or denning caves potentially utilised by the Yirriwardu (Norther Quoll), will be impacted by the proposal.
- While a precautionary approach has been taken toward the quantification of potential impacts on conservation significant bat fauna, it should be recognised that no Ghost Bats have been recorded within the project area to-date, and only three recordings have been made of the Pilbara Leaf-nosed Bat. This is despite a survey effort comprising a total of 338 recording nights (Bamford Consulting Ecologists 2025). In consideration of the paucity of records of these fauna, the clearing of potential foraging and/or dispersal habitat for both species is not considered to be significant at a local or regional scale.
- Substantial habitat for native terrestrial fauna, including large cave formations suited to Ghost Bats (Bamford Consulting Ecologists 2025) is known to be present within and afforded protection by the Millstream Chichester National Park, immediately adjacent to the project area.

Based on the above, potential impacts on terrestrial fauna associated with the clearing of potential habitat is considered unlikely to be significant at a local or regional scale.

8.2.1.2 Collision Risk

In terms of potential collision impacts on terrestrial fauna, Reid and Baker (2024) define these as impacts where birds and bats in flight collide with and/or experience barotrauma from turbine structures resulting in injury or death. The potential mortality of bird and bat species from collision with turbines is considered by

DCCEEW to be the primary environmental concern arising from wind farm developments in Australia (DEWHA 2009).

To quantify and assess the significance of these potential impacts, a preliminary Bird and Bat Management Plan (BBMP) was prepared for the Baru-Marnda Renewable Energy Project, which is provided at Appendix 5. The BBMP was prepared to support the proposal's referral to the EPA and DCCEEW under the EP Act and EPBC Act respectively, and considered a larger and since superseded indicative disturbance footprint.

A core component of the BBMP is a dedicated impact risk assessment of aerial fauna considered relevant to the proposal, which was informed by relevant national studies and guidance, site utilisation surveys undertaken by Bamford Consulting Ecologists (2025), and an independent collision risk analysis of bat fauna conducted by Supersensory Technologies Pty Ltd (provided as an appendix to Bamford Consulting Ecologists (2025); Appendix 3).

In terms of national impact risk considerations, no fauna groups identified to be most at risk of mortality from collision with turbines (as identified in EPBC Act Policy Statement 2.3: Wind Farm Industry; DEWHA 2009) were considered to be residents or regular visitors of the project area. Additionally, none of the three bird and three bat species considered to be of highest risk of collision with turbines (as identified by Reid and Baker 2024) are known to occur within or in proximity to the project area.

A species-specific impact risk assessment was also undertaken of those bird and bat species considered to be either regular visitors or residents of the project area. Based on the known and observed flight behaviours of each species, known habitat features within the project area, independent advice received from Supersensory Technologies Pty Ltd, and with consideration to the reference turbine being utilised by YEC (section 2.2.1), three of the five species were assessed as being of low collision risk (being the Pilbara Leaf-nosed Bat, Ghost Bat, and Peregrine Falcon). While the remaining two species (Grey Falcon and Fork-tailed Swift) were considered to be at-risk of collision with turbine infrastructure, this risk was not considered to be spatially uniform, nor at a consistent level within nor between years. The complete collision risk assessment is provided at Appendix 5.

8.2.2 Potential Indirect Impacts

Potential indirect impacts on terrestrial fauna resulting from implementation of the Baru-Marnda Renewable Energy Project are anticipated to be limited to:

- Potential fauna strike with vehicles moving within, to and from the project area
- Limitations on opportunities for fauna dispersal within the project area, including between water resources and the broader landscape
- Solar arrays replicating the appearance of standing water bodies from above, thereby potentially serving as an attractant for aerial fauna (including invertebrates)
- Excavations during construction activities incidentally causing the entrapment of ground dwelling fauna
- Potential sedimentation of water resources utilised by terrestrial fauna, including from dust emissions
- Light emissions from proposed infrastructure attracting invertebrate fauna, which may in turn attract insectivorous bird and bat species
- The potential displacement of aerial fauna, including birds and bats changing flight behaviour and habitat utilisation so as to avoid wind turbine infrastructure.

In terms of the significance of potential indirect impacts on terrestrial fauna, it is noted that:

- The majority of potential indirect impacts are associated with the construction phase of the proposal, only

- There is potential to manage the implementation of the proposal in a manner which effectively minimises these potential indirect impacts.

Based on the above, potential indirect impacts on terrestrial fauna are not considered to be significant.

8.2.3 Potential Cumulative Impacts

Terrestrial fauna surveys for the Baru-Marnda Renewable Energy Project have been undertaken in a manner subsequent to, and consistent with surveys undertaken for the Jinbi Solar Facility. This has enabled a like-for-like comparison to be made of fauna habitats within each project area, as well as a quantitative, cumulative impact assessment of each project for each terrestrial fauna species relevant to both projects.

A comparison of maximum potential direct impacts on terrestrial fauna habitat is presented in Table 8-5 below.

Table 8-5: Cumulative impacts on fauna habitat within both the Jinbi Solar Facility and Baru-Marnda Renewable Energy Project

Fauna habitat	Maximum extent of potential impacts (ha)		Total cumulative impact (ha)
	Jinbi Solar Facility	Baru-Marnda Renewable Energy Project	
Bargunyji (Pilbara Olive Python) dispersal habitat	1	25	26
Yirriwardu (Northern Quoll) dispersal habitat	516.85	3,038.1	3,554.95
Grey Falcon preferred habitat	1	25	26
Grey Falcon dispersal habitat	516.85	3,005.4	3,522.25
Pilbara Leaf-nosed Bat dispersal habitat	1	25	26
Ghost Bat foraging and dispersal habitat	1	25	26

Based on the above, there are not anticipated to be any cumulative impacts on preferred habitat for either the Bargunyji (Pilbara Olive Python) or Yirriwardu (Northern Quoll). Potential cumulative impacts on preferred habitat for the Grey Falcon and dispersal habitat for the Ghost Bat and Pilbara Leaf-nosed Bat are not considered to be significant at a local or regional scale.

A review of other projects in the vicinity of the Baru-Marnda Renewable Energy Project identified three which may have the potential for direct impacts on environmental matters similar to those within the project area (section 7.2.3). Each of those projects was identified to be linear in nature, with minimal impacts to matters shared by both projects.

In terms of cumulative turbine collision impacts, YEC is aware of no other existing or proposed wind farms in the vicinity of the proposal. The nearest proposed wind farm is the East Pilbara Generation Hub, which is located approximately 215 km east of the Baru-Marnda Renewable Energy Project (although the nearest proposed turbine appears to be located approximately 80 km further east). The East Pilbara Generation Hub involves the construction of up to 200 wind turbines across a 98,772.61 ha development envelope. Each turbine will have a maximum height of 290 m (to the tip of blade) (Fortescue 2025).

Preliminary information on the potential bird and bat collision risks of the project available within the Environmental Review Document (Fortescue 2025) suggests that both the Grey Falcon and Peregrine Falcon are each at risk, indicating that there is potential for cumulative impacts on both species between each project. While these potential cumulative impacts cannot be quantified for either species at this stage, the considerable distance between the two projects suggests that any interactivity between the two sources of impact are likely to be minimal.

YEC recognises that future renewable energy projects across Yindjibarndi ngurra may have the potential to impact terrestrial fauna. Where these impacts may be significant, YEC will refer these under the EP Act and EPBC Act for consideration by the EPA and DCCEEW. It is anticipated that in assessing potential environmental impacts of these future projects, consideration will be given to potential cumulative impacts with respect to the Baru-Marnda Renewable Energy Project.

8.3 Mitigation

8.3.1 Avoidance

Generally, creek lines (comprising vegetation communities C1 through C6) are considered to represent habitat for the widest array of fauna within the project area, including for fauna species that would not otherwise be present (Bamford Consulting Ecologists 2025). With specific regard to conservation significant fauna, creek lines represent preferred habitat for the Bargunyji (Pilbara Olive Python), Yirriwardu (Northern Quoll), and Grey Falcon. Creek lines are also considered to represent the most suitable habitat for SRE fauna, given the presence of soft sandy soils, tree coverage and litter, and gullies and ridges (Bennelongia Environmental Consultants 2024; Appendix 4).

On this basis, YEC has pursued a project design which seeks to prioritise the avoidance and retention of creek lines wherever possible. However, opportunities to do so within the project area are significantly limited by the number of creek lines, their relatively uniform distribution, and significant and diverse topographic features which limit options for the placement of infrastructure. For example, approximately 15 local catchments across three regional catchments have been identified within the project area, with 11 distinct locations at the project area's boundary where surface water flows leave the site (Pentium Water 2025). Additionally, the project area's topography is dominated by hills and valleys intersected with creek lines and flood plains, with elevation ranging from approximately 140 mAHD to 340 mAHD – a difference of 200 m.

The above notwithstanding, YEC has taken every opportunity to avoid impacts to creek line habitats, where possible. For example, of the six creek line vegetation communities identified within the project area, only two (being the C1 and C6 communities) will be directly impacted. Further, the maximum extent of potential direct impacts on creek line vegetation is approximately 20.9 ha and 4.1 ha for the C1 and C6 communities respectively, representing only 1.43% and 0.85% of each community's total mapped extent.

Beyond creek line habitats, YEC has also designed the Baru-Marnda Renewable Energy Project in a manner which completely avoids all recorded caves within the project area, which may provide denning habitat for the Yirriwardu (Northern Quoll).

In terms of the potential for collision impacts on bird and bat fauna, YEC recognises that by far the most effective measure to mitigate negative impacts on birds and bats is avoidance, through the appropriate siting of wind farms (DEWHA 2009; DCCEEW 2024; Reid and Baker 2024). To this end, YEC has pursued a project design which seeks to limit to the fullest extent practicable the proximity of wind turbines to known values for bird and bat fauna. This includes:

- No wind turbine being proposed within creek line vegetation, which is favoured habitat by the Grey Falcon, Pilbara Leaf-nosed Bat, and Ghost Bat
- The implementation of minimum buffer distances of 57 m between proposed wind turbines and creek line vegetation

- A mean buffer distance of approximately 554 m between proposed wind turbines and the nearest creek line vegetation
- Buffer distances between proposed wind turbines and creek lines which are supplemented by additional, vertical clearances (turbines are predominately sited at the top of hills, away from creek lines)
- A minimum buffer distance of 4,408 m between the nearest proposed wind turbine and Ngurrawaana community, which is known to be frequented by the Grey Falcon
- A minimum buffer distance of 428 m between the nearest proposed wind turbine and any recorded cave.

As the Baru-Marnda Renewable Energy Project is further refined, YEC will continue to seek opportunities to avoid areas of greatest fauna habitat value so as to mitigate potential direct, indirect and cumulative impacts on the environment.

8.3.2 Minimisation

In addition to the avoidance measures proposed above, and in accordance with YEC's precautionary approach to the mitigation of potential environmental impacts on terrestrial fauna, YEC has developed a suite of minimisation measures to be implemented throughout the course of the Baru-Marnda Renewable Energy Project's implementation.

Most notably, YEC has pursued a project design which seeks to minimise potential indirect impacts on terrestrial fauna. For example, to address potential impacts on the dispersal opportunities of ground dwelling fauna, YEC is pursuing solar array designs which maintain appropriate distances between panel rows. ACEN Australia has successfully implemented a development design at the Stubbo Solar facility in New South Wales, where pastures retained between panel rows is of an extent which facilitates ongoing sheep grazing. It is anticipated that a similar approach taken for the Baru-Marnda Renewable Energy Project will maintain opportunities for fauna movement and habitat utilisation for species such as the Yirriwardu (Northern Quoll). Example images of Stubbo Solar during and post construction are presented in Plate 8-1 below.



Plate 8-1: ACEN Australia Stubbo Solar, New South Wales. The retention of pastures between panel rows during and post construction facilitates ongoing sheep grazing

Effective spacing between panel rows is also anticipated to serve as a means of breaking up the water-like appearance of solar arrays, thereby limiting their potential as an attractant for aerial fauna. While no specific studies on the lake effect appear to have been undertaken in the Pilbara region to-date, fragmenting the solar-active area of arrays in Europe has been observed to reduce their attractiveness to invertebrates, up to 26-fold (Horvath et al. 2010).

More broadly, and recognising that the majority of potential impacts on terrestrial fauna will be associated with the construction phase of the proposal, YEC is committed to the preparation and implementation of a project-specific CEMP, or similar. In addition to those minimum components of the CEMP identified in section 7.3.2, the CEMP will also include management provisions specifically related to terrestrial fauna, which will address:

- Fencing specifications which maintain opportunities for ground dwelling fauna passage
- Procedures for surveys, trapping, and relocation of terrestrial fauna prior to the clearing of native vegetation
- Clearing controls, including the requirement for directional clearing to allow native fauna to move into adjacent retained vegetation
- Provisions for excavations to be managed in a manner that prevents incidental fauna entrapment
- Vehicular fauna strike prevention, including limitations on the timing of clearing and speed limits within the project area
- The management of waste, to prevent the attraction of wildlife.

With specific regard to the potential for collision impacts on bird and bat fauna, and as a means of appropriately minimising these potential impacts, YEC has prepared a preliminary BBMP for the Baru-Marnda Renewable Energy Project (Appendix 5). At the core of the BBMP is an adaptive management framework which addresses the inherent uncertainties associated with collision risk, including unknown behavioural responses to renewable energy infrastructure, and potential changes to the utilisation of the project area by specific fauna (such as the Grey Falcon) over successive years.

The BBMP adaptive management approach is underpinned by a Before-After Control-Impact (BACI) monitoring framework, where site utilisation and collision data will be collected before and after the construction phase, utilising control and impact sites. The monitoring approach will also be adaptive, whereby methodologies employed will be reviewed and amended as appropriate, based on the results collected. To further guide the management approach, dedicated impact thresholds have been identified which directly relate to those fauna identified to be at potential collision risk. Where any of these impact thresholds are met, a suite of potential management responses have been identified for YEC to pursue, in accordance with the four steps of the adaptive management cycle (DoE 2016b).

In addition to the BBMP's adaptive management framework, and in accordance with YEC's precautionary approach to the mitigation of potential impacts on terrestrial fauna, consideration has also been given to the potential for light emissions to serve as an attractant for some fauna (DCCEEW 2023c). To address this, YEC is committed to pursuing a design which adheres to the dark sky lighting principles, in that all lighting to be employed on and around proposed wind turbines will be useful, targeted, low level, controlled, and warm coloured. It is understood that consistency with the dark sky lighting principles is a key policy measures applicable to development approvals, within the WAPC's *Position Statement: Dark Sky and Astrotourism* (2022).

Further information on YEC's proactive and adaptive management approach is available at Appendix 5.

8.3.3 Rehabilitation

Approximately 642.5 ha of terrestrial fauna habitat will be cleared for construction purposes only, and which is proposed to be rehabilitated at the conclusion of the construction phase. In addition, the substantial majority of remaining clearing (2,395.6 ha) will be rehabilitated during the decommissioning phase, at the conclusion of the proposal's operational life (a minimum of approximately 50 years).

Further information on YEC's decommissioning and rehabilitation approach, including the anticipated scope of a Decommissioning and Rehabilitation Plan (or similar) is provided in section 7.3.3.

8.4 Environmental Outcomes

Following the implementation of all aspects of the mitigation hierarchy (avoidance, minimisation, rehabilitation), YEC considers that the following outcomes for the terrestrial fauna environmental factor will be achieved:

- The retention of all identified caves within the project area
- The retention of all preferred habitat for the Bargunyji (Pilbara Olive Python) and Yirriwardu (Northern Quoll), as well as the most suitable habitat for SRE fauna
- The establishment of minimum buffer distances between proposed wind turbines and important terrestrial fauna habitat features, including creek line vegetation, caves, and the Ngurrawaana community
- Successful rehabilitation of the substantial majority of the indicative disturbance footprint, to a standard consistent with its pre-development land uses where possible
- Increased understanding and awareness of terrestrial fauna values across Yindjibarndi ngurra.

Through implementation of each component of the mitigation hierarchy, including the adaptive management framework proposed through the BBMP, there are not anticipated to be any significant residual impacts resulting from the proposal. It is envisaged that the above environmental outcomes can be achieved through the application of outcomes-based conditions on future environment approval/s, as well as through the application of environmental conditions on other approvals applicable to the proposal.

Based on the above, YEC is confident that the Yindjibarndi community's vision of protecting ngurra can be met.

9 Inland Waters

9.1 Receiving Environment

To support the application for Development Approval, a Water Management Report (WMR) has been developed by Pentium Water (2026). The WMR details the existing hydrological context, expected impacts, embedded avoidance and mitigation measures, and monitoring actions associated with the implementation of operations for the Baru-Marnda Renewable Energy Project. The WMR has been prepared in accordance with the following guidelines:

- State Planning Policy 2.9 Water (SPP 2.9) (WAPC 2025)
- Renewable Energy Planning Code and guidelines (WAPC 2025).

A description of the receiving environment as it relates to inland waters, and as detailed in the WMR, is provided in the following subsections.

9.1.1 Groundwater

The project area overlays the following two groundwater systems:

- A shallow Alluvial Aquifer groundwater system associated with the rivers, drainage lines and creeks that flow through the project area
- A deeper Fractured Rock Aquifer groundwater system with low permeability and storage characteristics

Both aquifer types rely heavily on rainfall for recharge. Along the ridgeline peaks within the project area, the dominant geological feature is the outcrops of basement rock. The basalt bedrock outcrops, combined with steep topography (see section 3.3) promote surface water runoff with limited infiltration capacity. Surface water from the range peaks is directed to the valley floors. Consequently, across the majority of the project area, there is limited connection to the Alluvial and Fractured Rock Aquifers. Further, any groundwater captured within either aquifer system would likely be spatially isolated (Pentium 2026).

To support the project's water supply requirements, a magneto-telluric geophysics assessment was undertaken, targeting fractured rock zones (Pentium 2026). The assessment confirmed the present of fractures and dykes at depth of 80 m below ground level or greater. This data aligns with the results of groundwater investigations undertaken to support the adjacent Jinbi Solar Facility (see section 2.5), which encountered groundwater at depths of between 70 and 80 m below ground level (Pentium 2026).

In terms of groundwater quality, analyses from three existing production bores associated with the Jinbi Solar Facility demonstrate that groundwater salinity ranges from fresh to slightly brackish. One bore recorded a moderately saline, sodium-chloride rich groundwater with elevated organic matter and manganese. The remaining two bores recorded fresher bicarbonate groundwater with generally low nutrient and trace metal concentrations (Pentium 2026).

Generally, there is considered to be limited opportunity for direct interaction between groundwater and surface water systems in the project area due to the depth to groundwater and the limited extent of the alluvial and fractured rock formations (Pentium 2026).

The project area is located within the Pilbara proclaimed groundwater area pursuant to the *Rights in Water and Irrigation Act 1914* (RIWI Act), and therefore a license is required to construct or alter a well, or to take groundwater. The project area contains three groundwater licenses approved by DWER. YEC holds two of these groundwater licenses allowing for the annual abstraction of up to 100,000 kL from the Hamersley Fractured Rock and the Pilbara Fractured Rock Aquifers. The third license is held by Pilbara Iron Company (Services) Pty Ltd, which allows for the abstraction of up to 150,000 kL per year.

9.1.2 Surface Water

The project area is located at the intersection of three catchment areas (Figure 11). In the north of the project area, surface water drains north into the Maitland River. In the east, water drains into the Harding River. In the south of the project area, surface water drains into the Fortescue River.

The surface water events within each catchment are dominated by summer rainfall associated with tropical low-pressure systems producing thunderstorms and cyclones. Each catchment is dominated by a major river system originating in rangelands (i.e., the Hammersley and Chichester Ranges) and fed by a series of ephemeral creeks and waterways (Pentium 2026). Numerous such ephemeral creeks and waterways are dispersed throughout the project area, and are easily identified through the C1 to C6 vegetation communities identified by Mattiske Consulting (2025) (Figure 6) and in Figure C of Appendix 1.

The Harding River catchment is designated as a Priority 1 Public Drinking Water Source Area (PDWSA). Priority 1 areas are defined to ensure that there is no degradation of the water source, and are declared over land where the provision of the highest quality public drinking water is the prime beneficial land use. The Harding River catchment is currently managed through the Harding Dam Water Source Protection Plan (Waters and Rivers Commission 1999), which identifies potential contaminant threats to the reserve, justifies the reserve's Priority 1 classification, and provides a series of recommendations and an implementation strategy for the reserve's management.

Pre-development flood modelling undertaken by Pentium (2026) identified maximum flood depths as being several metres in the larger creeks, and less in the smaller tributaries draining the hilly terrain and feeding into those larger creeks. Similarly, velocities in the larger creeks are generally low (<2m/s), with occasional localised areas of higher velocity. The maximum velocities in the steeper (rocky) feeder gulleys tend to be much higher (Pentium 2026). The 1% Annual Exceedance Probability (AEP) pre-development flood depths and velocities are presented in figure 10 and 11 of the Pentium (2026) WMR, respectively.

In terms of surface water quality, surface water in the Pilbara following rainfall tends to have high sediment loads, moderate salinity, and neutral to slightly alkaline pH. Water is often turbid with suspended sediment, and as flow decreases, water in pools can become more saline and stagnant. These characteristics reflect the region's arid climate and sparse vegetation, as well as the mineral-rich geology of the Pilbara (Pentium 2026).

9.2 Potential Environmental Impacts

9.2.1 Groundwater

Potential impacts on groundwater resulting from the Baru-Marnda Renewable Energy Project's implementation are anticipated to be limited to the abstraction of groundwater, only. No more than 258,000 kL annually is anticipated to be required for the construction phase of the proposal, and no more than 3,100 kL is anticipated to be required annually for the proposal's operational phase.

YEC has approval to abstract 200,000 kL/annum with the two licenses held (GWL 211498 and 211499) across the Pilbara and Hamersley Fractured Rock Aquifers. This 200,000 kL/annum allocation will underpin water demand over the 3 to 6 year construction period. The key drivers of water demand during the construction phase include concrete batching and dust control.

As a component of the WMR (Pentium 2026), 33 indicative locations for the establishment of production bores have been identified within the project area. The number of potential production bore locations is a product of the generally low porosity of bedrock formations with limited zones of fractured rock, and low anticipated yield per bore. The indicative locations of these production bores are illustrated in figure 14 of the WMR (Pentium 2026).

9.2.2 Surface Water

Potential impacts on surface water values are primarily associated with the time-limited construction phase of the project, and specifically the following activities (Pentium 2026):

- Land clearing and creation of borrow pits
- Construction of access roads including creek and waterway crossings
- The installation of temporary infrastructure including concrete batching plants, bulk material stockpiles and laydown areas
- Construction of Power line and BESS infrastructure
- Spillage of hydrocarbons and other chemicals handled or transported on site
- The installation of flood and sediment control management measures, i.e. bunds, diversion drains and sediment ponds.

Fewer activities with the potential for impacts on surface water values are anticipated during the operational phase of the project, however these may include (Pentium 2026):

- The storage, handling and transporting of hydrocarbons and other chemicals on-site
- Reinstatement of flood and sediment control management measures
- Vehicle wash-down.

The above activities are considered to have the potential to result in the following impacts on surface water values (Pentium 2026):

- Alteration of surface water volume and flow regimes
- Erosion of exposed surfaces by wind, water and construction activities generating sediment loads in surface water runoff flows
- The loss of riparian vegetation, including GDE's and habitat for native fauna
- Reduction in surface water quality through the release of sediment or contaminated material / hydrocarbon or chemicals to nearby surface water environments
- Discharge of water and wash-off of sediments into surrounding waterways and creek environments

9.2.3 Potential Cumulative Impacts

Given the isolated nature of groundwater resources within the project area (i.e. fractured rock), there are not anticipated to be any successive, incremental, or interactive impacts on groundwater between the Baru-Marnda Renewable Energy Project and any other existing or proposed project in the vicinity. Notwithstanding, an assessment of potential cumulative impacts on inland waters between the Baru-Marnda Renewable Energy Project and the Jinbi Solar Facility has been undertaken in recognition of the two-project's immediate proximity, and YEC's existing approved water licenses.

In terms of the Jinbi Solar Facility, it is anticipated that no more than 100,000 kL of groundwater will be required for the construction phase of that project per year, and no more than 2,000 kL per year will be required for ongoing operations. This compares to no more than 258,000 kL per year for the construction phase of the Baru-Marnda Renewable Energy Project, and no more than 3,100 kL per year during the operational phase. Cumulatively, this equates to approximately 358,000 kL annually during construction, and approximately 5,100 kL annually during operations. It should be recognised though that the timing of construction for both projects is unlikely to coincide, and that as a result water abstraction for the two projects is likely to be staggered, over time.

9.3 Mitigation

9.3.1 Groundwater

To mitigate the potential impacts of groundwater abstraction on inland waters values, the following optimisation criteria were applied when identifying indicative locations for the establishment of production bores (Pentium 2026):

- Avoiding all semi-permanent or permanent pools, creeks and rivers
- Avoiding all GDE's with the establishment of a minimum buffer to the GDE's of 500 m or 1,700 m depending on the anticipated water drawdown. Noting the groundwater subject to abstraction is located over 70 m below ground level and is therefore disconnected from the water supplying the GDE's.

It is also anticipated that the staged construction of the proposal will serve to minimise the volume of water required, each year.

It should be noted that all proposed future production bores will be subject to a DWER approved 26D license approving the construction of a bore under the RIWI Act.

9.3.2 Surface Water

The following actions are proposed to mitigate potential impacts on surface water values resulting from the proposal:

- All power infrastructure support poles are to be located outside the 1% AEP creek flood areas
- The proposed wind and solar infrastructure areas will only be located in areas that are culturally, socially and environmentally acceptable to YAC and YNAC
- Co-location of linear infrastructure where possible, to minimise the number and extent of creek line crossings required
- Construct stormwater infrastructure including bunding and sedimentation basis to:
  - Divert surface water flows around high-risk activities such as concrete batching plants, wind turbines and solar farms
  - Capture and treat dirty water run-off prior to release downstream
- The modification of creeks or waterways through new or upgraded road crossings will be subject to application/s to interfere with Bed and Banks pursuant to the RIWI Act
- A key focus of future Bed and Banks applications and assessments will be the following elements:
  - Demonstrating the maintenance of pre-development surface water flows
  - The protection of riparian vegetation
  - Sediment and erosion controls during the construction phase
- Rehabilitation of approximately 642.5 ha following the construction phase
- Rehabilitation of the substantial remainder of the indicative disturbance footprint during the project's decommissioning phase
- All rehabilitation being undertaken with the aim of returning land to its pre-development uses where possible.

The following actions are proposed to mitigate potential impacts on the Harding Dam Water Catchment Area, specifically:

- No incompatible land uses are proposed within the mapped PDWSA pursuant to Water Quality Protection Note 25
- All power infrastructure support poles are to be located outside the 1% AEP creek flood areas
- Concrete batching plans, fuel storage and refuelling areas, and laydown areas will be located a minimum of 500 m from any creek or waterway
- Borrow pits will be located and designed to minimise interference and disruption of natural surface water flows and any potential downstream impacts to surface water dependent systems.

To verify that the proposed surface water management actions effectively prevent excessive surface water runoff rates, post-development flood modelling was undertaken as a component of the WMP (Pentium 2026). Key observations from the modelling include:

- No significant flooding risk is observed post-development, with major flows confined the existing water ways and creek lines
- Maximum flood depths and flow velocities align with those modelled for the project area, pre-development
- Proposed bunding around the solar farms situated adjacent to creeks and waterways results in a minor and localised increase in peak flow velocity downstream. This slight escalation diminishes within less than 500 m downstream, aligning with pre-development flow conditions.
- Maximum velocities are contained within the steeper (rocky) feeder gulleys. This outcome matches the pre-development hydraulic gradient

Overall, the post-development modelling confirms that, with the implementation of the proposed surface water management measures, the stormwater peak runoff rates align with the pre-development peak runoff rates.

Post-dev elopement 1% AEP maximum flood depth and velocities are illustrated in figures 12 and 13 of the WMP.

9.4 Environmental Outcomes

Following implementation of all aspects of the mitigation hierarchy (avoidance, minimisation, and rehabilitation), YEC considers that the following outcomes for the inland waters environmental factor will be achieved:

- Existing seasonal water flows along waterways and creek lines towards major river systems and the Harding Dam within and downgradient of the project area shall be preserved. Surface water flow will follow the pre-existing waterways and creeks and consequently will continue to sustain:
  - Riparian vegetation and GDEs:
    - The creek line vegetation communities
    - Riparian Flora and Plant Communities PEC (P2)
    - Cracking Clays of the Chichester and Mungaroona Range PEC (P1).
- Aquifers:
  - Replenish semi-permanent and permanent pools and the adjacent alluvial aquifers.
  - Sustain and replenish water within the deeper fractured rock aquifer.
- Harding Dam catchment:
  - Surface water flows along creek lines and waterways towards the Harding Dam remain unaltered. The flow volumes across the Harding Dam catchment remain unaltered.

- Implementation of effective management measures will be employed to mitigate the impacts, including the management of flood events, scouring and sediment during the construction and operational phases.
- Surface and groundwater quality will be monitored and managed to prevent significant impacts to the following water features:
  - Riparian vegetation, GDEs and PECs
  - Harding Dam Catchment (Priority 1) PDSWA
  - Alluvial and Fractured Rock Aquifers.

Through implementation of each component of the mitigation hierarchy, there are not anticipated to be any significant residual impacts resulting from the proposal. It is envisaged that the above environmental outcomes can be achieved through the application of outcome-based conditions on future environmental approval/s, as well as through the application of environmental conditions on other approvals applicable to the proposal (including Beds and Banks Permits and Water Licenses under the RIWI Act).

Based on the above, YEC is confident that the Yindjibarndi Community's vision of protecting ngurra, can be achieved.

10 Social Surroundings

In Western Australia, there is no standalone legislative requirement or express provision for undertaking social impact assessment. Section 4.2.1 notes that the environmental assessment of a proposal is undertaken in accordance with Part IV Division 1 of the EP Act and the *Environmental Impact Assessment Practice Guide: Assessment of Proposals in Western Australia under Part IV of the Environmental Protection Act 1986* (EPA 2025) under which the term environment includes reference to:

…living things, their physical, biological and social surroundings, and interactions between all of these (Section 3(1) of the EP Act).

In the absence of a prescribed approach to social impact assessment within Western Australia, YEC is guided by the following international best practice guidelines:

- The International Association for Impact Assessment (IAIA) (Vanclay, 2003).
- New South Wales Department of Planning and Environment's Social Impact Assessment Guidelines

YEC has commissioned a preliminary social risk analysis for its operations in the Pilbara, specifically focusing on the Jinbi Solar Facility and the Baru-Marnda Renewable Energy Project. This study aims to enhance YEC's understanding of the community context and social locality through socio-economic profiling. The study will comprise identification of key stakeholders through stakeholder mapping, preliminary assessment of social impacts, opportunities, risks, and potential conflicts, and the subsequent identification of any gaps in YEC's current approach regarding social considerations.

Detailed social impact assessment and management planning informed by robust, ongoing stakeholder and community engagement will be undertaken as YEC's projects progress.

10.1 Receiving Environment

10.1.1 Yindjibarndi Cultural Heritage

The Baru-Marnda Renewable Energy Project is located on Yindjibarndi Ngurra, on land where Yindjibarndi People hold exclusive possession native title rights and interests. Yindjibarndi Elders have always specified that all Yindjibarndi ngurra is significant, important and integrally linked, and that Yindjibarndi are concerned with the management of all Ngurra, not just areas containing identified heritage sites (Echoes 2025). YEC recognises that the Yindjibarndi people are the primary source of information with regards to the values of their heritage, and is therefore committed to understanding the cultural heritage values within the project area through direct and ongoing consultation with Yindjibarndi people through their representative organisations YAC and YNAC.

To this end, YEC is currently in the process of undertaking detailed heritage surveys across the project area in collaboration with Yindjibarndi representatives and in accordance with the ILUA and Heritage Protection Agreement. The surveys are being carried out with a view to informing final siting of proposed infrastructure and potential mitigation measures that could be employed by YEC to ensure that potential impacts on cultural heritage are mitigated to the fullest extent practicable.

In terms of sites that have been reported as possible Aboriginal heritage sites pursuant to the *Aboriginal Heritage Act 1972* (AH Act), the following are located within the project area (Table 10-1; Figure 12):

Table 10-1: Registered and Lodged ABoriginal Heritage Sites within the Project Area

Site Name (ID No.)	Registered / Lodged Site	Place type
Portland River Tributary 2 (6892)	Registered	Artefacts / Scatter; Quarry
Powerline Survey 080 (10940)	Registered	Artefacts / Scatter
Powerline Survey 081 (10941)	Registered	Artefacts / Scatter
Powerline Survey 087 (10894)	Registered	Quarry
Portland River Tributary 1 (6891)	Lodged	Artefacts / Scatter
Powerline Survey 079 (10938)	Lodged	Artefacts / Scatter
Powerline Survey 083 (10939)	Lodged	Artefacts / Scatter
Munni Munni 5/2001 (18993)	Lodged	Engraving

10.1.1.1 Gurdi – Western Pebble-Mound Mouse

The Gurdi is a Priority 4 species as listed by the DBCA which lives in groups in burrows surrounded by mounds of pebbles. Mounds are typically found on low gravelly and stony rises. Within the project area, the Capricorn land system of undulating sandstone hills is considered to be suitable for this species (Bamford Consulting Ecologists 2025; Figure 2).

The Gurdi is of particular significance to the Yindjibarndi, with a continuing reciprocal relationship of responsibility. The following was provided on the Gurdi by YNAC to Echoes Cultural Heritage Management, as a part of the development of a dedicated Cultural Heritage Management Plan for the Jinbi project (Echoes 2025):

> *'The Pebble Mouse "is only a little fella but he has a big name in the Burndud (Law)" (Thomas Jacobs, statement made 07/03/11). Gurdi is sung in the Burndud which is the ancient Yindjibarndi song cycle sung every year. The words are:*
>
> *Gurdi thulma*
>
> *thulma Gurdi*
>
> *wirri thalayi*
>
> *Gurdi thulma*
>
> *thulma*
>
> *Mouse awareness in the*
>
> *eyes Mouse moving in the*
>
> *night Mouse awareness in*
>
> *the eyes*
>
> *In the Ngurra Nyjunggamu times (when the world was soft) Gurdi was travelling through the Yindjibarndi country, and as Gurdi travelled he heard the passionate singing of the Gurdi Burndud song. Gurdi was attracted and captivated by the song and now Gurdi is everywhere in the Yindjibarndi country making his home. The Yindjibarndi sing this Gurdi Burndud every year in the Burndud song cycle when young boys are put through Yindjibarndi Birdarra Law.*

While rarely recognised as registered sites under the AH Act, the Yindjibarndi have expressed to YEC the desire for the pebble mounds created by the Gurdi (known as Gurdi Maya) to be managed for their cultural heritage, and YEC is obligated through the HPA to do so. Accordingly, the identification and assessment of Gurdi Maya within the project area will be undertaken as a component of the cultural heritage surveys currently underway, consistent with the approach taken for the Jinbi Project (Plate 10-1).



Plate 10-1: Example of an active Gurdi Maya with Yindjibarndi representative Curtis Lockyer (2025)

10.1.2 Noise

Implementation of the Baru-Marnda Renewable Energy Project has the potential to result in noise emissions during the project's construction and operational phases. To understand the significance of these emissions and their potential for environmental impact(s), YEC commissioned a dedicated noise impact assessment for the project. The noise impact assessment was undertaken by Sonus (2025a, 2025b), and considered the now superseded proposal layout as it was originally referred to the EPA in 2025. The assessment included:

- Background noise monitoring, including:
  - The identification of noise sensitive receptors where the predicted noise level exceeds or approaches 35 A-weighted decibels (dB[A]), and the corresponding establishment of noise receivers at these locations
  - The establishment of a weather monitoring device
  - A six week (minimum background noise monitoring program

- Noise modelling, including:
  - Predictions of both construction and operational noise
  - The plotting of noise contours over aerial imagery to spatially define predicted noise emissions
  - Identification of any potential for non-compliance with relevant legislation, guidelines, and standards.

The Noise Impact Assessment determined that the predicted noise level for the operation of wind turbines in a worst-case scenario is between 20 and 33 dB(A) at the nearest sensitive receptor (Ngurrawaana community), which is less than the criterion of 35 dB(A) set in the applicable guidelines. Additionally, construction related traffic noise during peak hour was also predicted to be less than 20dB(A) at the Ngurrawaana community, which is less than the 55 and 50 dB(A) day and night criteria by which local residences are affected by noise from new local road corridors. No other project component was considered to have the potential for noise emissions at or near relevant criteria for a significant impact. Overall, it was determined that implementation of the Baru-Marnda Renewable Energy Project will comply with all of the relevant acoustic requirements (Sonus 2025a, 2025b).

To inform the assessment of the project under the EP Act, the EPA requested additional information on the proposal's potential noise emissions, the significance of impacts from these emissions on noise sensitive premises, and the measures to be undertaken to mitigate these impacts. YEC is currently in the process of undertaking the necessary additional works to respond to this request.

YEC will also continue to engage with the Ngurrawaana community, YAC, and YNAC on the potential for noise impacts resulting from the proposal. YEC will also continue to seek opportunities for the implementation of noise management and monitoring actions, such that the potential for noise-related environmental impacts is mitigated to the fullest extent practicable.

10.1.3 Visual Amenity

Implementation of the Baru-Marnda Renewable Energy Project has the potential to impact the visual amenity of the project area and immediate surrounds during the construction, operation and decommissioning phases. To understand the existing landscape character of the area, and to identify and assess the significance of these potential visual impacts, YEC commissioned a dedicated Landscape and Visual Impact Assessment for the proposal.

The visual impact assessment was undertaken by visual impact specialists Ecoscape (2025), and in accordance with the Western Australian Planning Commission (WAPC's) *Visual Landscape Planning in Western Australia: A manual for evaluation, assessment, siting and design* (WAPC 2007). The assessment considered the now superseded proposal layout as it was originally referred to the EPA in 2025, and includes:

- The identification of key view locations within and in proximity to the project area, and their current view experience and landscape values
- The identification of Visual Management Objectives for the proposal, as well as the development of appropriate strategies for achieving these objectives based on view experience, viewer sensitivity, and landscape values
- A Visual Impact Analysis, comprising the development of viewsheds and photo montages from key viewpoints to illustrate and describe visibility
- Contextualisation of potential visual impacts in the context of landscape values, viewer sensitivity, and the visual management objectives
- The development of mitigation measures which could be implemented to effectively address protection impacts on the visual amenity of the area.

Seven visual receptors were identified within and in proximity to the project area, across which 35 view locations were chosen for the visual impact assessment, and 11 for photo montages. These receptors are:

- Manuwarra Red Dog Highway
- Millstream Road
- Roebourne-Wittenoom Road
- Ngurrawaana Community
- Ngurrawaana Access Track
- Jinbi Springs
- Radio Hill.

Generally, the visual impact assessment determined that impacts to Landscape Character and the identified Landscape Values are expected to be minimal, due to the proposal's location away from most view locations (typically 6.5 km). However, wind turbines were identified to be highly visible from the Ngurrawaana community, where these appear in the mid-ground. On this basis, the Ngurrawaana community was the only view location assessed as having a 'Level 1' visual impact level, in that the significance of impacts are potentially of national/state significance (Ecoscape 2025).

To inform the assessment of the project under the EP Act, the EPA requested additional information on the proposal's potential visual amenity impacts, and the measures to be undertaken to mitigate these impacts. YEC is currently in the process of undertaking the necessary additional works to respond to this request.

In accordance with YEC's commitment to undertaking engagement that is respectful, inclusive and meaningful, and on the recommendations of the visual impact assessment, the acceptability of visual impacts on the Ngurrawaana community will be discussed directly with Ngurrawaana community, YAC and YNAC. Based on the outcomes of this engagement, and recognising that YEC will not develop a project in areas that are culturally, socially, or environmentally not acceptable to YAC and YNAC, YEC will seek to refine the proposal where appropriate and identify mitigation measures which can be employed to ensure the proposal does not result in any significant harm to the visual amenity of the area.

10.2 Potential Environmental Impacts

10.2.1 Potential Direct Impacts

Potential direct impacts on social surroundings resulting from implementation of the Baru-Marnda Renewable Energy Project could include:

- Disturbance to Registered, Lodged, and/or yet-to-be-identified Aboriginal Cultural Heritage sites
- The clearing of culturally significant flora and/or ecological communities (see section 7.2.1)
- The loss of culturally significant fauna and/or the clearing of habitat for culturally significant fauna (see section 8.2.1)
- The abstraction of culturally significant groundwater (see section 9)
- Disturbance to culturally significant creek lines (see section 9).

10.2.2 Potential Indirect Impacts

Potential indirect impacts on social surroundings resulting from implementation of the Baru-Marnda Renewable Energy Project could include:

- Dust emissions which could potentially impact amenity and/or cultural heritage
- Noise emissions from construction, operation and decommissioning activities, which could potentially impact amenity and/or cultural heritage

- Changes to the visual amenity of the project area and surrounds, including the Ngurrawaana community.

10.3 Mitigation

10.3.1 Avoidance

Yiyangu Pty Ltd as an equity owner of YEC has agreed it will consult with YAC and YNAC in relation to the proposed location of renewable energy projects (including the Baru-Marnda Renewable Energy Project), and that it will not develop a project in areas that are culturally, socially, or environmentally not acceptable to YAC and YNAC. Yiyangu Pty Ltd has also agreed to not carry out any activities for a renewable energy project without first complying with the ILUA and Heritage Protection Agreement established between these parties.

Yiyangu Pty Ltd requested that YAC and YNAC consider whether the proposed location for the Baru-Marnda Renewable Energy Project (i.e the project area) is culturally, socially and environmentally acceptable to YAC and YNAC. YAC and YNAC subsequently resolved that, subject to detailed cultural heritage surveys being completed, the project area is a location which is culturally, socially and environmentally acceptable to YAC and YNAC.

Where places and objects of cultural significance are identified in the course of heritage surveys, no disturbance to these sites will occur without the express consent of YAC and YNAC. In terms of the Gurdi (Western Pebble-mound Mouse), the Yindjibarndi have previously requested (in the context of the Jinbi Solar Facility) that a 10 m buffer be applied to any Gurdi Maya (pebble mound) recorded in the course of heritage surveys. Where disturbance to Gurdi Maya is avoided at the request of YAC and YNAC, then YEC will also seek to apply appropriate buffers to these sites on the advice of YAC and YNAC, so as to mitigate potential indirect impacts.

To proactively mitigate potential noise and visual impacts on the Ngurrawaana community, YEC has chosen to pursue a development design which establishes a 4,408 m buffer between the community, and any proposed turbine. Further, since the proposal was initially referred to the EPA in 2025, two potential solar areas in closest proximity to the Ngurrawaana community have been removed from the proposal.

With specific regard to the construction phase of development, YEC will ensure that the majority of vehicles accessing the project area will do so without going through Ngurrawaana community – instead utilising the more northern route which provides access to the project area directly from Warlu Road/Manuwarra Red Dog Highway (Figure 1).

10.3.2 Minimisation

To ensure the promotion, preservation and management of Yindjibarndi cultural heritage within and in the vicinity of the project area, YEC are committed to the preparation and implementation of a project-specific Cultural Heritage Management Plan (CHMP). The CHMP will be prepared in a manner consistent with the ILUA and associated Heritage Protection Agreement, and will be informed and based on detailed heritage surveys undertaken across the project area. It is envisaged that the CHMP will be a collaborative document between YEC and YAC/YNAC, which will be continually updated for the duration of its implementation based on ongoing consultation with Yindjibarndi representatives.

The CHMP will seek to address both intangible and tangible heritage and notions of Aboriginal cultural heritage that captures the rights and responsibility of Yindjibarndi People to care for their own heritage, exercise responsibility for ngurra and transmit cultural practices to new generations. The CHMP will include, at minimum:

- Clearly stated purpose and objectives
- An overview of the plan's legislative framework and policy context

- Identification of those parties accountable to the CHMP, their roles, and responsibilities
- Description of the consultative process and outcomes of consultation
- Summary of heritage surveys undertaken, including their scope and results
- Heritage management actions, which may include:
  - Methodology for the demarcation of sites (including flagging, fencing and/or signage)
  - Inductions and cultural awareness training developed and delivered by the Yindjibarndi people
- The recording and/or monitoring of cultural heritage sites
- Cultural heritage site salvage, where appropriate
- An approach toward the management of areas which have not yet been subject to detailed heritage surveys
- Procedures for the discovery of new heritage sites, including the discovery of human remains.
  - Requirements for ongoing monitoring
  - Provisions of an adaptive management approach, and review of the CHMP.

YEC considers the promotion, preservation and management of Yindjibarndi cultural heritage, in accordance with the CHMP, will be a primary success factor for the Baru-Marnda Renewable Energy Project, the future of the partnership, and the future of additional renewable energy projects on Yindjibarndi ngurra.

10.4 Outcomes

Following the implementation of all aspects of the mitigation hierarchy, YEC considers that the following outcomes for the social surroundings environmental factor will be achieved:

- The creation of a profitable and sustainable community owned commercial business that protects country, builds a stronger community, and respects culture
- The facilitation of cultural knowledge building and intellectual property of Yindjibarndi ngurra, through Yindjibarndi participation in assessments and studies
- An enhanced understanding by YEC of the community context and social locality of the proposal
- No disturbance to Yindjibarndi Cultural Heritage without the express consent of YAC and/or YNAC
- The management of both tangible and intangible heritage and notions of Aboriginal cultural heritage that captures the rights and responsibility of Yindjibarndi People to care for their own heritage, exercise responsibility for ngurra and transmit cultural practices to new generations.

YEC continues to proactively engage with the Yindjibarndi community through YAC and YNAC on the potential significance of impacts on cultural heritage values and social surroundings more broadly, while also striving to ensure that the Baru-Marnda Renewable Energy Project is implemented in a manner which is socially, environmentally, and culturally acceptable to YAC and YNAC.

11 Other Environmental Matters

11.1 Subterranean Fauna

Subterranean fauna are defined as fauna which live their entire lives below the surface of the earth (EPA 2016d). They are divided into the following two groups:

- Troglofauna: Air breathing and living in caves and voids
- Stygofauna: Aquatic and living in groundwater

The presence of subterranean fauna within a given site is strongly linked to geology and hydrology, and the availability of suitable microhabitats such as pores or voids in the earth that allow air or water to be present. Conducive geology types for subterranean fauna include calcretes, alluvial formations, fractured rock aquifers, karst limestone, channel iron deposits, banded iron formations, alluvium/colluviums in valley-fill areas, and weathered or fractured sandstone. Of the above, only fractured rock aquifers are considered likely to be present within the project area, which may represent habitat for stygofauna.

The prevalence of stygofauna within the project area and broader area is largely unknown, however stygofauna species habitat is typically related to the local water quality (Pentium Water 2025). Given the regional water quality is likely to be very similar, the species potentially encountered are likely to be similar everywhere (Pentium Water 2025). The risk of encountering unusual stygofauna species within the project area is considered to be low. Notwithstanding, the abstraction of 258 ML per annum during construction, and 3.1 ML per annum during ongoing operations has the potential to impact stygofauna habitat within the project area.

YEC understands that the success rate of water bores within fractured rock aquifers can be as low as 24% (Pentium Water 2025). Therefore, the ultimate number of required wells and their respective locations within the project area are difficult to predict. Notwithstanding, as a means of avoiding potential impacts on subterranean fauna values associated with groundwater abstraction, YEC will seek to prioritise the construction of wells away from sensitive areas such as the Harding Dam PDWSA and creek line vegetation, particularly the C2, C3 and C4 vegetation communities which are considered to correspond with GDEs and the Riparian Flora PEC. On this basis, potential impacts on subterranean fauna are not anticipated to be significant.

11.2 Greenhouse Gas Emissions

Greenhouse Gases (GHGs) correspond to the seven categories of gases covered by the United Nations Framework Convention on Climate Change Reporting Guidelines on Annual Inventories. These gases are carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), sulphur hexafluoride (SF6), hydro fluorocarbons (HFCs), perfluorocarbons (PFCs) and nitrogen trifluoride (NF3). The established links between cumulative sources of GHG emissions, risk of climate change, and impacts on the Western Australian environment from a warming climate are recognised by the EPA in the *Environmental Factor Guideline: Greenhouse Gas Emissions* (EPA 2023c). GHG emissions are considered by the EPA in the context of either Scope 1, 2, or 3 emissions, which are:

- Scope 1 GHG emissions: those released to the atmosphere as a direct result of an activity or a series of activities, which are part of a proposal being considered by the EPA
- Scope 2 GHG emissions: those from the independent consumption of an energy product by the proposal. The EPA acknowledges that scope 2 emissions from a proposal are also the scope 1 emissions from an independent energy proposal. However, scope 2 emissions are relevant to the consideration of a proposal because the proponent has control over its choice of independent energy quantity and source
- Scope 3 GHG emissions: those which are indirect emissions other than scope 2 emissions that are generated in the wider community. Scope 3 emissions (both upstream and downstream) occur as a

consequence of the activities of a proposal, but from sources not owned or controlled by the proponent as part of the proposal.

At a federal level, Australia's highest GHG emitting facilities (>100,000 tonnes of CO2 equivalent per year [t CO2e]) are required to reduce their emissions in line with Australia's emissions reduction targets of 43% below 2005 levels by 2030 and net zero by 2050, under the *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015.* Legislated limits on the GHG emissions of these facilities, known as baselines, will decline predictably and gradually to net zero by 2050. For the electricity sector, a single sectoral baseline is applied across all electricity generators connected to one of Australia's main electricity grids, such as the NWIS. Individual electricity generators are not covered as long as total emissions from grid-connected electricity generators do not exceed the sectoral baseline, which is 198 million t CO2e emissions per year. In 2022-23, total reported scope 1 emissions from grid-connected generators were 137.2 million t CO2e emissions (Clean Energy Regulator 2024).

11.2.1 Potential environmental impacts

Implementation of the Baru-Marnda Renewable Energy Project has the potential to cause scope 1 and scope 3 GHG emissions only. No scope 2 emissions are anticipated as a result of the proposal, given the project will be entirely self-sufficient in electricity needs. Estimates of scope 1 and 3 emissions are provided in Table 11-1 below.

Table 11-1: Proposal Greenhouse Gas Emissions Estimates

Proposal Element	Estimated emissions	Source
Scope 1		
Native vegetation clearing	263,516 t CO2e	Assumes an emission factor of 110 t CO2e per ha, based on the methodology provided within Transport Authorities Greenhouse Group (2013). Only long-term clearing has been considered in this estimate.
Scope 3		
Turbine lifecycle emissions	45,411.84 t CO2e per annum	Assumes 6.4 g CO2e per Kilowatt hour (kWh)
Solar PV lifecycle emissions	25,185 t CO2e per annum	Assumes 23 g CO2e per kWh for a 25% capacity solar farm, as taken from similar regional infrastructure (Woodside Energy 2023).

11.2.2 Environmental Outcomes

Scope 1 GHG emissions from the proposal are insignificant, and estimated to be substantially lower than the 100,000 t CO2e per annum threshold for consideration stipulated within the GHG Emissions Environmental Factor Guidelines (EPA 2023c).

Overall, the proposal is anticipated to have a net benefit to the environment through the generation of renewable energy, which would otherwise have been generated through the burning of fossil fuels. The NWIS is currently almost exclusively powered through open-cycle gas turbines, and as of 2023 had a scope 2 emissions intensity of 620 g CO2e per kWh (DCCEEW 2023a). Assuming the NWIS maintains this level of emissions intensity, and factoring in the proposal's anticipated scope 1 emissions, the proposal's combined wind and solar energy generating potential of 1,310 MWac could therefore be expected to **avoid the**

emission of approximately 6,706,521 t CO2e per year. The Baru-Marnda Renewable Energy Project therefore represents the potential for significant and quantifiable action toward achieving the State and Federal Government's targets of net zero emissions by 2050.

11.3 Offsets

Environmental offsets are actions to address the environmental impacts of a development or activity which are considered to be significant following application of the mitigation hierarchy (avoid, minimise, rehabilitate) (GoWA 2014). Plate 11-1 illustrates how the mitigation hierarchy is applied to reduce the residual impact before its significance is assessed in order to determine whether an offset is required.

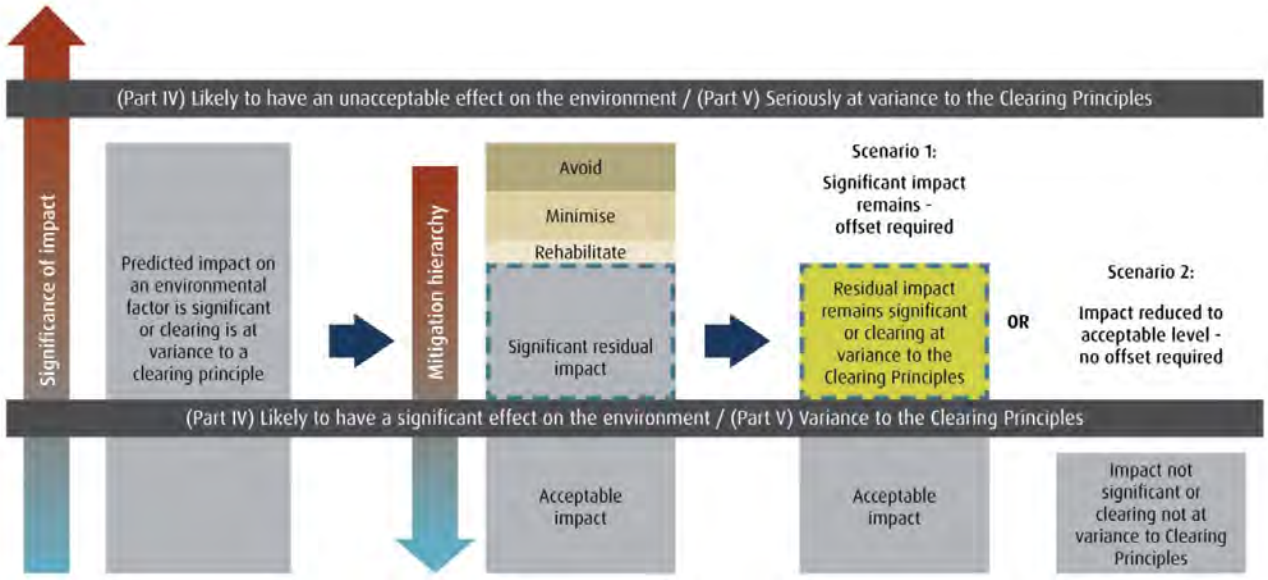


Plate 11-1: Mitigation Hierarchy. Taken from WA Environmental Offsets Guidelines (GoWA 2014)

Yindjibarndi Energy Corporation proposes to employ all three mitigation approaches to ensure that the significance of any residual impacts is as low as is reasonably practicable.

In considering the information presented in the proposal's referral under the EP Act, the EPA advised that, despite the commitment to rehabilitate temporary disturbance areas following construction, there may still be a significant residual impact resulting from the proposal. The EPA therefore requested that YEC undertake the necessary additional works to identify and quantify any significant residual impacts on flora and vegetation and terrestrial fauna values which may result from the proposal, and determine suitable offsets if significant residual impacts are identified. This may include contributions to the Pilbara Environmental Offset Fund and/or design and funding of research, revegetation or rehabilitation project/s that would contribute to improved environmental outcomes.

It is anticipated that the additional information YEC provides to the EPA on the requirement for and nature of environmental offsets will be subject detailed assessment and public review through the Part IV EP Act and EPBC Act processes.

12 Holistic Impact Assessment

Holistic impact assessment considers the connection and interactions of the impacts of a proposal, and the overall impact of the proposal on the environment as a whole. In undertaking a holistic impact assessment for the Baru-Marnda Renewable Energy Project, consideration has been given to whether the combination of the environmental effect of two or more environmental factors has the potential to result in a significant impact.

Preliminary key environmental factors identified for the Baru-Marnda Renewable Energy Project have been identified as:

- Flora and Vegetation
- Terrestrial Fauna
- Inland Waters
- Subterranean Fauna
- Social Surroundings

Other environmental factors considered relevant to the proposal but not at risk of significant impacts have been identified as:

- GHG Emissions

The potential connections and interactions between these environmental factors are illustrated in Plate 12-1 below, with an assessment of their potential environmental effects, the proposed mitigation approach, and anticipated environmental outcomes provided in Table 12-1 overleaf.

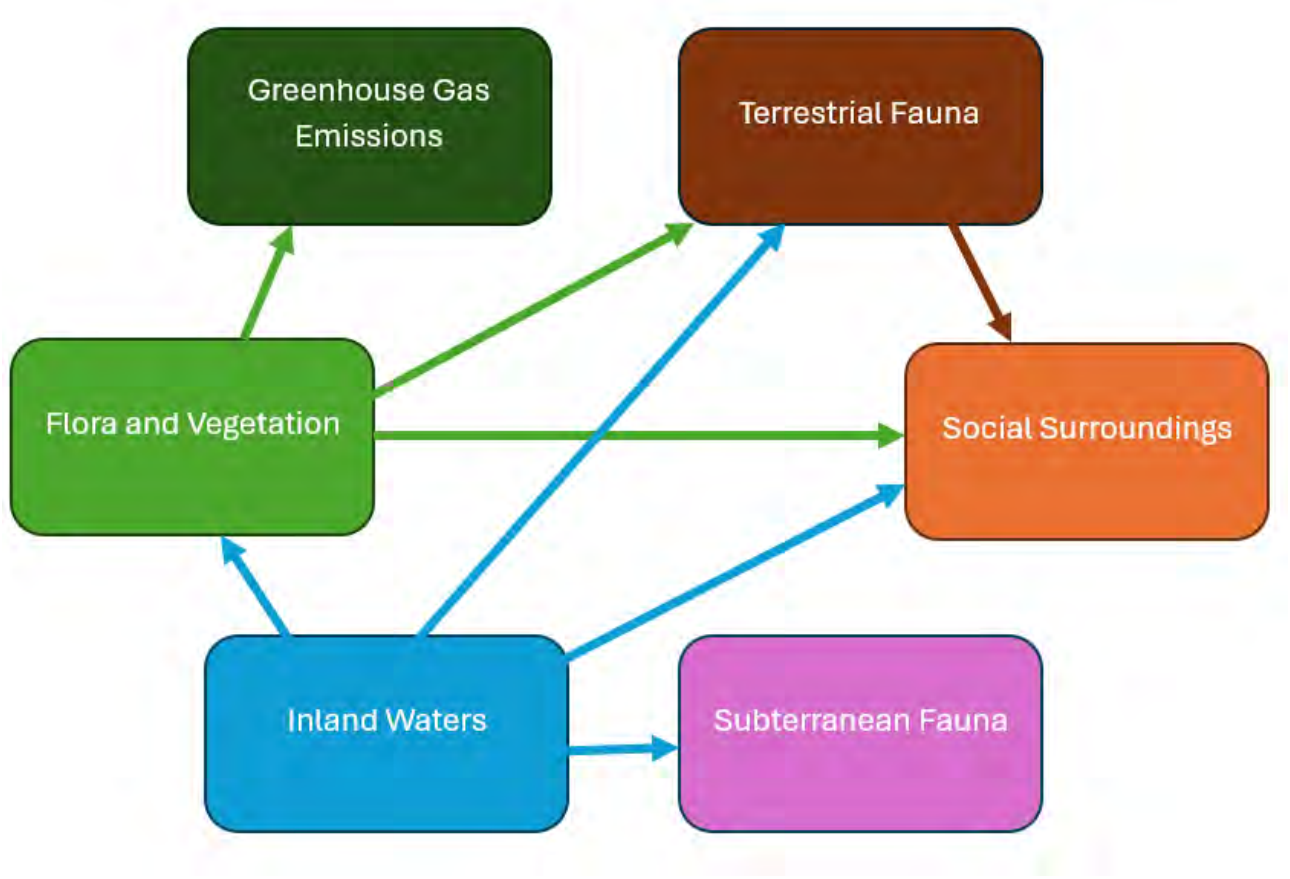


Plate 12-1: Holistic interactions between environmental factors associated with the proposal

Table 12-1: Holistic Impact Assessment of Potentially Interacting Environmental Factors

Environmental Factor	Interacting Environmental Factor	Nature of Interaction and Potential Impacts	Mitigation	Environmental Outcome
Flora and Vegetation	Greenhouse Gas Emissions	The clearing of native vegetation will cause the loss of soil carbon. Assuming an emission factor of 110 t CO_2e per ha, the long term clearing of 2,395.6 ha will result in an estimated emission of 263,516 t CO_2e.	The majority of native vegetation clearing will be undertaken across Hummock Grasslands (vegetation communities G1 and S1; Table 7-3) which have an emissions factor of 110 t CO_2e. This compares to the higher emissions factors of other vegetation communities within the project area which YEC has strategically avoided, including open shrubland (vegetation community S2) which have an emissions factor of 113 t CO_2e, and open woodland (vegetation communities W1, W2, and W3) which can have an emissions factor of up to 307 t CO_2e (Transport Authorities Greenhouse Group 2013).	Scope 1 GHG emissions from the proposal are insignificant, and estimated to be substantially lower than the 100,000 t CO_2e per annum threshold stipulated by the EPA (2023c). Holistically, the proposal is anticipated to have a net benefit to the environment through the generation of renewable energy, which would otherwise have been generated through the burning of fossil fuels.
	Terrestrial Fauna	Native vegetation within the project area represents habitat for native terrestrial fauna. The clearing of native vegetation may result in impacts on fauna distribution and abundance throughout the project area.	• Native vegetation which provides the highest value habitat for native fauna (including creek lines and surface water expressions) will be avoided to the fullest extent practicable. • A comprehensive fauna survey and relocation program will be undertaken by suitably qualified ecologists prior to clearing commencing • Site utilisation by native fauna will be the subject of ongoing monitoring, which will inform YEC's adaptive management approach to the proposal's ongoing operations. • Solar energy infrastructure will be constructed in such a way as to facilitate terrestrial fauna dispersal and site utilisation between panels.	Based on the extent and quality of retained habitat within the project area and YEC's commitment to the implementation of impact mitigation measures prior to, during and post construction, potential impacts on terrestrial fauna as a result of native vegetation clearing are not anticipated to be significant at a local or regional scale.
	Social Surroundings	All species of plants are considered to have cultural significance to Yindjibarndi people. While not every species may have a direct use (such as through clothing or food), the Yindjibarndi people recognise that all species serve a purpose within the ecosystem and towards each other (Greening Australia 2016). Potential impacts on flora and vegetation can therefore be seen as potential impacts on Yindjibarndi cultural heritage.	• Yindjibarndi representatives have been directly involved in the undertaking of flora and vegetation surveys across the project area, and have provided advice to YEC on the importance of retaining native flora within the project area • The final development layout will be informed by dedicated cultural heritage surveys currently being undertaken across the project area, and which include consideration of the cultural heritage values of native flora and vegetation • Where places and objects of cultural significance are identified, no disturbance to these sites will occur without the express consent of YAC and/or YNAC • The rehabilitation of temporarily cleared areas will be undertaken on the advice of Yindjibarndi representatives.	No impacts to culturally significant flora or vegetation will occur without the express consent of YAC and/or YNAC. Implementation of the proposal is expected to foster an improved understanding and awareness from YEC and relevant stakeholders of the cultural significance of flora and vegetation to the Yindjibarndi people.
Terrestrial Fauna	Social Surroundings	All species of animals are considered to have cultural significance to Yindjibarndi people. Many animal species are mentioned in the Burndud, which are Yindjibarndi law songs containing over 500 song stories. Animal species in these songs represent characters used to convey messages of law and ethical values, and therefore have significance to the Yindjibarndi people (Greening Australia 2016). Potential impacts on terrestrial fauna can therefore be seen as potential impacts on Yindjibarndi cultural heritage.	• Yindjibarndi representatives have been and will continue to be directly involved in the undertaking of terrestrial fauna surveys across the project area. Yindjibarndi have and continue to provide advice to YEC on the importance of retaining native terrestrial fauna within the project area • Final development layout will be informed by dedicated cultural heritage surveys which have and continue to be undertaken, and which include consideration of the cultural heritage values of terrestrial fauna. • Where places and objects of cultural significance are identified, no disturbance to these sites will occur without the express consent of YAC and/or YNAC. • YEC will seek to engage appropriate Yindjibarndi representatives to assist with and provide advice on the undertaking of a fauna survey and relocation program, prior to clearing commencing.	No impacts to culturally significant terrestrial fauna will occur without the express consent of YAC and/or YNAC. Implementation of the proposal is expected to foster an improved understanding and awareness from YEC and relevant stakeholders of the cultural significance of terrestrial fauna to the Yindjibarndi people, and of how native terrestrial fauna utilise Yindjibarndi ngurra.

Environmental Factor	Interacting Environmental Factor	Nature of Interaction and Potential Impacts	Mitigation	Environmental Outcome
Inland Waters	Flora and Vegetation	One PEC has been recorded within the project area that is defined by the presence of surface water, being the Riparian Flora and Plant Communities of Springs and River Pools with High Water Permanence of the Pilbara Region. The PEC is listed as Priority 2 by DBCA. Potential impacts on inland waters such as groundwater drawdown and altered surface water regimes could also potentially impact this PEC.	• The proposal will not alter existing surface water flows within or beyond the project area. • No direct impacts on the Riparian Flora PEC will occur as a result of the proposal. • Groundwater abstraction will be limited to no more than 258 ML per annum during construction, reducing to no more than 3.1 ML per annum during operations. • Groundwater will be abstracted from multiple sources across the project area to minimise individual bore abstraction volumes and associated cones of depression.	There will be no reduction in the extent of the Riparian Flora PEC resulting from the proposal. The proposal's water use requirements are relatively minimal, and groundwater will be extracted in such a way as to eliminate the potential for impacts on the PEC. There are no significant impacts on flora and vegetation anticipated as a result of potential impacts on inland waters.
	Terrestrial Fauna	The distribution and abundance of terrestrial fauna within the project area is dependant on the availability of accessible water, particularly permanent and semipermanent surface water pools over the dry months of **Muyu**. While there are no potential direct impacts on these water features, potential indirect impacts could include dust emissions affecting water quality, and the introduction or spread of weeds which could impact waterways	• The proposal will not alter existing surface water flows within or beyond the project area. • No direct impacts to permanent or semi-permanent surface water pools will occur as a result of the proposal. • YEC have committed to the implementation of a suite of dust and weed impact management measures, so as to reduce the potential for impacts to the fullest extent practicable.	Based on the indirect impact mitigation measures committed to by YEC, there are not anticipated to be any indirect impacts on inland waters resulting from the proposal.
	Subterranean Fauna	Stygofauna are a group of subterranean fauna which live their entire lives below the surface of the earth, in groundwater (EPA 2016d). The extraction of groundwater from the project area may impact stygofauna which utilise this groundwater as habitat.	• Groundwater abstraction will be limited to no more than 258 ML per annum during construction reducing to no more than 3.1 ML per annum during operations. • Groundwater will be abstracted from multiple sources across the project area to minimise individual bore abstraction volumes and associated cones of depression.	The proposal's overall water demands are considered to be low. There are therefore not anticipated to be any significant impacts on subterranean fauna resulting from the proposal.
	Social Surroundings	All inland waters on Yindjibarndi Ngurra, including surface and groundwaters, are culturally significant to Yindjibarndi people. Many inland waters have practical (including drinking and domestic use), cultural, and mythological value. Potential impacts on inland waters can therefore be seen as potential impacts on Yindjibarndi cultural heritage.	• The proposal will not alter existing surface water flows within or beyond the project area. • Final development layout will be informed by dedicated cultural heritage surveys which are and continue to be undertaken, and which will include consideration of the cultural heritage values of inland waters. • Where places and objects of cultural significance are identified, no disturbance to these sites will occur without the express consent of YAC and/or YNAC. • No direct impacts to permanent or semi-permanent surface water pools will occur as a result of the proposal. • Groundwater abstraction will be limited to no more than 258 ML per annum during construction reducing to no more than 3.1 ML per annum during operations. • Groundwater will be abstracted from multiple sources across the project area to minimise individual bore abstraction volumes and associated cones of depression.	No impacts on culturally significant inland waters will occur without the express consent of YAC and/or YNAC. No impacts on permanent and semi-permanent surface water pools are anticipated as a result of the proposal.

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Figures

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B2

M1

Lore Ceremony

Ngurawaana

Manuwarra Red Dog Hwy

LEGEND

- Baru Project Area
- Marnda Project Area
- Chichester Range Corridor Stage A
- Intermediary Substation
- Aboriginal Community - Ngurawaana
- Lore Ceremony Site

Indicative Disturbance Footprint

- Wind and Supporting Infrastructure
- Solar Area
- Turbine Location - Stage 1
- Turbine Location - Stage 2
- Turbine Location - Stage 3
- Turbine Location - Stage 4

N

0 0.5 1 2 3 4 km

Scale: 1:100,000 @ A3
GDA2020 MGA Zone 50

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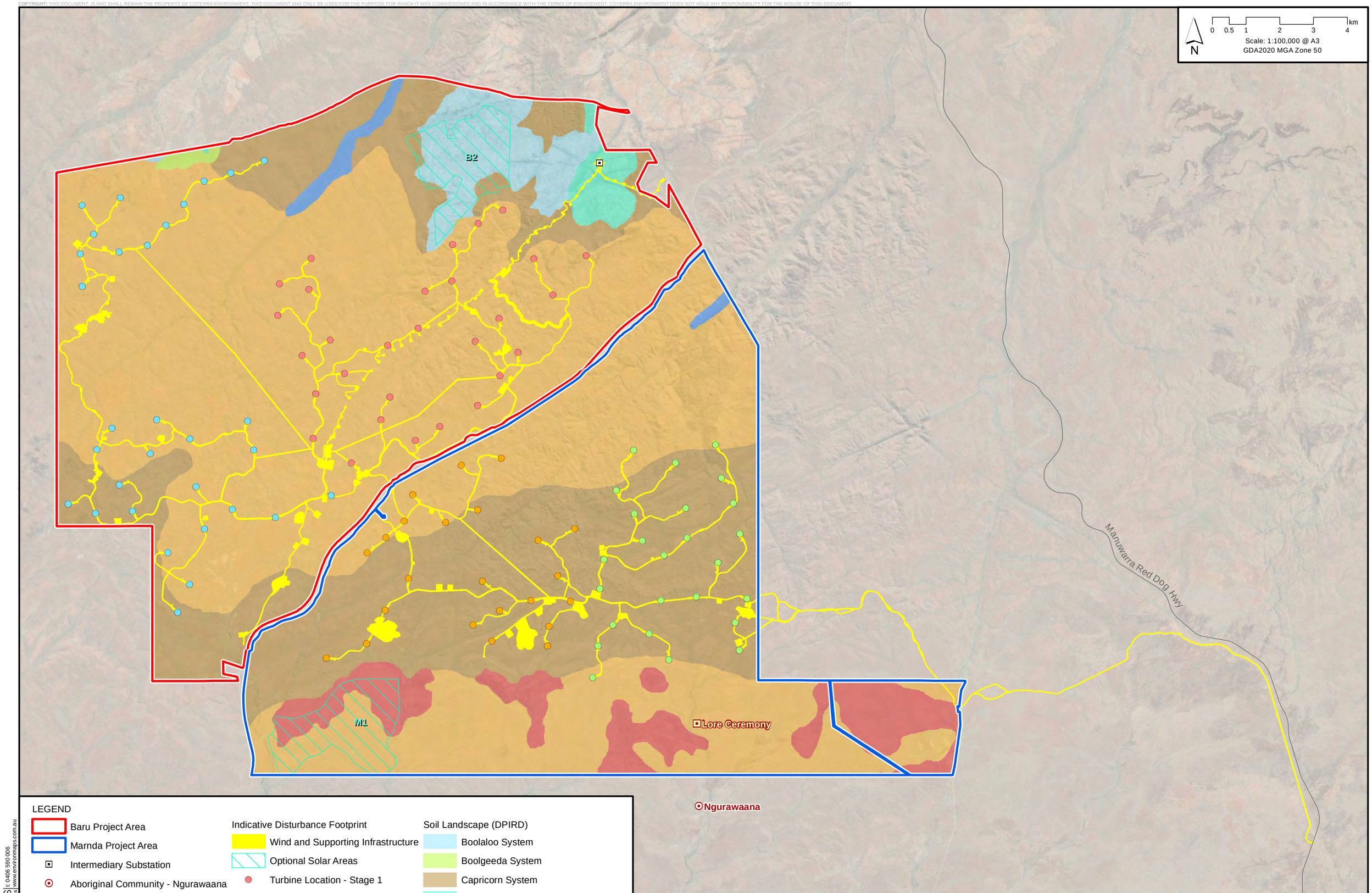
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THE PROPOSAL

Figure 1

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LEGEND

- Baru Project Area
- Marnda Project Area
- Intermediary Substation
- Aboriginal Community - Ngurawaana
- Lore Ceremony Site

Indicative Disturbance Footprint

- Wind and Supporting Infrastructure
- Optional Solar Areas
- Turbine Location - Stage 1
- Turbine Location - Stage 2
- Turbine Location - Stage 3
- Turbine Location - Stage 4

Soil Landscape (DPIRD)

- Boolaloo System
- Boolgeeda System
- Capricorn System
- Macroy System
- River System
- Rocklea System
- Wona System

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LAND SYSTEMS

Figure 2

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Geology (DMIRS)

- A-FOh-s; Hardey Formation
- A-FOhy-fnv; Lyre Creek Member
- A-FOk-b; Kylena Formation
- A-FOk-fa; Kylena Formation
- A-FOm-bd; Maddina Formation
- A-FOm-bk; Maddina Formation
- A-FOm-bng; Maddina Formation
- A-FOt-bb; Tumbiana Formation
- A-FOt-bnlt; Tumbiana Formation
- A-FOt-bnn; Tumbiana Formation
- A-FOt-bntt; Tumbiana Formation
- A-FOti-bntt; Mingah Member
- A-FOtm-kts; Meentheena Member
- A-MRbr-gmp; Brill Monzogranite
- A-MRje-gg; Jean Well Granodiorite
- A-MRje-ggh; Jean Well Granodiorite
- A-STzh-ax; Zebra Hill Dolerite
- A-STzh-od; Zebra Hill Dolerite
- A-STzh-og; Zebra Hill Dolerite
- P_-WKrh-od; Round Hummock Dolerite
- _A1c-PIP; Alluvial/fluvial unit, PIP
- _A2-d-k-PIP; Alluvial/fluvial unit, PIP
- _C1-PIP; Colluvial unit, PIP
- _C2-PIP; Colluvial unit, PIP
- _R2-cb-vb-PIP; Residual or relict unit, PIP
- _R2-k-PIP; Residual or relict unit, PIP
- _R3-f-PIP; Residual or relict unit, PIP

LEGEND

- Baru Project Area
- Marnda Project Area
- Contour (mAHD)
- Intermediary Substation
- Aboriginal Community - Ngurawaana
- Lore Ceremony Site

Indicative Disturbance Footprint

- Wind and Supporting Infrastructure
- Optional Solar Areas
- Turbine Location - Stage 1
- Turbine Location - Stage 2
- Turbine Location - Stage 3
- Turbine Location - Stage 4

N

0 0.5 1 2 3 4 km

Scale: 1:100,000 @ A3
GDA2020 MGA Zone 50

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GEOLOGY AND TOPOGRAPHY

Figure 3

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N

0 0.5 1 2 3 4 km

Scale: 1:100,000 @ A3
GDA2020 MGA Zone 50

B2

M1

Lore Ceremony

Ngurawaana

Manuwarra Red Dog Hwy

LEGEND

Baru Project Area
Marnda Project Area
Intermediary Substation
Aboriginal Community - Ngurawaana
Lore Ceremony Site

Indicative Disturbance Footprint
Wind and Supporting Infrastructure
Optional Solar Areas
Turbine Location - Stage 1
Turbine Location - Stage 2
Turbine Location - Stage 3
Turbine Location - Stage 4

PreEuropean Vegetation (DPIRD)
CHICHESTER PLATEAU_173
CHICHESTER PLATEAU_175
CHICHESTER PLATEAU_587
CHICHESTER PLATEAU_93

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PRE-EUROPEAN VEGETATION

Figure 4

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N

0 0.5 1 2 3 4 km

Scale: 1:100,000 @ A3
GDA2020 MGA Zone 50

B2

ML

Lore Ceremony

Ngurawaana

Manuwarra Red Dog Hwy

LEGEND

- Baru Project Area
- Marnda Project Area
- Intermediary Substation
- Aboriginal Community - Ngurawaana
- Lore Ceremony Site

Indicative Disturbance Footprint

- Wind and Supporting Infrastructure
- Optional Solar Areas
- Turbine Location - Stage 1
- Turbine Location - Stage 2
- Turbine Location - Stage 3
- Turbine Location - Stage 4

- Mattiske Consulting – Reconnaissance Flora and Vegetation Assessment – October/November 2023
- Mattiske Consulting – September 2024
- RPS Group – Flora and Vegetation Assessment – November 2024

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SPATIAL COVERAGE OF FLORA AND VEGETATION SURVEYS

Figure 5

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B2

M1

Lore Ceremony

Ngurawaana

Manuwarra Red Dog Hwy

Priority Ecological Communities (C2, C3, C4, and G2)

Vegetation Communities

- B1
- C1
- C2
- C3
- C4
- C5
- C6
- G1
- G2
- S1
- S2
- W1
- W2
- W3
- *Acacia bivenosa, Acacia pyrifolia* tall sparse shrubland over *Triodia epactia* hummock grassland over **Cenchrus ciliaris* tussock grassland.
- *Eucalyptus victrix* sparse trees over *Triodia wiseana, T. epactia* open grassland. Sparse *Sclerolaena sp.*
- *Eucalyptus victrix* woodland over *Melaleuca argentea* tall shrubland over *Acacia trachycarpa* tall open shrubland over *Eulalia aurea, *Cenchrus ciliaris* tussock grassland.
- Isolated trees of *Owenia reticulata* over *Acacia ancistrocarpa, Acacia colei, Acacia tumida subsp. pilbarensis* tall sparse shrubland over *Acacia stellaticeps* low open shrubland over *Triodia epactia* hummock grassland'. Associated species include Dolichan
- Cleared / Infrastructure

LEGEND

- Baru Project Area
- Marnda Project Area
- Intermediary Substation
- Aboriginal Community - Ngurawaana
- Lore Ceremony Site

Indicative Disturbance Footprint

- Wind and Supporting Infrastructure
- Optional Solar Areas
- Turbine Location - Stage 1
- Turbine Location - Stage 2
- Turbine Location - Stage 3
- Turbine Location - Stage 4

N

0 0.5 1 2 3 4 km

Scale: 1:100,000 @ A3
GDA2020 MGA Zone 50

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VEGETATION COMMUNITIES

Figure 6

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Priority-listed Flora
- *Neptunia longipila* (P2)
- *Pentalepis trichodesmoides subsp. hispida* (P2)
- *Trianthema sp.* Python Pool (G.R. Guerin and M.E. Trudgen GG 1023) (P2)
- *Dolichocarpa sp.* Hamersley Station (A.A. Mitchell PRP 1479) (P3)
- *Euphorbia inappendiculata var. inappendiculata* (P3)
- *Euphorbia stevenii* (P3)
- *Rhynchosia bungarensis* (P4)

B2

M1

Lore Ceremony

Ngurawaana

Manuwarra Red Dog Hwy

LEGEND
- Baru Project Area
- Marnda Project Area
- Intermediary Substation
- Aboriginal Community - Ngurawaana
- Lore Ceremony Site

Indicative Disturbance Footprint
- Wind and Supporting Infrastructure
- Optional Solar Areas
- Turbine Location - Stage 1
- Turbine Location - Stage 2
- Turbine Location - Stage 3
- Turbine Location - Stage 4

N

0 0.5 1 2 3 4 km

Scale: 1:100,000 @ A3
GDA2020 MGA Zone 50

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PRIORITY-LISTED FLORA

Figure 7

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Vegetation Substrate Associations
- VSA 1: Open hummock grassland on rocky basalt hills, plateaux and plains
- VSA 2: Low and sparse shrubland over sparse hummock grasslands on stony plains and granite tor fields
- VSA 3: Open woodland along ephemeral drainage channels
- VSA 4: Grassland with low isolated shrubs over friable cracking clay on basalt upland
- VSA 5: Low open woodland and isolated shrubs on sandstone hilltops
- VSA 5: Open hummock grassland on rocky basalt hills, plateaux and plains

B2

M1

Lore Ceremony

Ngurawaana

Manuwarra Red Dog Hwy

LEGEND
- Baru Project Area
- Marnda Project Area
- Cave Location
- Intermediary Substation
- Aboriginal Community - Ngurawaana
- Lore Ceremony Site

Indicative Disturbance Footprint
- Wind and Supporting Infrastructure
- Optional Solar Areas
- Turbine Location - Stage 1
- Turbine Location - Stage 2
- Turbine Location - Stage 3
- Turbine Location - Stage 4

N

0 0.5 1 2 3 4 km

Scale: 1:100,000 @ A3
GDA2020 MGA Zone 50

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VEGETATION AND SUBSTRATE ASSOCIATIONS

Figure 9

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B2
M1
VP01
VP02
VP03
VP04
VP05
VP06
VP07
VP08
VP09
VP10
Lore Ceremony
Ngurawaana

LEGEND

- Baru Project Area
- Marnda Project Area
- Chichester Range Corridor Stage A
- Lore Ceremony Site
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and Supporting Infrastructure
- Optional Solar Areas
- Turbine Location - Stage 1
- Turbine Location - Stage 2
- Turbine Location - Stage 3
- Turbine Location - Stage 4

Grey Falcon Vantage Point Location

Grey Falcon Flying Height (m)

10, 20, 30, 35, 40, 50, 60, 70, 75, 80, 90, 100, 120, 150

N

0 0.5 1 2 3 4 km

Scale: 1:100,000 @ A3
GDA2020 MGA Zone 50

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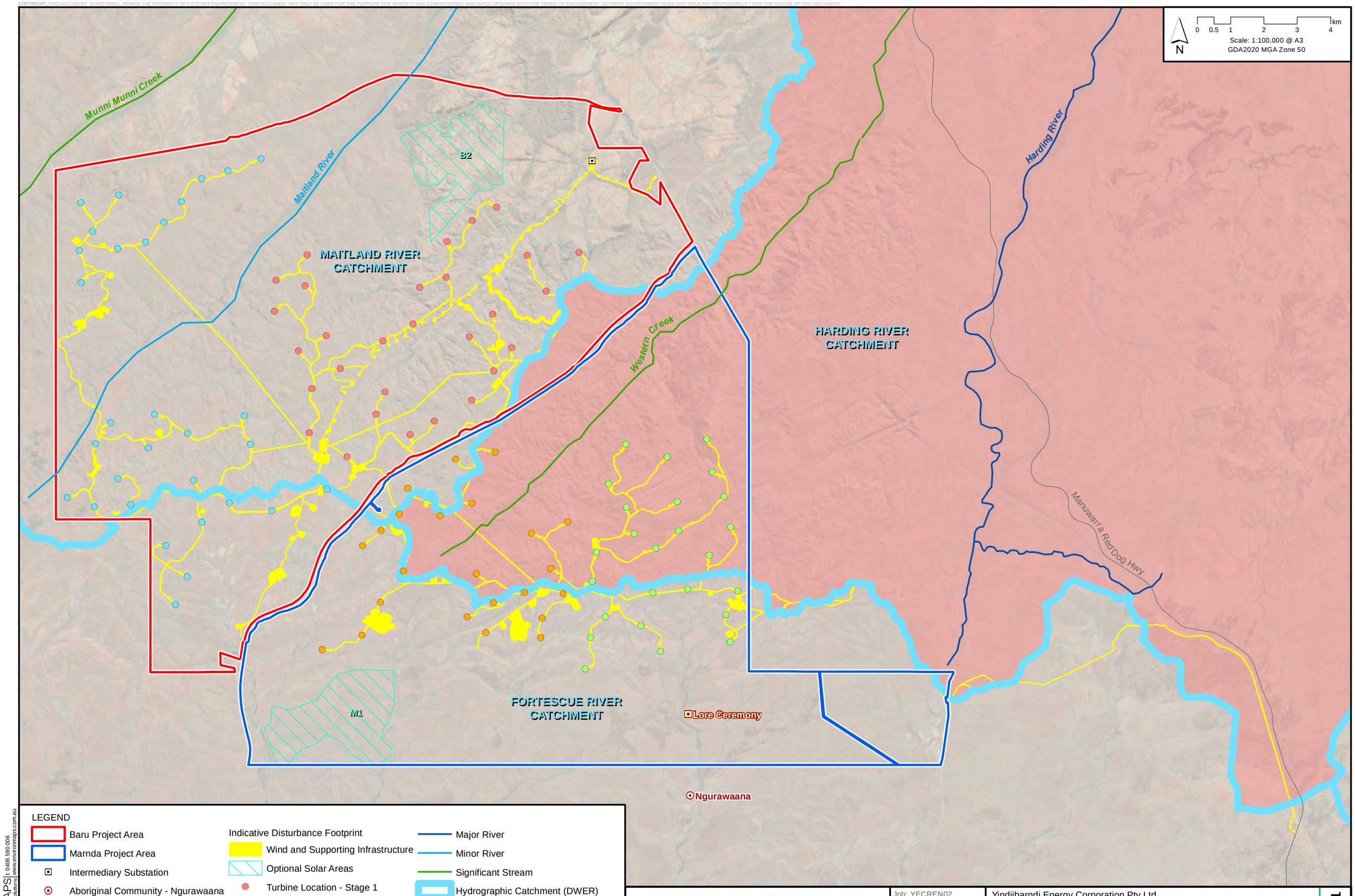
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GREY FALCON OBSERVATIONS

Figure 10

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LEGEND

- Baru Project Area
- Marnda Project Area
- Intermediary Substation
- Aboriginal Community - Ngurawaana
- Lore Ceremony Site

Indicative Disturbance Footprint

- Wind and Supporting Infrastructure
- Optional Solar Areas
- Turbine Location - Stage 1
- Turbine Location - Stage 2
- Turbine Location - Stage 3
- Turbine Location - Stage 4

- Major River
- Minor River
- Significant Stream
- Hydrographic Catchment (DWER)

Public Drinking Water Source Area (DWER)

- Priority 1

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SURFACE HYDROLOGY

Figure 11

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N

0 0.5 1 2 3 4 km

Scale: 1:100,000 @ A3
GDA2020 MGA Zone 50

B2

M1

Lore Ceremony

Ngurawaana

Manuwarra Red Dog Hwy

LEGEND

- Baru Project Area
- Marnda Project Area
- Intermediary Substation
- Aboriginal Community - Ngurawaana
- Lore Ceremony Site

Indicative Disturbance Footprint

- Wind and Supporting Infrastructure
- Optional Solar Areas
- Turbine Location - Stage 1
- Turbine Location - Stage 2
- Turbine Location - Stage 3
- Turbine Location - Stage 4

Aboriginal Cultural Heritage (DPLH)

- Register

Aboriginal Cultural Heritage - Lodged (DPLH)

- Lodged

ENVIRONMAPS | t: 0406 599 006
Environmental Mapping Solutions | www.environmaps.com.au

C:\GIS\Jobs\CoTerra\YECREN02 - Baru Renewable Energy Hub\Figures_AER\YECREN02_EAR_F12 Aboriginal Heritage Sites_260817.mxd

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Yindjibarndi Energy Corporation Pty Ltd
ENVIRONMENTAL ASSESSMENT REPORT
BARU-MARNDA RENEWABLE ENERGY PROJECT

ABORIGINAL HERITAGE SITES

Figure 12

Appendix 1 Mattiske Consulting (2025). Yindjibarndi Renewable Energy Project: Detailed Flora and Vegetation Assessment

Appendix 2 RPS Group (2025). Baru-Marnda Renewable Energy Project: Flora, Vegetation, and Fauna Assessment

Appendix 3 Bamford Consulting Ecologists (2025). Baru-Marnda Renewable Energy Project: Fauna Assessment Report

Appendix 4 Bennelongia Environmental Consultants (2024). Yindjibarndi Renewable Energy Project: Short Range Endemic Invertebrate Desktop Assessment

Appendix 5 Coterra Environment (2025) Preliminary Bird and Bat Management Plan