Yindjibarndi Energy
A partnership with ACEN

Environmental Impact Assessment Supporting Information: Baru-Marnda Renewable Energy Project

16/06/2025

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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

Term	Definition
TSI	Transport and Install
YAC	Yindjibarndi Aboriginal Corporation
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 of up to 1,000 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 predominately via the North West Interconnected System.

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 referral of the Baru-Marnda Renewable Energy Project under the EP Act and EPBC Act, and to provide information to the EPA and DCCEEW on the nature of the proposal, the receiving environment, potential environmental impacts, the impact mitigation approach, and anticipated social and environmental outcomes.

A summary of the proposal, as well as a breakdown of the proposal content elements is presented in Table 0-1 and Table 0-2 respectively. A summary of potential impacts, proposed mitigation, and proposed environmental outcomes is provided in Table 0-3.

Table 0-1: General proposal content description

Item	Description
Proposal title	Baru-Marnda Renewable Energy Project
Proponent name	Yindjibarndi Energy Pty Ltd
Short description	Yindjibarndi Energy Corporation is proposing to develop the Baru-Marnda Renewable Energy Project, approximately 50 km south of Karratha, Western Australia on Yindjibarndi ngurra. The proposal will comprise wind and solar energy generation facilities of up to 1,000 and 500 Megawatts ac respectively with option for energy storage, and associated hardware and infrastructure. The proposal will be located within a development envelope of 42,127.47 ha. An indicative disturbance footprint has been identified within the development envelope which has the potential to disturb up to 4,986.4 ha of native vegetation. Renewable energy generated and stored by the Baru-Marnda Renewable Energy Project will be made available for use throughout the Pilbara region via the North West Interconnected System.

Table 0-2: Proposal content elements

Proposal element	Location / description	Maximum extent, capacity or range
Physical elements		
Solar	Figure 2	A total of six optional solar areas have been identified, of which no more than four will be implemented. The maximum extent of native vegetation clearing is 2937.8 ha, the entirety of which will be long-term in nature.
Wind and supporting infrastructure, including: • Laydown areas • Operations and maintenance facilities • Satellite offices • Borrow pits • Internal access and transmission corridors • Battery Energy Storage Systems • Production Bores	Figure 2	No more than 1,607.1 ha of native vegetation clearing, including 577 ha of temporary and 1030.1 ha of long term clearing
Access Route	Figure 2	No more than 343.1 ha of native vegetation clearing, including 184.4 ha of temporary and 158.7 ha of long term clearing. Disturbance to 30.9 ha of already cleared land will also be required.
Isolated intersection upgrades	Figure 2	No more than 0.8 ha of partial vegetation clearing will be required across three isolated intersections.
Construction elements		
Concrete batching plants	Various locations throughout the indicative disturbance footprint, but outside of the Public Drinking Water Source Area (Figure 2, Figure 13)	Maximum capacities TBC
Operational elements		
Wind energy production	Figure 2	Up to 1,000 MWac
Solar energy production	Figure 2	Up to 500 MWac
Battery Energy Storage Systems	Figure 2	Maximum capacity TBC
Proposal elements with greenhouse gas emissions		
Scope 1	Native vegetation clearing: 467,577 t CO_2e	

Scope 2	N/A	
Scope 3	Turbine lifecycle emissions: 56,064 t CO_2e per annum Solar PV lifecycle emissions: 25,185 t CO_2e per annum	
Rehabilitation		
Approximately 735.7 ha of the indicative disturbance footprint will be cleared for construction purposes only, and which is proposed to be rehabilitated at the conclusion of the construction phase. The substantial majority of remaining clearing (4,250.7 ha) will be rehabilitated during the decommissioning phase, at the conclusion of the proposal's operational life.		
Commissioning		
N/A		
Decommissioning		
Undertaken in accordance with a Decommissioning and Rehabilitation Plan (or similar), with the aim of returning the land to its pre-development uses where possible, in close consultation with Yindjibarndi Aboriginal Corporation and Yindjibarndi Ngurra Aboriginal Corporation.		
Other elements which affect extent of effects on the environment		
Proposal time*	Maximum project life	TBC
	Construction phase	Between 3 and 6 years
	Operations phase	Approximately 50 years
	Decommissioning phase	TBC

Table 0-3: Summary of potential impacts, proposed mitigation, and proposed environmental outcomes

Item	Discussion
Flora and Vegetation	
EPA Objective	To protect flora and vegetation so that biological diversity and ecological integrity are maintained
Potential impacts	Direct impacts: • 735.7 ha of temporary and 4,250.7 ha of long-term clearing of native vegetation, including: • 27.4 ha of temporary and 198.1 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 ▪ 11 individuals of *Pentalepis trichodesmoides* subsp. *hispida* (Barraburratha) (P2) representing 12.36% 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 ▪ 18 individuals of *Rhynchosia bungarensis* (P4) representing 31.58% of the mapped total Indirect impacts: • Introduction and/or spread of weed species and/or plant pathogens within the development envelope • Dust emissions • Altered fire regimes • Altered hydrological flows Cumulative impacts: • Combined impacts with the Jinbi Solar Facility, including the cumulative clearing of up to 5,504.26 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 at minimum 757.84 ha (74.77%) of the Cracking Clays PEC, mapped within the development envelope • Two originally identified optional solar areas (being M2 and M3) have been removed from the proposal, which would have necessitated impacts to the Cracking Clays PEC, *Neptunia longipila, Rynchosia bungarensis,* and *Euphorbia inappendiculata var. inappendiculata* • 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 735.7 ha of the indicative disturbance footprint following the construction phase of the proposal • Rehabilitation of the substantial remainder of the indicative disturbance footprint (4,250.7 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	• Retention of at minimum, 37,014.99 ha (88.12%) of vegetation within the development envelope • No direct, indirect, or cumulative impacts on threatened flora or ecological communities • Retention of at minimum, 2,698.07 ha (92.29%) of the Cracking Clays PEC mapped within the development envelope • Retention of all mapped occurrences of the Riparian Flora PEC within the development envelope • Retention of all occurrences of *Trianthema* sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023) and *Euphorbia stevenii* • The retention of at minimum: ▪ 176 individuals of *Neptunia longipila* (greater than 99% of the mapped total) ▪ 78 individuals of *Pentalepis trichodesmoides* subsp. *hispida* (Barraburratha) (87.64% of the mapped total

Item	Discussion
	▪ 450 individuals of *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (89.64% of the mapped total) ▪ One individual of *Euphorbia inappendiculata* var. *inappendiculate* (20% of the mapped total) ▪ 39 individuals of *Rynchosia bungarensis* (68.42% of the mapped total) • No meaningful reduction in the remaining extents of pre-european vegetation associations mapped within the development envelope • No introduction of weeds or plant pathogens to the development envelope • Successful rehabilitation of the substantial majority of the indicative disturbance footprint • Increased understanding and awareness of flora and vegetation values across Yindjibarndi ngurra • No significant residual impacts on Flora and Vegetation resulting from the proposal • The proposal can be implemented in a manner which ensures the EPA's objective can be met.
Terrestrial Fauna	
EPA Objective	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.
Potential impacts	Direct impacts: • No more than 11.8 ha of temporary and 139.4 ha of long-term clearing of Bargunyji (Pilbara Olive Python) dispersal habitat • No more than 735.7 ha of temporary and 4,250.7 ha of long-term clearing of Yirriwardu (Northern Quoll) dispersal habitat • No more than 11.8 ha of temporary and 139.4 ha of long-term clearing of preferred habitat for the Grey Falcon • No more than 723.9 ha of temporary and 4,146.7 ha of long-term clearing of dispersal habitat for the Grey Falcon • No more than 11.8 ha of temporary and 139.4 ha of dispersal habitat for the Pilbara Leaf-nosed Bat • No more than 11..8 ha of temporary and 139.4 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

Item	Discussion
	• Limitations on fauna dispersal opportunities within the development envelope • 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: ▪ 152.2 ha of dispersal habitat for the Bargunyji (Pilbara Olive Python) ▪ 5,503.25 ha of dispersal habitat for the Yirriwardu (Northern Quoll) ▪ 151.2 ha of preferred habitat for the Grey Falcon ▪ 5,387.45 ha of dispersal habitat for the Grey Falcon ▪ 151.2 ha of dispersal habitat for the Pilbara Leaf-nosed Bat ▪ 151.2 ha of foraging and dispersal habitat for the Ghost Bat.
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 development envelope 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. Only 7% of mapped creek line vegetation within the development envelope will be impacted by the proposal • No wind turbine is proposed within creek line vegetation • Minimum buffer distances of 60 m have been established between creek line vegetation and proposed turbines • Minimum buffer distance of 2,899 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.

Item	Discussion
	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 735.7 ha of the indicative disturbance footprint following the construction phase of the proposal • Rehabilitation of the substantial remainder of the indicative disturbance footprint (4,250.7 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 development envelope • 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 retention of at minimum, 1,998.37 ha of creek line habitat, representing 92.97% of that mapped within the development envelope • 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. • No significant residual impacts on Terrestrial Fauna resulting from the proposal • The proposal can be implemented in a manner which ensures the EPA's objective can be met.

Item	Discussion
Inland Waters	
EPA Objective	To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected
Potential impacts	Direct impacts: • Abstraction of no more than 410,000 kL annually during the proposal's construction, and no more than 3,100 kL during the proposal's operation • Potential disturbance to the beds and banks of water courses as a result of creek line crossings and associated infrastructure Indirect impacts: • Clearing of vegetation and construction of infrastructure within the Priority 1 Harding Dam Surface Water Catchment Area Public Drinking Water Source Area, which may cause the generation of dust and/or sedimentation Cumulative impacts: • Combined impacts with the Jinbi Solar Facility, including the cumulative abstraction of no more than 510,000kL annually during construction (in the event that both projects are constructed simultaneously), and no more than 5,100kL annual during operation.
Mitigation hierarchy	Avoid: • No incompatible land uses (such as batching plants or satellite offices) being proposed within the PDWSA • Establishment of a minimum buffer off 30 km between any proposed infrastructure and the Harding Dam Reservoir Protection Zone • Construction of wells away from both the PDWSA and creek line vegetation, where possible Minimise: • Co-location of linear infrastructure where possible, to minimise the number and extent of creek line crossings required • Investigate the use of overhead as opposed to underground transmission, as a means of minimising impacts to creek line vegetation

Item	Discussion
	• Construct appropriate stormwater infrastructure as necessary (including for example, bunding and sedimentation basins), to capture and treat dirty water run-off prior to release downstream • Implementation of all conditions relevant to compatible infrastructure within the PDWSA, pursuant to Water Quality Protection Note 25 (DWER 2021) Rehabilitate: • Rehabilitation of 735.7 ha of the indicative disturbance footprint following the construction phase of the proposal • Rehabilitation of the substantial remainder of the indicative disturbance footprint (4,250.7 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 the Harding Dam Reservoir Protection Zone • The development of land uses within the Harding Dam Surface Water Catchment PDWSA which are compatible with the PDWSA's Priority 1 status • No to negligible cumulative impacts on groundwater resources associated with the Jinbi Solar Facility and Baru-Marnda Renewable Energy Project • No dams on any watercourses within the development envelope • The maintenance of natural surface water flow paths • No significant residual impacts on Inland Waters resulting from the proposal • The proposal can be implemented in a manner which ensures the EPA's objective can be met.
Social Surroundings	
EPA Objective	To protect social surroundings from significant harm

Item	Discussion
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 development envelope 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 2,899 m buffer between the Ngurrawaana community and any proposed turbine • Establishment of a 3,787 m buffer between the Ngurrawaana community and the nearest optional solar area • Utilisation of an access route during construction which does not run through the Ngurrawaana community

Item	Discussion
	Minimise • Undertake further detailed heritage surveys across the development envelope in collaboration with Yindjibarndi representatives and in accordance with the ILUA and associated Heritage Protection Agreement • 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. • The proposal can be implemented in a manner which ensures the EPA's objective can be met.

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 of up to 1,000 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 via the North West Interconnected System (NWIS). While discussions between YEC and relevant State Government agencies are ongoing (see section 5), it is anticipated that new, common user transmission infrastructure between the proposal and the existing NWIS will be facilitated through the State Government's Pilbara Energy Transition (PET) Plan, and so has therefore been omitted from the content of this proposal (see section 2.5.1).

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

Recognising the potential for environmental impacts associated with the Baru-Marnda Renewable Energy Project's construction and operation, YEC is referring the proposal to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986* (EP Act), and to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) under the federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

This report has been prepared to support the EP Act and EPBC Act referrals, and to provide information to the EPA and DCCEEW on the nature of the proposal, the receiving environment, potential environmental impacts, the impact mitigation approach, and anticipated social and environmental outcomes.

2. The Proposal

2.1 Land Tenure Overview

The majority of the development envelope is located within a section 91 license area, granted to Yiyangu Pty Ltd on 1 August 2023 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 development envelope covered by this section 91 license. YEC are also currently 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 development envelope (namely the access route; Figure 1) is located within the Millstream Chichester National Park, which is managed by the DBCA under the *Conservation and Land Management Act 1984* (CALM Act). 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.

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 development envelope.

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

The Baru-Marnda Renewable Energy Project is made up of the following spatial components:

- The development envelope (42,127.47 ha) – represents the area over which ecological surveys have been undertaken, and generally aligns with the relevant tenure mechanisms utilised by YEC for the purposes of the proposal. All components of the proposal are located within the development envelope. For ease of reference, this report distinguishes between two subcomponents of the development envelope, being the site access route (3,231.89 ha) and main infrastructure development envelope (38,895.58 ha).
- 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 proposal are indicative only, at this stage.

The spatial extents of the above areas are illustrated in Figure 2.

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 1,000 MWac of wind energy generating infrastructure is proposed to be installed as part of the Baru-Marnda Renewable Energy Project, across up to 133 individual wind turbines (Figure 2). Where wind turbines are proposed within optional solar array areas (section 2.2.2) these turbines will not be installed where the associated solar array area will be implemented.

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 and illustrated in Plate 2-1.

Table 2-1: Reference turbine specifications

Subject	Value
Hub height	150 m
Rotor diameter	172 m

Subject	Value
Blade tip clearance above ground level	64 m
Cut-in wind speed	3m/s
Cut-out wind speed	25m/s
Roter sweep area	23,235 m^2
Recyclability rate	86%
Carbon footprint	6.4Gco2E/KWh

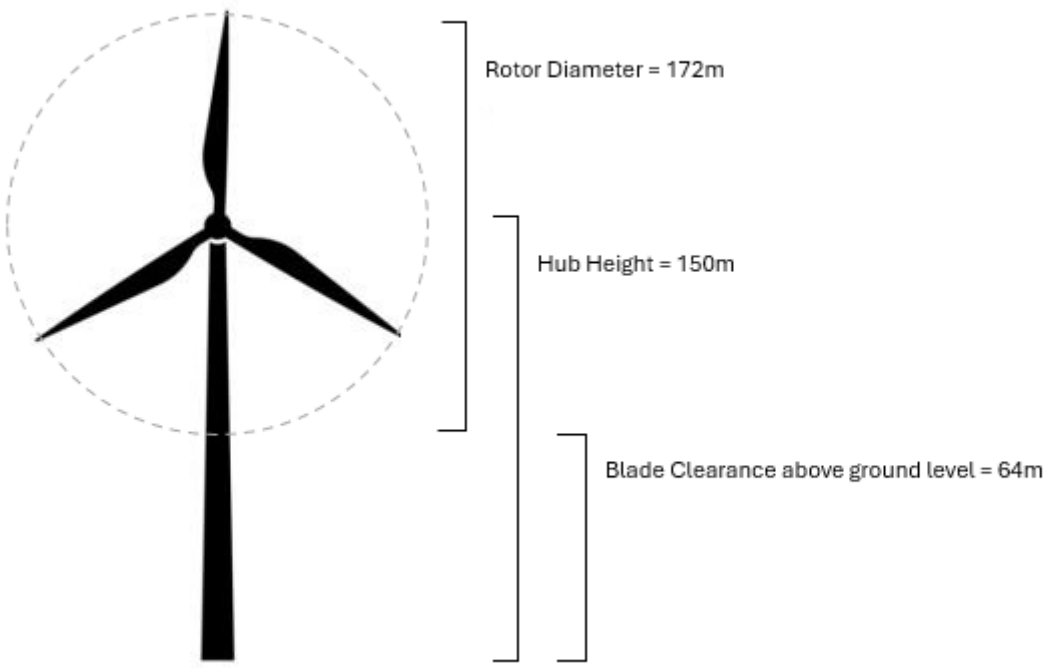

Plate 2-1: Reference turbine dimensions

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 2.3 and 7.1.4 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. Six potential solar array areas have been identified, of which no more than four will be implemented. These are identified on Figure 2 as Baru (B)2 and B3 (northwest of the RTIO rail corridor), and Marnda (M)1, M4, M5 and M6 (southeast of the RTIO rail corridor).

Solar arrays will comprise 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 2.4.

2.2.3 Supporting Infrastructure

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

- Temporary infrastructure, including:
  - Laydown areas
  - Concrete batch plants
- Longer term infrastructure, including:
  - Operations and maintenance facilities and satellite offices
  - Borrow pits
  - Internal access routes, including creek crossings
  - Internal transmission corridors, proposed to be aligned with access routes
  - Battery Energy Storage Systems (BESS)
  - Production bores

With regard to the proposal's construction phase, YEC is considering potentially utilising a temporary workforce accommodation camp which is currently being progressed for the Jinbi Solar Facility (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 development envelope and the 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 development envelope 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.

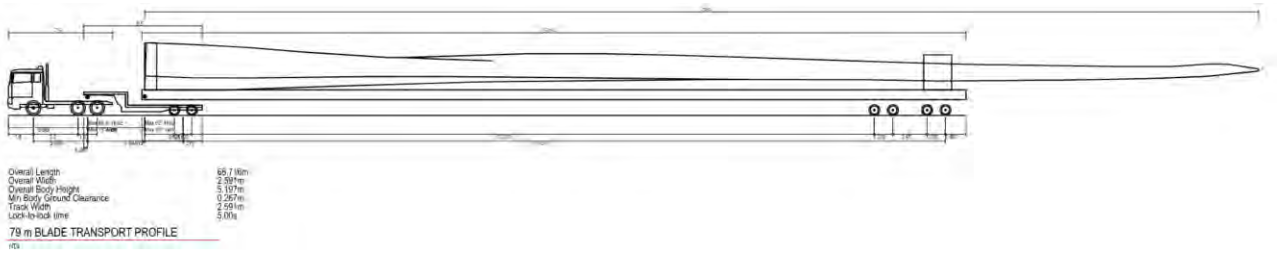

Plate 2-2: Indicative blade transportation profile

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 main infrastructure development envelope 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 main infrastructure development envelope with Warlu Road/Manuwarra Red Dog Highway to the east, which utilises existing cleared access tracks, and which 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 main infrastructure development envelope 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.

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 735.7 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 (or similar), which is anticipated to be required as a condition of Development Approval. YEC anticipates that the substantial majority 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 7.1.4.

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 development envelope 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 main infrastructure development envelope. 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 areas down to six, with the objective of avoiding potentially significant environmental impacts. Three optional solar areas were removed (being B1, M2 and M3), primarily due to the potential for significant impacts on:

- Aboriginal cultural heritage sites
- Occurrences of Priority-listed ecological communities
- Populations of Priority-listed flora species
- The amenity values of the Ngurrawaana community, and surrounds
- Locations identified to be favoured by conservation significant terrestrial fauna

The remaining six optional solar areas (of which no more than four may be implemented) (Figure 2) have resulted in greater minimum buffer distances from, and a reduction in the maximum extent of potential clearing of, areas of greater social and environmental value.

The locations of the three optional solar areas which have been removed from this proposal, as well as the remaining six are displayed in Figure 2.

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 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 CO_2 equivalent (CO_2e) per kilowatt hour (DCCEEW 2023b). Assuming the Baru-Marnda Renewable Energy Project's 1,500 MWac potential is instead produced at this intensity, then this could foreseeably result in the emission of approximately 7,679,223 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 project's Greenhouse gas emissions mitigation potential is provided at section 7.5.1.

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, with whom YEC has signed a memorandum of understanding to explore the potential development of a solar power generation facility. 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.

Approval was granted for the Jinbi Solar Facility at the state level under Part V of the EP Act in February 2024, through clearing permit CPS 10494/1. The 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 EPBC Act, a self-assessment was undertaken by YEC to determine whether the Jinbi Solar Facility has the potential to significantly impact MNES. Based on the limited extent of clearing required to facilitate the proposal, as well 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 actions. No other actions must be taken before or after either action for them to be viable.
- The projects are not co-dependant. 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 is anticipated to commence in 2025, whereas construction of the Baru-Marnda Renewable Energy Project is anticipated to commence in 2027 (see section 2.3).
- The projects are geographically distinct. Neither project intersects the development envelope of the other, nor will any proposed infrastructure connect the two projects in any way.
- There is no combined or overall plan or vision for the two projects.
- Each project will be pursuing independent planning and 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/EPA, DCCEEW, and other key stakeholders.

2.5.1 Transmission

Renewable energy generated and stored by the Baru-Marnda Renewable Energy Project is proposed to be transmitted through the common user Chichester Range Corridor (Plate 2-3), a critical infrastructure project designed to support the decarbonisation and energy transition of the Pilbara region. This transmission corridor will provide an essential connection between YEC's renewable energy developments on Yindjibarndi ngurra and key industrial hubs such as the Maitland Strategic Industrial Area (SIA) and the broader NWIS.

YEC has been a strong advocate for common-user transmission infrastructure to avoid the inefficiencies and environmental impacts of multiple private transmission connections. This approach aligns with Yindjibarndi cultural obligations to minimise disturbance to the land while ensuring sustainable economic opportunities for the community.

At a state level, YEC was awarded Priority Project Status for the Chichester Range Corridor on 2nd December 2024 when an official letter was received from the then Minister for Energy, Environment and Climate Change the Hon. Reece Whitby. This recognition affords YEC with a pathway to negotiating an agreement with the State (Corridor Development Agreement) and recommendation from the state government to be considered for concessional finance from Western Australia's allocation of up to $3 billion from Rewiring the Nation. The Chichester Range Corridor has been identified as one of four priority transmission corridors by the Western Australian Government under the PET Plan.

At a federal level, the Chichester Range Corridor is one of 24 transmission projects nation-wide that have been identified under the National Renewable Energy Priority List. This Priority List affords identified projects with coordinated support for regulatory planning and environmental

approval processes, on a case-by-case basis according to the needs of individual identified projects. It is understood that while identified projects will receive additional support, they will still have the same scrutiny applied as any other project and continue to be required to meet all statutory requirements.

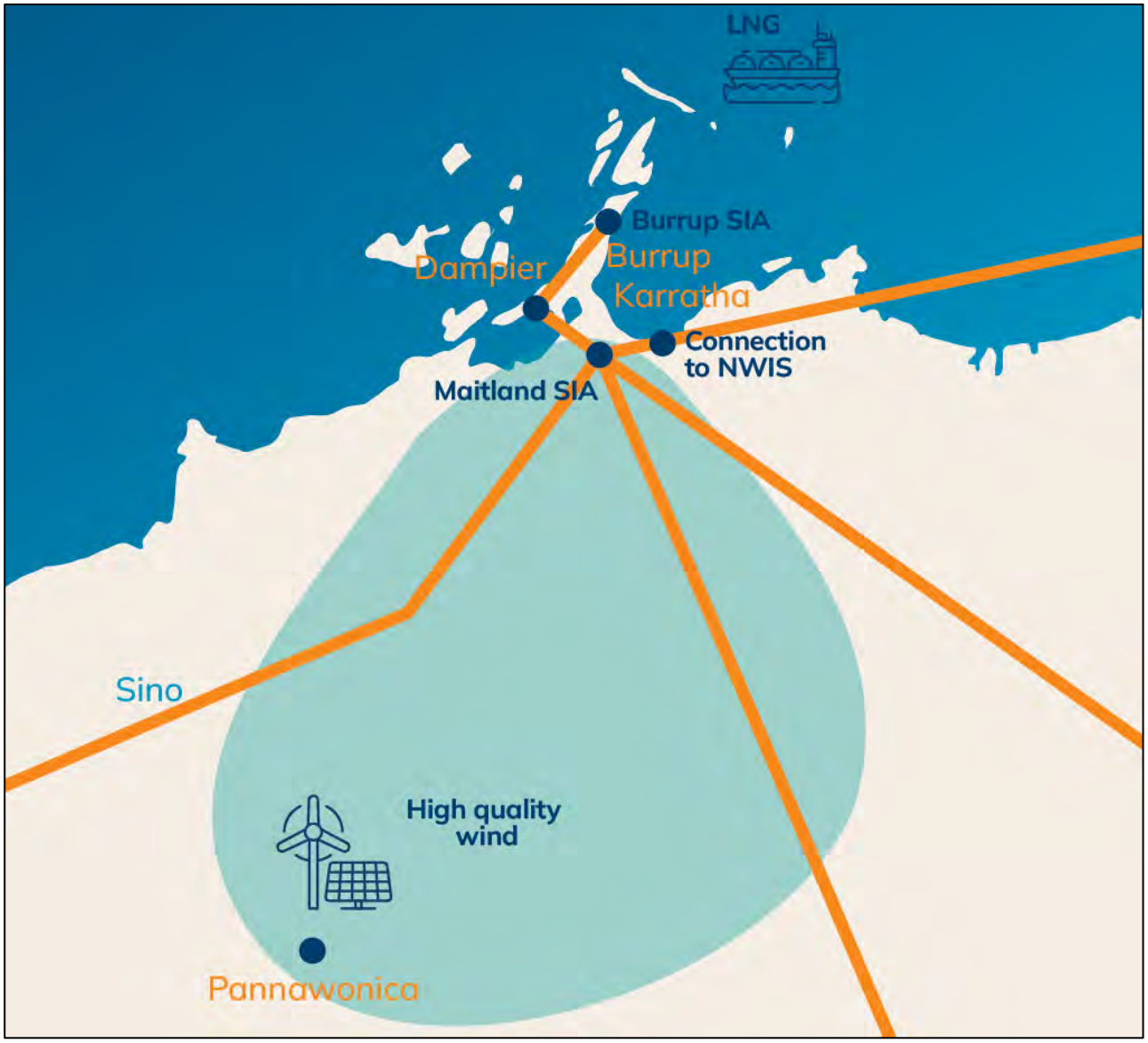

Plate 2-3: Chichester Range Corridor

3. Local and Regional Context

The entirety of the development envelope 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 km^2 – 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 development envelope are described in Table 3-1 and illustrated in Figure 3.

Table 3-1: Land Systems mapped within the development envelope

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

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
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
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 development envelope is represented by recent and quaternary sediments, intrusive and extrusive volcanic rock, as well as volcanoclastic sedimentary rocks (DMIRS 2020). Geological units within the development envelope are illustrated in Figure 4.

3.3 Topography

The development envelope's topography is diverse. Generally, the development envelope 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 development envelope. Elevation ranges from approximately 340 meters Australian Height Datum (mAHD) in the centre to approximately 140 mAHD in the north west, with broad scale contours illustrated in Figure 4.

3.4 Conservation Areas

The development envelope is located immediately adjacent to and partially within the Millstream Chichester National Park (R 30071; Figure 1), 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, including a portion of the development envelope 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*. ESA's 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 is proactively referring the proposal under the EPBC Act for consideration by DCCEEW. Should the proposal be considered a 'controlled action', then YEC would request that an accredited assessment with the state EP Act assessment process be pursued as the method of assessment.

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 *Native Title Act 1993* (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. The 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 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 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 development envelope for feasibility and investigative works was granted to Yiyangu Pty Ltd under section 91 of the LA Act. The license is applicable for a term of two years with a further term option of two years, and 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.

4.2.2 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.

A portion of the development envelope (namely the access route; Figure 1) is located within 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.

4.2.3 Planning and Development Act 2005

The *Planning and Development Act 2005* (PD Act) provides the legislative framework for planning and development in Western Australia. It consolidates various planning statutes 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, and development approvals.

The development envelope lies within the Shire of Ashburton Local Government Area, and is subject to the Shire's Local Planning Scheme No 7 (LPS 7). Under the provisions of LPS 7, the development envelope is zoned 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.

Clause 3.2.2 of LPS 7 states, with respect to the Use and Development of reserves, that:

'*Where an application for planning approval is made with respect to land within a reserve, the Local Government shall have regard to the ultimate purpose intended for the reserve and Local Government shall confer with the organisations it considers relevant to that purpose and the proposed use or development.'*

Notwithstanding the reservation under LPS 7, the subject land is Unallocated Crown Land and does not form part of the broader Crown Reserve under the LA Act.

As required by Clause 67(2)(j) of the Deemed Provisions, any Application for Development Approval made for the Baru-Marnda Renewable Energy Project made under LPS 7 will need to be supported by technical information confirming that the proposed development will not impact the water quality or drainage function of the land. It is understood that a future development application would be referred for comment to both the Minister for Water (via the DWER) and Water Corporation, who hold joint management orders over the adjacent water reserves.

4.2.4 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 on the environment. Based on the potential for environmental impacts associated with the Baru-Marnda Renewable Energy Project's implementation, YEC has proactively referred the proposal to the EPA under Part IV, Section 38 of the EP Act for consideration.

Under Part V, Division 3 of the EP Act, the Department of Water and Environmental Regulation (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 mitigation 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', with prescribed premise categories outlined in Schedule 1 of the *Environmental Protection Regulations 1987*. Should any component of the proposal meet the

criteria of a prescribed premise, then separate approval will be sought by YEC under Part V of the EP Act.

4.3 Other Approvals and Regulation

Other legislation and guidance considered relevant to the proposal, and how these apply are detailed below in Table 4-1.

Table 4-1: Decision making authorities and processes relevant to the proposal

Decision Making Authority	Legislation or Agreement regulating the Activity	Approval Required
Department of Planning, Lands and Heritage (DPLH); Aboriginal Cultural Heritage Committee	*Aboriginal Heritage Act 1972* (AH Act)	Provides for the preservation of aboriginal heritage in WA and regulates activities which may cause harm to aboriginal heritage sites.
Department of Biodiversity, Conservation and Attractions (DBCA)	*Biodiversity Conservation Act 2016* (BC Act)	Provides for the listing of rare flora, fauna and ecological communities in WA and regulates the disturbance and take of these species and ecological communities.
	Conservation and Land Management Act 1984 (CALM Act)	Provides for the protection and management of certain public lands and waters. Authority to take flora in CALM Act land and waters is required under regulation 4 of the Conservation and Land Management Regulations 2002.
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)	*Electricity Industry Act 2004* (EI Act)	Regulates Pilbara networks under Part 8A of the EI Act, and facilitates third party access to designated electricity network assets in the Pilbara.
Department of Water and Environmental Regulation (DWER)	*Rights in Water and Irrigation Act 1914* (RIWI Act)	Water resources in Western Australia are protected and regulated primarily through the RIWI Act. Constructing a new well, taking groundwater, interfering with the bed and banks of a watercourse will require separate approvals under the RIWI Act.
Department of Planning Lands and Heritage (DPLH)	State Planning Policy 3.7 – Planning in Bushfire Prone Areas	Directs how land use should address bushfire risk management. The policy applies to all land designated as bushfire prone by the Department of Fire and Emergency Services.
	Draft State Planning Policy 2.9 – Planning for Water	Seeks to consolidate and replace a number of existing state planning policies, including SPP 2.7 – Public Drinking Water Source Policy and SPP 2.9 – Water Resources.

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 Engagement Approach and Principles

In WA, there is no standalone legislative requirement or express provision for undertaking social impact assessment (SIA). As outlined in section 4.2.4 the environmental assessment of development proposals is undertaken in accordance with Part IV Division 1 of the Environmental Protection Act 1986 and the Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2021 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).

Therefore, the reference to the consideration of social aspects from a legislative perspective is focused on social surroundings and the interaction of the environment with these. In the absence of a prescribed approach to SIA within WA, YEC is guided by the following international best practice SIA guidelines:

- International Principles for Social Impact Assessment (Vanclay, 2003).
- NSW Department of Planning and Environment's SIA Guidelines (2023)

YEC is guided by the following industry guidelines in relation to community engagement:

- Clean Energy Council - Community Engagement Guidelines for the Australian Wind Industry (2018).
- First Nations Clean Energy - Aboriginal and Torres Strait Islander Best Practice Principles for Clean Energy Projects
- Interim Engaging with First Nations People and Communities on Assessments and Approvals under the EPBC Act 1999 (interim guidance)

Consistent with the above guidelines, YEC is committed to:

- Undertaking engagement that is respectful, inclusive, and meaningful.
- Developing and maintaining genuine partnerships to enable all stakeholders to provide feedback on the proposed project and to raise any concerns that should be considered through the development process.
- Communicating openly, honestly and in a transparent manner with all stakeholders.

5.2 Community and Stakeholder Engagement Planning

In addition to the summary provided below in Table 5-1 and Table 5-2, YEC is in the process of developing a community and stakeholder engagement framework to be implemented across all YEC Projects.

The framework consists of an overarching YEC Community and Stakeholder Engagement Plan (CSEP) that includes a project overview, stakeholder identification and analysis, definition of engagement mechanisms and materials, record keeping / stakeholder database management and complaints handling / issue tracking protocol.

In addition to the overarching CSEP each project has a Stakeholder Engagement Implementation Plan (Plan) that outlines the proposed engagement activities to be undertaken to support the planning and development of Projects Jinbi and Baru Marnda, including:

- Engagement objectives
- Engagement preparation
- Engagement implementation schedule outlining stakeholders to be consulted, engagement focus, mechanisms, specific tasks, assigned roles and responsibilities and timings.

The CSEP and implementation plans will be reviewed regularly and engagement activities will be amended and added as required to reflect the requirements and engagement focus as Projects Jinbi and Baru Marnda progress.

5.3 Preliminary Social Risk Analysis

YEC has commissioned an external consultancy to undertake 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.

YEC is also collaborating with the WA Department of Training and Workforce Development (DTWD) and the State Training Board to contribute to the development of a Clean Energy Skills Roadmap.

5.4 Traditional Owner Equity Ownership

As outlined in 1.2, YEC is a partnership between the Yindjibarndi Aboriginal Corporation (YAC) (25%) and international renewable energy company, ACEN Corporation (ACEN) (75%).

The Yindjibarndi people are an equity owner of YEC, through Yiyangu Pty Ltd which is 100% owned by the Yindjibarndi Wealth Trust.

As equity owners and primary tenure holders of the project land, the Yindjibarndi people will receive long term revenue from YEC projects.

This equity partnership provides a new benchmark for meaningful participation and ensures the following:

- Renewable energy is aligned with Yindjibarndi's vision to create profitable and sustainable community owned commercial businesses that protect country, build a stronger community and respect culture.
- Yindjibarndi participation in assessments and studies to facilitate cultural knowledge building and intellectual property of country
- Jointly owned by Yindjibarndi so that the benefits such as housing, education and return to country contribute to self-determination for Yindjibarndi people
- Early investment in workforce development initiatives to prepare Indigenous communities to participate in YEC projects
- Supply chain access security for Yindjibarndi owned businesses

YEC Projects aim to provide training, upskilling, educational, and employment opportunities for Traditional Owners, benefiting their communities.

To date YEC has contributed over $1.6m to Yindjibarndi businesses and PBC activities, Yindjibarndi cultural heritage surveys, cultural training and participation in flora and fauna studies and contributions to community sustainability programs in Roebourne (which benefit both Yindjibarndi and Ngarluma People).

YEC has engaged Yurra Pty Ltd - the second largest Aboriginal-owned business in WA and majority owned by all Yindjibarndi People - as its civil operations and maintenance partner. Yurra provides training and employment for the people of Roebourne. It was established to deliver sustainable procurement opportunities and provide economic and social benefits for Traditional Owner peoples and communities.

5.5 Social Investment

YEC has signed a Memorandum of Understanding (MoU) with Ngarluma Yindjibarndi Foundation Limited (NYFL) to collaborate on initiatives that promote social outcomes and enhance self-determination for the Leramugadu (Roebourne) Traditional Owner community. As part of this MoU, YEC has provided initial funding to purchase equipment for establishing a small-scale food growing facility. The produce from this facility will supply the NYFL Leramugadu store, which is 100% owned by Ngarluma and Yindjibarndi people and serves the community.

YEC has also provided social investment funding to Juluwarlu Arts Group to support the delivery of a series of professional development workshops in Ngurrawaana, featuring visiting artists to foster skills and cultural engagement within the Yindjibarndi community. YEC's funding will also support the establishment of an Onslow based art group which aims to foster creative expression, cultural maintenance, and community engagement within the Yindjibarndi community through workshops and consultations.

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

5.6 Stakeholder Engagement Record

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

- To inform stakeholders of the Project Baru Marnda and its potential impacts to the environment and community (positive and negative)
- To identify community values and aspirations in relation to Project Baru Marnda
- 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.

Significant consultation has been undertaken with key Federal, State and Local regulatory authorities in addition to extensive and ongoing consultation with the Traditional Owners – the Yindjibarndi people.

Stakeholders and their key areas of interest that have been identified are summarised in Table 5-1.

A summary of outcomes from consultation undertaken to-date is presented in Table 5-2.

Table 5-1: Key Stakeholders

Stakeholder Group	Stakeholder	Interest / context
Traditional Owners	Yindjibarndi Aboriginal Corporation (YAC) and Yindjibarndi Ngurra Aboriginal Corporation (YNAC)	• Equity Partner • Native Title Holders • Representing the Traditional Owners of the land. • Heritage protection and surveys • Employment and procurement opportunities
	Ngurrawaana Group Aboriginal Corporation (NGAC)	• Equity Partner • Native Title Holders • Representing the Traditional Owners of the land. • Heritage protection and surveys • Employment and procurement opportunities
Indigenous Representative Organisations	Yindjibarndi Nation Limited (YNL)	• YAC Affiliated • Representing the Yindjibarndi community
	Ngarluma Yindjibarndi Foundation Ltd (NYFL)	• YAC Affiliated • Representing the Yindjibarndi community
Business and Industry	Yurra Pty Ltd	• YAC Affiliated • Employment and procurement opportunities
	Yindjibarndi Water	• YAC Affiliated • Employment and procurement opportunities
	Cedrent Enterprise	• YAC Affiliated • Employment and procurement opportunities
	Chamber of Minerals and Energy WA (CME)	• Advocates for the state's mining and energy sectors, promoting sustainable development and economic growth
State Government	Department of Jobs, Tourism, Science & Innovation (JTSI)	• Supports the proposal under the Lead Agency Framework. The department is Western Australia's lead agency for economic development, international trade and investment, and tourism.
	Department of Water and Environmental Regulation (DWER)	• Supports the EPA in conducting environmental impact assessments and developing policies to protect the environment. • Responsible for the regulation of prescribed industrial premises, water licensing, and native vegetation clearing permits under the EP Act.
	Environmental Protection Authority of Western Australia (EPA WA)	• Responsible for assessing and advising on all environmental aspects of the proposal, including relevant environmental factors and survey and assessment requirements. • The proposal has been referred to the EPA WA under section 38 of the EP Act.
	Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) - Energy Policy WA (EPWA)	• Representing mining, oil and gas interests and responsible for Mining Act tenure overlapping and adjacent to the development envelope. • Provides policy advice and initiatives to shape the energy sector in Western Australia.
	Department of Planning, Lands and Heritage (DPLH)	• Important stakeholder for several aspects of the proposal. The department is responsible for planning and managing land and heritage for all Western Australians. • Planning approval in accordance with state planning framework

Stakeholder Group	Stakeholder	Interest / context
	Department of Biodiversity, Conservation and Attractions (DBCA)	• Regulates the take and disturbance of listed species and ecological communities respectively under the BC Act. • Manages the Millstream Chichester National Park on behalf of the Conservation and Parks Commission under the CALM Act. • Provides advice to other regulatory agencies (including EPA and DWER) and proponents on biodiversity and CALM Act matters.
	Water Corporation	• Shared road access • Engineering design of road crossings that intersect with water corp infrastructure
	Horizon Power	• Integration of power supply to existing NWIS • Grid connection assessments • Transmission design
	Pilbara Ports Authority	• Logistics of processing project infrastructure through Port Lumsden • Transport of infrastructure from port to site
	Main Roads WA (MRWA)	• Transport route for infrastructure from port to site • Road upgrades and modifications • Approvals and permits
	Department of Transport (DoT)	• Transport route for infrastructure from port to site • Road upgrades and modifications • Approvals and permits
	Pilbara Development Commission (PDC)	• Interested in promoting investment in the Pilbara • Employment and training opportunities
	Former Minister for Energy, Environment and Climate Action the Hon Reece Whitby MLA	• As Minister for Energy, Environment, and Climate Action, Reece Whitby advocated for renewable energy in the Pilbara by approving key projects, promoting decarbonisation, and fostering Indigenous collaboration.
	Governor of Western Australia, Chris Dawson	• Advocate for the transition to renewable energy • Support for indigenous led projects • Represents the State Government's commitment to renewable energy and indigenous empowerment
Federal Government	Department of Climate Change, Energy, the Environment and Water (DCCEEW)	• Regulates actions which have the potential to significantly impact Matters of National Environmental Significance under the EPBC Act. • The proposal has been referred to DCCEEW for consideration under the EPBC Act.
Local Government	Shire of Ashburton	• The project is located in the Shire of Ashburton. • Community benefit sharing options • Workforce accommodation • Road use and maintenance • Employment opportunities.
	City of Karratha	• Karratha is the largest population centre in proximity to the project site. • Community benefit sharing options • Workforce accommodation • Road use and maintenance • Employment opportunities. • Transport of infrastructure from port to site
	Town of Port Hedland	• Transport of infrastructure from port to site

Stakeholder Group	Stakeholder	Interest / context
Landholders - Mining Tenement Holders	Multiple	• Section 91 LAA Licence obligation to notify
Landholders - Mining Tenement Holders (Rio Tinto Associates)	Multiple	• Access to Baru Project Area

Table 5-2: Staholder consultation

Stakeholder	Date	Summary	Proponent Responses / Outcomes
Traditional Owners			
Yindjibarndi Aboriginal Corporation (YAC) and Yindjibarndi Ngurra Aboriginal Corporation (YNAC)	Ongoing	• Regular and ongoing formal and informal engagement to: • Facilitate knowledge, information provision and understanding of the Project within the community. • Gain an understanding of the potential social impacts and opportunities associated with the Project, and community suggestions for mitigation, enhancement or management.	• YEC will continue to provide opportunities for formal and informal engagement with YAC and YNAC to ensure that the Yindjibarndi community has access to clear, regularly updated information.
	Fortnightly	• Ongoing coordination and collaboration in relation to cultural heritage (advice and surveys)	• YEC will continue to engage with YAC and YNAC to ensure Yindjibarndi cultural heritage is respected and protected
	Ongoing	• Cultural Heritage Awareness Sessions with key contractors and YAC cultural representatives	• YEC will continue to ensure all YEC contractors participate in cultural awareness sessions with YAC and YNAC cultural representatives.
	Oct 2023	• Heritage coordination (ongoing awareness sessions, advice and surveys) for Baru and Marnda	• YEC will continue to engage with YAC and YNAC to ensure Yindjibarndi people are involved in the coordination of heritage preservation for all YEC projects.
	Dec 2023	• Yindjibarndi Board endorse the project's Indigenous Land Use Agreement (ILUA) • Meeting in Roebourne for the presentation of the Indigenous Land Use Agreement (ILUA)	• YEC is committed to respecting and abiding by the terms of the ILUA and associated Heritage Protection Agreement (HPA).
	Dec 2023	• Project Baru location sanctioned by Yindjibarndi Elders and YAC Board	• YEC will continue to ensure all development locations are approved and sanctioned by YAC / YNAC boards.
	Nov 2024	• Presentation at YNAC and YAC AGMs to facilitate knowledge sharing and project updates	• Attendees at the AGMs had many questions relating to YEC and YEC's projects which the YEC team were able to answer. • YEC will continue to provide opportunities for formal and informal engagement with YAC and YNAC to ensure that the Yindjibarndi community has access to clear, regularly updated information.
	Aug 2024	• Project Marnda location sanctioned by Yindjibarndi Elders and YAC Board	• YEC will continue to ensure all development locations are approved and sanctioned by YAC / YNAC boards.
	Oct 2024	• Information sharing session held between Mattiske Consulting, Bamford Consulting Ecologists and the Yindjibarndi community within the Baru Project area, relating to Flora and Fauna.	• YEC will continue to ensure that all results of technical studies undertaken on YEC projects are shared with the Yindjibarndi community. • YEC will continue to ensure that the Yindjibarndi community are given the opportunity to be involved in on Country technical studies.
	Feb 2025	• Meeting to discuss workforce accommodation for Jinbi (which may be used for Baru / Marnda)	• YAC is comfortable for YEC to proceed with plans to develop a temporary workforce accommodation camp for Jinbi (which may also be used for Baru / Marnda)
	Apr 2025	• Meeting to discuss Wuyuwarri Reserve / Ngurrawaana Block	•

Stakeholder	Date	Summary	Proponent Responses / Outcomes
Ngurrawaana Group Aboriginal Corporation (NGAC)	Ongoing	• Facilitate knowledge, information provision and understanding of the Project within the community. • Gain an understanding of the potential social impacts and opportunities associated with the Project, and community suggestions for mitigation, enhancement or management.	• YEC will continue to provide opportunities for formal and informal engagement with NGAC to ensure that the Yindjibarndi community has access to clear, regularly updated information.
	Jan 2025	• Meeting to discuss access roads / turbine siting plans and engagement plan going forward.	• YEC has undertaken to reposition the access route to reduce direct impacts (noise / visual) to Ngurrawaana community and to avoid land required for cultural activity • Turbine layout will be adjusted to reduce visual amenity impact to Ngurrawaana community
	Feb 2025	• Community session to discuss access roads / turbine siting plans, workforce accommodation	• YEC to schedule next community session to provide information and answers to the questions raised.
	21 March 2025	• On site discussion (informal) with members of the Ngurrawaana community and consultants from iCubed regarding the proposed access track north of Ngurrawaana. • Discussion regarding the location for Lore in relation to the proposed track.	• YEC has undertaken to reposition the access route to avoid the area of Yindjibarndi Lore. • YEC to reassess the wind turbine locations based on reducing visual impact to Lore location. • A discussion re the DBCA's request for evidence of the Yindjibarndi community's support for YEC's preferred access route (via the national park reserve) – Yindjibarndi community indicated they are happy to provide a letter of support / meet with DBCA to provide in person support.
Indigenous Representative Organisations			
Yindjibarndi Nation Limited (YNL)	Ongoing	• YEC liaises regularly with YNL to: • Collaborate and share knowledge and resources • Facilitate knowledge, information provision and understanding of the Project within the community. • Gain an understanding of the potential social impacts and opportunities associated with the Project, and community suggestions for mitigation, enhancement or management.	• YEC will continue to work closely with YNL and look for ways to actively partner with YNL to support the Yindjibarndi community
Ngarluma Yindjibarndi Foundation Ltd (NYFL)	Ongoing	• YEC liaises regularly with NYFL to: • Collaborate and share knowledge and resources • Facilitate knowledge, information provision and understanding of the Project within the community. • Gain an understanding of the potential social impacts and opportunities associated with the Project, and community suggestions for mitigation, enhancement or management.	• YEC has sponsored a Community Garden initiative which NYFL is implementing in Roebourne. • YEC will continue to work closely with NYFL and look for ways to actively partner with NYFL to support the Yindjibarndi community
Business and Industry			
Yurra Pty Ltd	Ongoing	• YEC liaises regularly with Yurra to: • Collaborate and share knowledge and resources • Discuss and optimise procurement opportunities on YEC projects	• YEC will continue to liaise with Yurra to ensure procurement opportunities on YEC projects for Yurra are maximised.
Yindjibarndi Water	Ongoing	• YEC liaises regularly with Yindjibarndi Water to: • Collaborate and share knowledge and resources • Discuss and optimise procurement opportunities on YEC projects	• YEC will continue to liaise with Yindjibarndi Water to ensure procurement opportunities on YEC projects for Yindjibarndi Water are maximised.
Cedrent Enterprise	Ongoing	• YEC liaises regularly with Cedrent Enterprise to: • Collaborate and share knowledge and resources • Discuss and optimise procurement opportunities on YEC projects	• YEC will continue to liaise with Cedrent Enterprise to ensure procurement opportunities on YEC projects for Cedrent Enterprise are maximised.

Stakeholder	Date	Summary	Proponent Responses / Outcomes
Juluwarlu Arts Group	Ongoing	• YEC liaises regularly with Juluwarlu Arts Group to: • Collaborate and share knowledge and resources • Facilitate knowledge, information provision and understanding of the Project within the community. • Gain an understanding of the potential social impacts and opportunities associated with the Project, and community suggestions for mitigation, enhancement or management.	• YEC has sponsored a series of Professional Development Workshops for local Yindjibarndi artists which Juluwarlu Arts Group is implementing. • YEC will continue to work closely with Juluwarlu Arts Group and look for ways to actively partner with Juluwarlu Arts Group to support the Yindjibarndi community
Chamber of Minerals and Energy WA (CME)	Jan 2025	• Initial project briefing across all YEC projects	• YEC will continue to provide regular updates on key project milestones
Potential Pilbara Load and Transmission Customers	Ongoing	• YEC has regularly liaised with potential load and transmission customers based in the Pilbara region to: • Facilitate knowledge, information provision and understanding of the Project • Understand energy market requirements	• YEC will continue to provide regular updates on key project milestones
State Government			
Department of Jobs, Tourism, Science & Innovation (JTSI)	Regular / Ongoing	• Regular project updates and coordination re: approvals and risks • Specific engagement re application Lead Status for Baru / Marnda	• YEC liaising with the Green Energy Major Projects Unit • YEC developed Project Definition Document (Baru Marnda) • YEC to continue to provide project updates and liaise with JTSI to receive support for initial assessments, advice, case management, and streamlined approval processes.
	Apr 2024 Oct 2024 Feb 2025	• Regular updates on Baru and Marnda including: • Initial project briefing • Project overview and approvals pathway • Multi-agency meeting at DPLH	
Department of Water and Environmental Regulation (DWER) and Environmental Protection Authority of Westen Australia (EPA WA)	Jul 2024 Sep 2024 Oct 2024 Feb 2025	• Varius pre-referral meetings to discuss: o Project status and potential approvals pathways o Flora and Fauna survey methodologies o National Renewable Energy Priority List o Status of the DWER Green Energy Unit	• Referral under Part IV was determined to be an appropriate approvals pathway • DWER advised YEC to include broader contextual information in the referral relating to transmission, site access, and past and future YEC projects • Guidance was received on means to improve the rigor of fauna surveys, including the placement of ARU's, addressing species of particular interest / concern, and approaches for bird surveys • YEC/DWER agreed to early provision of a draft referral to DWER, to provide opportunity for preliminary review and refinement ahead of formal referral • Arrangements being made for DWER staff to visit the development envelope
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) - Energy Policy WA (EPWA)	Ongoing Fortnightly meetings in place	• Baru (and transmission development) • Pilbara Round Table regular meeting • Application for Priority Transmission Project submitted in July 2024	• YEC to continue to provide project updates and liaise with DEMIRS and EPWA throughout project planning.
	May 2024 Sep – Oct 2024	• Pilbara Plan briefing • Transmission (for Baru and Marnda) • Engagement as part of EOI process for common user transmission infrastructure in Chichester corridor	
	Dec 2024	• YEC awarded Priority Project status for the Chichester Range Transmission Corridor	
	Jan 2025	• Project tenure Baru and Marnda • Access tenure • Transmission workshop	

Stakeholder	Date	Summary	Proponent Responses / Outcomes
	Feb 2025	• Multi agency meeting at DPLH	
DEMIRS (EPWA) / Horizon Power /JTSI	Jan 2025	• Update on all YEC projects • Workshop on Chichester Range transmission	
Department of Planning, Lands and Heritage (DPLH)	Ongoing / Fortnightly	• Project briefing Baru Marnda • General project updates and discussions regarding tenure for Baru Marnda	• YEC to continue to provide project updates and liaise with DPLH throughout project planning.
	Jan 2025 Feb 2025	• Multiagency meeting at DPLH	
Department of Biodiversity, Conservation and Attractions (DBCA)	Sep 2024 Mar 2025 Apr 2025	• Introductory email seeking preliminary advice on flora and fauna survey methodologies • Meeting to discuss appropriate tenure processes for the proposed access route • Email correspondence regarding flora survey approaches for 2025 • Meeting to discuss flora / fauna survey scope and methodologies	• DBCA advised of YEC's obligations under the BC Act • Consideration will be given to potential noise/visual impacts of the proposal on the Millstream Chichester National Park • Early engagement was recommended with the DWER Terrestrial Ecosystems Branch regarding survey approaches and methodologies, to ensure consistency with technical guidance • Alternative access routes were raised for consideration by YEC • It was requested that future CALM Act tenure applications include detail on potential benefits/effects on Ngurrawaana community.
Water Corporation	Jan 2025	• Letter re access / renewal • Emails re proposal to arrange a multi-agency briefing for Baru and Marnda	• YEC to continue to provide project updates and liaise with Water Corp throughout project planning.
	Feb 2025 April 2025	• Multi-agency meeting • Correspondnce re next steps	
Horizon Power	Apr 2024 Jun 2024 Ongoing	• Baru and Marnda (and transmission development) • Engagement on NWIS • Various ongoing project development discussions	• YEC to continue to provide project updates and liaise with Horizon Power throughout project planning.
Pilbara Ports Authority	May 2024	• General correspondence on logistics and development timeframes	• YEC to continue to provide project updates and liaise with PPA throughout project planning.
	Jan 2025	• Overview of projects Baru and Marnda, their timing and potential Port requirements	• YEC to provide project schedule timeframe for construction • Frequent updates on project status to ensure the project sufficient area to store project infrastructure components
Main Roads WA (MRWA)	Feb 2025 Mar 2025	• Emails seeking introductory meeting • Initial briefing to provide project overview	• YEC to provide updates on proposed access route • Further discussion re upgrades required
Department of Transport (DoT)	Feb 2025 Mar 2025 Apr 2025	• Emails seeking introductory meeting • Initial briefing to provide project overview • Provision of follow information	• YEC to provide updates on proposed access route • Further discussion re upgrades required
Pilbara Development Commission (PDC)	Apr 2025	• Initial briefing to provide project overview	• YEC to continue to provide project updates throughout project life cycle. • YEC to engage with employment and training initiatives

Stakeholder	Date	Summary	Proponent Responses / Outcomes
Minister for Energy, Environment and Climate Action the Hon Reece Whitby MLA and EPWA, Horizon Power	Jan 2024	• Site visit to discuss Project Jinbi and Baru • Broader YEC plans and transmission solutions	• YEC to continue to provide project updates throughout project life cycle.
Governor of Western Australia, Chris Dawson	Nov 2024	• Site visit to discuss Project Jinbi, Baru and Marnda • Broader YEC plans	• YEC to continue to provide project updates throughout project life cycle.
Federal Government			
DCCEEW	Oct 2024 Apr 2025	• Initial project briefing • Pre-referral meeting (EPCB ACT)	• DCCEEW requested provision of a Bird and Bat Management Plan with the referral • Discussion to be provided within the referral around fauna survey approach and methodology • Referral to include brief discussion on the Jinbi project in the context of relevant federal guidance • Accredited assessment process was raised as a potential assessment pathway • Arrangements being made for an additional meeting at the point of referral
	March 2025 Ongoing	• Announcement that two of Yindjibarndi Energy Corporation's (YEC) renewable energy projects selected for the National Renewable Energy Priority List (NREPL), • Regular engagement relating to unlocking access to enhanced regulatory support and streamlined processes.	• YEC will continue to engage with DCCEEW in relation to regulatory support
Civil Aviation Safety Authority (CASA)	10-Jul-24	• YEC engaged CASA to assess aviation impacts in relation to Baru Marnda	• CASA response on met mast (Baru Marnda), no aviation impact and hazard lighting not required.
Air Services Australia	31-Jul-24	• YEC engaged ASA to assess aviation impacts in relation to Baru Marnda	• ASA advise no impact and no objection to proposed met mast (Baru Marnda). • Final location to be advised via VOD form.
Local Government			
Shire of Ashburton (SoA)	Mar 2025	• Meeting with the Development Control Unit to present the projects Baru and Marnda to the Shire	• YEC to continue to provide project updates throughout project life cycle.
City of Karratha	May 2025	• Email offering project briefing	• YEC to continue to provide project updates throughout project life cycle.
Town of Port Hedland	May 2025	• Email offering project briefing	• YEC to continue to provide project updates throughout project life cycle.
Landholders - Mining Tenement Holders			
Multiple mining tenement landholders overlapping Baru Marnda	Ongoing	• Multiple emails seeking meeting for project overview and discussion of Section 91 licence. • Meetings to provide initial project briefing and discussion of Section 91 licence activity notification requirements	• YEC to continue to provide project updates throughout project life cycle. • YEC will continue to provide Section 91 licence activity notifications

6. Object and Principles of the EP Act

Section 4A of the EP Act establishes the object and principles of the Act. How these have been considered by YEC in relation to the Baru-Marnda Renewable Energy Project is detailed within Table 6-1 overleaf.

Table 6-1: Consideration of the Object and Principles of the EP Act

Principle	Consideration
Description of how the object of the EP Act has been considered The object of the EP Act is to protect the environment of the State, having regard to the following principles.	The development of reliable renewable energy generation and storage facilities has been identified at a state, national, and international level as a means to address the environmental threat posed by a changing climate. YEC considers the Baru-Marnda Renewable Energy Project to be one of Western Australia's flagship projects in achieving this environmental protection goal.
1. The precautionary Principle Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, decisions should be guided by: a. Careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and b. An assessment of the risk-weighted consequences of various options	YEC acknowledges that full scientific certainty on the existing environment and potential impacts on it is yet to be achieved for the proposal. YEC are committed to addressing this through the undertaking of a comprehensive and multi seasonal environmental survey program, pre- and post-construction. However, where uncertainty persists YEC has taken a precautionary approach to the application of the mitigation hierarchy to reduce the risk of environmental harm to the fullest extent practicable. For example, while the nature and extent of potential bird and bat collisions with turbines are yet to be fully understood, the implementation of an adaptive management framework will ensure that potential impacts can be appropriate avoided and minimised, throughout the project's operational life.
2. The principle of intergenerational equity The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations	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. Maintaining and enhancing the health, diversity and productivity of the environment is one of the key environmental outcomes YEC aim to achieve through the Baru-Marnda Renewable Energy Project's implementation.
3. The principle of the conservation of biological diversity and ecological integrity Conservation of biological diversity and ecological integrity should be a fundamental consideration.	All aspects of the Baru-Marnda Renewable Energy Project's design and proposed management have been developed with the mitigation of potential environmental impacts as a fundamental consideration. Avoidance, minimisation and rehabilitation measures have been formulated for each environmental factor considered relevant to the proposal, including flora and vegetation (section 7.1.4), terrestrial fauna (section 7.2.4), inland waters (section 7.3.4) and social surroundings (section 7.4.4).
4. Principles relating to improved valuation, pricing and incentive mechanisms a. Environmental factors should be included in the valuation of assets and services b. The polluter pays principle – those who generate pollution and waste should bear the cost of containment, avoidance or abatement c. The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes d. Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems	The Baru-Marnda Renewable Energy Project is achieving the Yindjibarndi community's vision to create profitable and sustainable community owned commercial businesses through: • Early investment in workforce development initiatives to prepare indigenous communities to participate in YEC projects; and • Supply chain access security for Yindjibarndi owned businesses. Renewable energy generated and stored by the Baru-Marnda Renewable Energy Project will be made available for use by a variety of major towns and resources projects in the Pilbara region through the North West Interconnected System (NWIS), which is currently managed by the Horizon Power Pilbara Network.
5. The principle of waste minimisation All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.	YEC is committed to minimising the generation of waste throughout all phases of the proposal's implementation. While it is recognised that potential discharges into the environment are primarily regulated through Part V of the EP Act, YEC do not consider potential impacts associated with these to be significant at a local or regional scale. Discussion of potential impacts associated with the generation of waste and YEC's mitigation response has been provided against each relevant environmental factor in this report.

7. Preliminary Key Environmental Factors

Environmental factors are factors that the EPA uses as an organising principle for environmental impact assessment. The EPA has 14 environmental factors, divided into the five themes of Sea, Land, Water, Air and People. A preliminary assessment of these environmental factors has been undertaken in Table 7-1 below, to determine which factors may be considered key to the proposal.

The preliminary key environmental factors identified include:

- Flora and Vegetation (section 7.1)
- Terrestrial Fauna (section 7.2)
- Inland Waters (section 7.3)
- Social Surroundings (section 7.4).

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

- Greenhouse Gas Emissions (section 7.5.1).

Table 7-1: Assessment of Preliminary Key Environmental Factors

Theme	Environmental Factor	Consideration	Conclusion
Sea	Benthic communities and habitats	The proposal is not located in proximity to coastal areas	Not relevant to proposal
	Coastal processes	The proposal is not located in proximity to coastal areas	Not relevant to proposal
	Marine environmental quality	The proposal is not located in proximity to coastal areas	Not relevant to proposal
	Marine fauna	The proposal is not located in proximity to coastal areas	Not relevant to proposal
Land	Flora and vegetation	Impacts on flora and vegetation are anticipated as a result of this proposal.	Preliminary key environmental factor
	Landforms	No impacts on significant physical landforms are anticipated as a result of this proposal	Not relevant to proposal
	Subterranean fauna	No impacts on subterranean fauna are anticipated as a result of this proposal.	Not relevant to proposal
	Terrestrial environmental quality	No impacts on terrestrial environmental quality are anticipated as a result of this proposal	Not relevant to proposal
	Terrestrial fauna	Impacts on terrestrial fauna are anticipated as a result of this proposal.	Preliminary key environmental factor

Theme	Environmental Factor	Consideration	Conclusion
Water	Inland waters	Impacts on inland waters are anticipated as a result of this proposal	Preliminary key environmental factor
Air	Air quality	No impacts on air quality are anticipated as a result of this proposal	Not relevant to proposal
	Greenhouse gas emissions	The proposal will cause greenhouse gas emissions, however these are anticipated to be below EPA thresholds for this factor	Other environmental factor
People	Social surroundings	Potential social impacts and benefits are a key consideration for this proposal	Preliminary key environmental factor
	Human health	No impacts on human health are anticipated as a result of this proposal	Not relevant to proposal

7.1 Flora and Vegetation

'Our Yindjibarndi ancestors were created with our environment and we were given responsibility to care for all that lives on our earth by the Marrga Creation Spirits. Ensuring that plants flourish is central to the lives of animals, birds, fish and reptiles and Ngaardangarli, who are themselves part of the seasonal, annual, and long term inter-dependent relationships of life on this world. Yindjibarndi have always had an intimate, deep and abiding ethno-botanical knowledge of the needs of the many plants that are our responsibility, and which in turn support all life, providing food sources, shelter and medicines to our people and other living creatures that inhabit our environment.'

- *Juluwarlu Aboriginal Corporation (2024)*

7.1.1 EPA Objective, Policy and Guidance

The EPA's objective of the factor Flora and Vegetation is (EPA 2016b)

To protect flora and vegetation so that biological diversity and ecological integrity are maintained.

Policies and guidance which are relevant to the Flora and Vegetation environmental factor are outlined below in Table 7-2.

Table 7-2: Flora and Vegetation - Policies and Guidance

Source	Policy and Guidance
EPA Policy and Guidance	Environmental Factor Guideline: Flora and Vegetation (EPA 2016b)
	Technical Guidance – Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016c)
Other Policy and Guidance	Methods for survey and identification of Western Australian threatened ecological communities (DBCA 2024)
	Priority Ecological Communities for Western Australia Version 35 (DBCA 2023)

7.1.2 Receiving Environment

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 development envelope. These associations and their extents are described in Table 7-3 and illustrated in Figure 5.

Table 7-3: Pre-European Vegetation within the Development Envelope

Vegetation Association	Description	Extent Remaining*	Extent within Development Envelope
Chichester Plateau_93	Hummock grassland with scattered shrubs or mallee Triodia spp. Acacia spp., Grevillea spp. Eucalyptus spp	40,988.83 ha (100%)	2,628.22 ha
Chichester Plateau_152	Hummock grasslands, grass steppe; soft & hard spinifex soft spinifex	8,420.09 (100%)	0.04 ha
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%)	6,489.25 ha
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%)	2,167.56 ha
Chichester Plateau_587	Sparse low tree-steppe / Sparse shrub-steppe	462,038.96 ha (100%)	30,788.71 ha
Abydos Plain – Chichester_152	Hummock grasslands, grass steppe; soft & hard spinifex soft spinifex	129,961.48 ha (99.92%)	34.93 ha
Abydos Plain – Chichester_157	Hummock grasslands, grass steppe; hard spinifex, Triodia wiseana	74,772.67 ha (98.66%)	5.4 ha
Abydos Plain 619	Medium woodland; river gum (Eucalyptus camaldulensis)	42,551.05 ha (97.62%)	1.4 ha
Abydos Plain_647	Hummock grasslands, dwarf-shrub steppe; Acacia translucens over soft spinifex	184,615.79 ha (97.81%)	6.84 ha
Abydos Plain – Roebourne_589	Mosaic: Short bunch grassland - savanna / grass plain (Pilbara) / Hummock grasslands, grass steppe; soft spinifex	78,549.79 ha (97.29%)	5.19 ha

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

Studies Undertaken

To date, the following studies have been undertaken within and beyond the development envelope to understand the existing environment as it relates to flora and vegetation (Table 7-4). The spatial coverage of each study is illustrated in Figure 6.

Table 7-4: 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 2025)	30th October to 3rd November 2023	Jinbi Project Area, outside the development envelope
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 outside the development envelope.	2nd to 7th September 2024	34,718 ha, which corresponds to the main infrastructure development envelope.
RPS Group	Detailed Flora and Vegetation Survey – Pre-wet season (Appendix 2)	11th to 15th November 2024	Site Access Route

In addition to the above, YEC has committed to undertaking a second phase of flora and vegetation surveys throughout the development envelope, following the wet season in early 2025. The second phase will build upon the findings of the first, and will seek to refine the known presence, distribution and extents of conservation significant flora and ecological communities within and beyond the indicative disturbance footprint. Results of post-wet season surveys will be provided to and discussed with relevant stakeholders as soon as these are available.

Survey Constraints

During December 2023, approximately one third of the development envelope was burnt in the north and northwest. Notwithstanding, at the time of the September and November 2024 surveys, vegetation was still largely identifiable, and the vegetation communities were distinguishable (Mattiske 2025). Further, the 2024 surveys were partly informed by the 2023 survey of the adjacent Jinbi project area, which provided quantitative information on the pre-fire floristic conditions of the area. During the post-wet season survey scheduled for 2025, a subset of the survey sites established in these burnt areas will be reassessed.

An assessment of potential survey limitations was undertaken as a part of both the Mattiske (2025) and RPS Group (2025) flora and vegetation surveys against the EPA guidance (EPA 2016c). None of the potential survey limitations identified in the guidance were considered to be a constraint to either survey.

Vegetation Communities and Condition

A total of 18 vegetation communities have been described and mapped within the development envelope, including four vegetation communities recorded at isolated intersections on the proposed route from the port of entry. These communities and their extent within the development envelope are described in Table 7-5 and illustrated in Figure 7.

Table 7-5: Vegetation Communities within the Development Envelope

Vegetation Community	Description	Extent within Main Infrastructure Development Envelope (ha)	Extent within Site Access Route (ha)	Total (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	0	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.	1,458.29	2.8	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	0	31.19
C3	Eucalyptus victrix, Eucalyptus camaldulensis low woodland over Acacia coriacea subsp. pendens, Melaleuca glomerata, Acacia spp. (A. bivenosa, A.	133.44	0	133.44

Vegetation Community	Description	Extent within Main Infrastructure Development Envelope (ha)	Extent within Site Access Route (ha)	Total (ha)
	pyrifolia var. pyrifolia, A. tumida) mid sparse shrubland over Cyperus vaginatus, Stemodia grossa, Eriachne benthamii low sparse shrubland in drainage channels.			
C4	Eucalytpus victrix, Eucalytpus 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 poolswith high water permanence.	10.85	0	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, Cymbopogon ambiguus low sparse grassland in narrow rocky sandstone gorges.	31.71	0	31.71
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.	464.1	17.19	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.	32,649.34	1,127.14	33,776.48
G2	*Aristida latifolia, Triodia wiseana* low sparse tussock grassland over *Rhynchosia minima, Streptoglossa bubakii* low isolated shrubs with diverse annual herbs	1,145.08	1,778.49	2,923.57

Vegetation Community	Description	Extent within Main Infrastructure Development Envelope (ha)	Extent within Site Access Route (ha)	Total (ha)
	and grasses on friable cracking clay on hilltops and flats.			
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	0	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	0	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.	849.15	164.39	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	0	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	0	167.03

Vegetation Community	Description	Extent within Main Infrastructure Development Envelope (ha)	Extent within Site Access Route (ha)	Total (ha)
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.	N/A	5.26	5.26
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.	N/A	1.4	1.4
	Non-creek line: *Eucalyptus victrix* sparse trees over *Triodia wiseana, T. epactia* open grassland. Sparse *Sclerolaena* sp.	N/A	4.69	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.	N/A	4.45	4.45
Subtotal		38,895.58	3,105.81	42,001.39
Cleared / Infrastructure		0	126.08	126.08

Generally, vegetation within the development envelope 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 development envelope 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 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 2025).

Conservation Significant Vegetation

No vegetation within the development envelope is considered to represent a Threatened Ecological Community listed under either the BC Act or EPBC Act. No Threatened Ecological Communities are known to occur within the vicinity of the development envelope.

Two Priority Ecological Communities (PECs) as listed by the DBCA were identified to occur within the development envelope, 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 within the development envelope (Figure 7). 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 this 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 cover approximately 175.48 ha of the development envelope (Figure 7). 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 development envelope (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 development envelope. Vegetation communities considered to correspond to the Riparian Flora PEC are also considered to represent Groundwater Dependent Ecosystems (GDE's).

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 within 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.

Flora

A total of 297 vascular plant taxa across 49 families have been recorded from within the development envelope 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 development envelope. No Threatened flora species are considered likely to occur within the development envelope, based on a likelihood of occurrence assessment (Table 5 of Appendix 1).

Seven Priority flora species as listed by the DBCA have been recorded within the development envelope (Figure 8). These are (Table 7-6):

Table 7-6: Priority-listed flora recorded from within the development envelope

Species	Conservation category	Number of records (individuals) within the development envelope
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 development envelope, but were not recorded in 2023 or 2024 (Mattiske 2025). These species, and a description of their habitat requirements are listed in Table 7-7. It is considered that the post-wet season survey scheduled for 2025 will serve as an opportunity to identify occurrences of these species and if present, how these relate to the indicative disturbance footprint.

Table 7-7: Priority flora species considered to have the potential to occur within the development envelope

Species	Conservation category	Habitat (Mattiske 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.

Species	Conservation category	Habitat (Mattiske 2025)
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.

7.1.3 Potential Environmental Impacts

Potential Direct Impacts

Potential direct impacts on flora and vegetation resulting from implementation of the Baru-Marnda Renewable Energy Project are anticipated to be limited to the clearing of native vegetation, only. The potential extent of clearing for each flora and vegetation value identified in section 7.1.2 is presented in Table 7-8 below.

Recognising that any four of the six optional solar array areas may ultimately be implemented, minimum and maximum clearing extents have been provided for each flora and vegetation value, based on an assessment of each optional solar area.

Table 7-8: Potential extent of direct impacts on Flora and Vegetation values

Flora and Vegetation Value	Maximum extent of potential impacts		Minimum extent of potential impacts	
	Clearing extent	Retention	Clearing extent	Retention
Vegetation				
Native vegetation in predominately excellent condition	• 735.7 ha (temporary) • 4,250.7 ha (long-term clearing and any solar options M1, M4, M5 and M6) • collectively 11.87% of the mapped total	• 37,014.99 ha • 88.12% of the mapped total	• 735.7 ha (temporary) • 4,084.7 ha (long-term clearing and any solar options B2, B3, M1 and M4) • collectively 11.48% of the mapped total	• 37,180.99 ha • 88.52% of the mapped total
Riparian Flora PEC (C2, C3, and C4 vegetation communities)	• 0 ha	• 175.48 ha (100%)	• 0 ha (0%)	• 175.48 ha • 100% of the mapped total
Cracking Clays PEC (G2 vegetation community)	• 27.4 ha (temporary) • 198.1 ha (long-term clearing and. any four solar options which include M1) • collectively 7.71% of the mapped total	• , 2,698.07 ha • 92.29% of the mapped total	• 27.4 ha (temporary) • 29.5 ha (long-term clearing and any four solar options which exclude M1) • collectively 1.95% of the mapped total	• 2,866.67 ha • 98% of the mapped total
Vegetation community B1	• 0.3 ha (temporary) • 1.7 ha (long-term clearing and any four solar options which include B2) • collectively 1.18% of the mapped total	• 167.85 ha • 98.82% of the mapped total	• 0.3 ha (temporary) • 0.6 ha (long-term clearing and any four solar options which exclude B2) • collectively <1% of the mapped total	• 168.95 ha • >99% of the mapped total
Vegetation community C1	• 6 ha (temporary) • 48.2 ha (long-term clearing and solar options B3, M1, M4 and M5)	• 1,406.89 ha • 96.3% of the mapped total	• 6 ha (temporary) • 21.3 ha (long-term clearing and solar options B2, M4, M5 and M6)	• 1,433.79 ha • 98.13% of the mapped total

Flora and Vegetation Value	Maximum extent of potential impacts		Minimum extent of potential impacts	
	Clearing extent	Retention	Clearing extent	Retention
	• collectively 3.7% of the mapped total		• collectively 1.87% of the mapped total	
Vegetation community C2	• 0 ha	• 31.19 ha • 100% of the mapped total	• 0 ha (0%)	• 31.19 ha (100%)
Vegetation community C3	• 0 ha	• 133.44 ha • 100% of the mapped total	• 0 ha (0%)	• 133.44 ha • 100% of the mapped total
Vegetation community C4	0 ha	• 10.85 ha • 100% of the mapped total	0 ha (0%)	• 10.85 ha • 100% of the mapped total
Vegetation community C5	0 ha	• 31.71 ha • 100% of the mapped total	0 ha (0%)	• 31.71 ha • 100% of the mapped total
Vegetation community C6	• 5.8 ha (temporary) • 95.8 ha (long-term clearing and any solar options B3, M4, M5 and M6) • collectively 21.1% of the mapped total.	• 379.69 ha • 78.89% of the mapped total	• 5.8 ha (temporary) • 24.8 ha (long-term clearing and any solar options B2, M1, M4, and M5) • collectively 6.36% of the mapped total	• 450.69 ha • 93.64% of the mapped total
Vegetation community G1	• 662.9 ha (temporary) • 3,781.7 ha (long-term clearing and any solar options B3, M4, M5 and M6) • collectively 13.16% of the mapped total.	• 29,331.88 ha • 86.84% of the mapped extent	• 662.9 ha (temporary) • 3,052.9 ha (long-term clearing and any solar options B2, B3, M1 and M4) • collectively 11% of the mapped total.	• 30,060.68 ha • 89% of the mapped extent.

Flora and Vegetation Value	Maximum extent of potential impacts		Minimum extent of potential impacts	
	Clearing extent	Retention	Clearing extent	Retention
Vegetation community G2	• 27.4 ha (temporary) • 198.1 ha (long-term clearing and any four solar options which include M1) • collectively 7.71% of the mapped total	• 2,698.07 ha • 92.29% of the mapped total	• 27.4 ha (temporary) • 29.5 ha (long-term clearing and any four solar options which exclude M1) • collectively 1.95% of the mapped total	• 2,866.67 ha • 98% of the mapped total
Vegetation community S1	• 0 ha (temporary) • 582.3 ha (long-term clearing and any four solar options which include B2) • collectively 33.11% of the mapped total	• 1,176.64 ha • 66.99% of the mapped total	• 0 ha (any four solar options which exclude B2)	• 1,758.94 ha • 100% of the mapped total
Vegetation community S2	• 0.6 ha (temporary) • 1.2 ha (long-term clearing and any four solar options) • collectively 8.77% of the mapped total	• 18.72 ha • 91.23% of the mapped total	• 0.6 ha (temporary) • 1.2 ha (long-term clearing and any four solar options) • collectively 8.77% of the mapped total	• 18.72 ha • 91.23% of the mapped total
Vegetation community W1	• 32.2 ha (temporary) • 223.5 ha (long-term clearing and any solar options B3, M4, M5 and M6) • collectively 25.23% of the mapped total	• 757.84 ha • 74.77% of the mapped total	• 32.2 ha (temporary) • 106.8 ha (long-term clearing) • collectively 13.71% of the mapped total	• 874.54 ha • 86.29% of the mapped total
Vegetation community W2	0 ha	• 6.08 ha • 100% of the mapped total	0 ha (0%)	• 6.08 ha • 100% of the mapped total

Flora and Vegetation Value	Maximum extent of potential impacts		Minimum extent of potential impacts	
	Clearing extent	Retention	Clearing extent	Retention
Vegetation community W3	• 0.5 ha (temporary) • 38.3 ha (long-term clearing and any four solar options which include B3) • collectively 23.23% of the mapped total	• 128.23 ha • 76.77% of the mapped total	• 0.5 ha (temporary) • 1.3 ha (long-term clearing and any four solar options which exclude B3) • collectively 1.08% of the mapped total	• 165.23 ha • 98.92% of the mapped total
North West Coastal Highway / Great Northern Highway	0.5 ha	4.76 ha	0.5 ha	4.76 ha
North West Coastal Highway / Cherrata Road – Creekline vegetation	0 ha	1.4 ha	0 ha	1.4 ha
North West Coastal Highway / Cherrata Road – non-creek line vegetation	0.2 ha	4.25 ha	0.2 ha	4.25 ha
North West Coastal Highway / Warlu Road/Manuwarra Red Dog Highway	0.1 ha	4.35 ha	0.1 ha	4.35 ha
Flora				
Neptunia longipila (P2)	• Clearing of two individuals across two records (any four solar options which include M1) • Collectively representing less than 1% of the mapped total	• Retaining 176 individuals across nine records • Collectively representing greater	• Clearing no individuals (any four solar options which excludes M1)	• Retaining all individuals

Flora and Vegetation Value	Maximum extent of potential impacts		Minimum extent of potential impacts	
	Clearing extent	Retention	Clearing extent	Retention
		than 99% of the mapped total		
Pentalepis trichodesmoides subsp. *hispida* (Barraburratha) (P2)	• Clearing of 11 individuals across six records (any four solar options which include M1 and M6) • Collectively representing 12.36% of the mapped total	• Retaining 78 individuals across nine records • Collectively representing 87.64% of the mapped total	• Clearing no individuals (solar options B2, B3, M4 and M5)	• Retaining all individuals
Trianthema sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023) (P2)	• Clearing no individuals (any four solar options)	• Retaining all individuals	• Clearing no individuals (any four solar options)	• Retaining all individuals
Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479) (P2)	• Clearing of 52 individuals across three records (any four solar options which includes M1) • Collectively representing 10.36% of the mapped total	• Retaining 450 individuals across two records • Collectively representing 89.64% of the mapped total	• Clearing no individuals (any four solar options which excludes M1)	• Retaining all individuals
Euphorbia inappendiculata var. *inappendiculata* (P3)	• Clearing of four individuals across one record (any four solar options which includes M1) • Collectively representing 80% of the mapped total	• Retaining one individual across one record • Collectively representing 20% of the mapped total	Clearing no individuals (any four solar options which excludes M1)	Retaining all individuals
Euphorbia stevenii (P3)	• Clearing no individuals (any four solar options)	• Retaining all individuals	• Clearing no individuals (any four solar options)	• Retaining all individuals

Flora and Vegetation Value	Maximum extent of potential impacts		Minimum extent of potential impacts	
	Clearing extent	Retention	Clearing extent	Retention
Rhynchosia bungarensis (P4)	• Clearing of 18 individuals across five records (any four solar areas which include M1, M4 and M5) • Collectively representing 31.58% of the mapped total	• Retaining 39 individuals across 22 records • Collectively representing 68.42% of the mapped total	• Clearing of eight individuals across four records (any four solar options which exclude M5) • Collectively representing 14.04% of the mapped total	• Retaining 49 individuals across 23 records • Collectively representing 85.96% of the mapped total

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 (4,986.4 ha), approximately 735.7 ha (14.75%) will be temporary clearing only, and will be subject to rehabilitation following construction.
- The maximum clearing of 4,986.4 ha of native vegetation represents approximately 1% of the extent remaining of the Chichester Plateau_587 vegetation association, which covers the substantial majority of the development envelope (Table 7-3). The current extent remaining of this vegetation association, and all others mapped within the development envelope, is at or near 100% of the pre-european extent.
- Excluding optional solar area M1, the substantial majority of potential impacts on the Cracking Clays PEC is associated with the site access route (approximately 52.4 of 56.9 ha). However, based on the considerable mapped extent of the PEC in this area (Figure 7), there appear to be no opportunities to avoid these impacts. Alignment of the proposed route with the existing track from Warlu 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 within the development envelope, of which up to 225.5 ha (7.71%) will potentially be impacted by the proposal. However, the mapped occurrences of this PEC closely align with the Wona land system (Figure 3; Figure 7), and the Wona Land System is specifically referenced with regard to this community on the DBCA's PECs 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 are located within 50 km of (and outside of) the development envelope, of which 20,454.14 ha are located within and afforded protection by, the Millstream Chichester National Park. The potential clearing of up to 225.5 ha represents approximately 1% of this protected extent.
- Of the six solar options which could ultimately be pursued by YEC, only one (M1) has the potential to directly impact occurrences of the Cracking Clays PEC.
- All mapped occurrences of the Riparian Flora PEC will be completely avoided by the proposal, irrespective of which four optional solar areas are ultimately pursued.
- All mapped occurrences of *Trianthema* sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023) and *Euphorbia stevenii* will be completely avoided by the proposal, irrespective of which four optional solar areas are ultimately pursued.
- The majority of potential impacts on Priority listed flora are associated with the M1 optional solar area. If this optional solar area is not pursued, then all potential direct impacts on *Neptunia longipila, Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479), and *Euphorbia inappendiculata* var. *inappendiculata* would be completely avoided.
- All Priority-listed flora species identified within the development envelope 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 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.

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

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 development envelope
- 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 impacted 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.

Potential Cumulative Impacts

Cumulative environmental impacts are the successive, incremental, and interactive impacts on the environment of a proposal with one or more past, present and reasonably foreseeable future activities (EPA 2023d). In terms of the Baru-Marnda Renewable Energy Project, the nearest project that could be considered to have comparable impacts is 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 development envelopes 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 7-9 below.

Table 7-9: 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	4,444.6 ha	4,662.29 ha
S1	299.17 ha	582.3 ha	881.47 ha
C1	1 ha	54.2 ha	54.2 ha
C2 (representing the Riparian Flora PEC)	0 ha	0 ha	0 ha
Native vegetation, total	517.86 ha	4,986.4 ha	5,504.26 ha

Based on the above, total cumulative impacts on flora and 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 impact 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 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 main infrastructure development envelope
- 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 main infrastructure development envelope
- 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 main infrastructure development envelope.

All three of the above projects are located east of the main infrastructure development envelope, 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 development envelope (for example, the Wona, Capricorn, and Rocklea land systems; see Table 3-1), 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 fist 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.

7.1.4 Mitigation

Avoidance

In considering opportunities to avoid potential impacts on flora and vegetation values within the development envelope, 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 PEC mapped within the development envelope. While some clearing of the Cracking Clays PEC is proposed, this is anticipated to be limited to no more than 225.5 ha, which represents only 7.71% of that mapped within the development envelope, and approximately 1% of the likely extent afforded protection within the Millstream Chichester National Park.

It should be noted that two optional solar areas which were included in preliminary project layouts were subsequently removed by YEC, based on their potential to impact the Cracking Clays PEC (being M2 and M3; Figure 2). Were these to have been included in the proposal as referred, then it is reasonable to consider that potential impacts on the Cracking Clays PEC would have been upwards of three times the current maximum extent of impacts, in the vicinity of 680 ha.

As the proposal currently stands, the vast majority of potential impacts on the Cracking Clays PEC (approximately 168.6 ha) are associated with the M1 solar array only, and in the event that this solar array is not ultimately developed, then the maximum extent of potential impacts would be only 56.9 ha, representing 1.9% of the mapped total within the development envelope, and less than 1% of the likely extent within the Millstream Chichester National park.

In terms of Priority-listed flora, YEC has proactively removed two optional solar areas (M2 and M3) so as to avoid potential direct impacts associated with their implementation. In terms of the M2 solar area, this had the potential to impact 50 individuals of *Neptunia longipila*, and seven individuals of *Rynchosia bungarensis*. Similarly, the M3 solar area had the potential to impact 73 individuals of Neptunia longipila, 18 individuals of Rynchosia bungarensis, and one individual of *Euphorbia inappendiculata var. inappendiculata*. By removing these two solar areas, YEC has managed to avoid all of these potential impacts.

Only five of the seven Priority flora identified within the development envelope have the potential to be directly impacted by the proposal. Of these five, two may only be impacted by the M1 optional solar area. In the event that this solar array is not ultimately developed, then only three of eight identified species have the potential to be directly impacted.

It should be noted that potential direct impacts on Priority flora species are only associated with optional solar areas. Remaining spatial components of the proposal have been designed so as to completely avoid all Priority flora occurrences.

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

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 terrain-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 DCCEEW'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 relevant 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, and the EPA's objective of protecting flora and vegetation so that biological diversity and ecological integrity are maintained.

Rehabilitation

Approximately 735.7 ha of the indicative disturbance footprint will be cleared for construction purposes only, and which is proposed to be rehabilitated at the conclusion of the construction phase. Further, YEC anticipates that the substantial majority of remaining clearing (4,250.7 ha) will be rehabilitated during the decommissioning phase, at the conclusion of the proposal's operational life (a minimum of approximately 50 years).

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 (see section 4.2.3). 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.

7.1.5 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:

- Retention of between 37,014.99 ha (88.12%) and 37,180.99 ha (88.52%) of native vegetation within the development envelope
- No direct, indirect, or cumulative impacts on threatened flora or ecological communities
- Retention of between 2,698.07 ha (92.29%) and 2866.67 ha (98%) of the Cracking Clays PEC within the development envelope
- Retention of all mapped occurrences of the Riparian Flora PEC within the development envelope
- Retention of all occurrences of *Trianthema* sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023) and *Euphorbia stevenii*
- The retention of at minimum:
    - 176 individuals of *Neptunia longipila* (greater than 99% of the mapped total)

- 78 individuals of *Pentalepis trichodesmoides* subsp. *hispida* (Barraburratha) (87.64% of the mapped total
- 450 individuals of *Dolichocarpa* sp. Hamersley Station (A.A. Mitchell PRP 1479) (89.64% of the mapped total)
- One individual of *Euphorbia inappendiculata* var. *inappendiculate* (20% of the mapped total)
- 39 individuals of *Rynchosia bungarensis* (68.42% of the mapped total)

- No meaningful reduction in the remaining extents of each pre-european vegetation system association mapped within the development envelope
- No introduction of weeds or plant pathogens to the development envelope 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 (including planning approval conditions; see section 4.2.3).

Based on the above, YEC is confident that the Yindjibarndi community's vision of protecting ngurra, and the EPA's objective of protecting flora and vegetation so that biological diversity and ecological integrity are maintained, can both be met.

7.2 Terrestrial Fauna

'Our fauna provide us with food, clothing and warmth, decorations for our ceremonies, and are kept as pets and hunting companions. Our fauna also plays an important part in our spirituality, beliefs and social system. Each animal has a place in our kinship system, belonging to one of the four Galharra, or skin groups (Garimarra, Burungu, Balyirri and Banaga), to which every person belongs. Many animals are sung about in the Burndud, the song cycle which is our Law. There are also rules set out in our Law about who can and can't eat or touch certain animals, and the times or places these restrictions apply. Animals also feature strongly in our Dreaming stories which explain the creation of the world.'

- *Juluwarlu Aboriginal Corporation (2005)*

7.2.1 EPA Objective, Policy and Guidance

The EPA's objective of the factor Terrestrial Fauna is (EPA 2016a):

To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.

Policies and guidance which are relevant to the Terrestrial Fauna environmental factor are outlined below in Table 7-10.

Table 7-10: Terrestrial Fauna - Policies and Guidance

Source	Policy and Guidance
EPA Policy and Guidance	Environmental Factor Guideline: Terrestrial fauna (EPA 2016a)
	Technical Guidance – Sampling of short range endemic invertebrate fauna (EPA 2014)
	Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2020)
	Cumulative environmental impacts of development in the Pilbara region (EPA 2014)
Other Policy and Guidance	Wind Farm Collision Risk for Birds: Cumulative risks for threatened and migratory species (Biosis 2006)
	A review of ghost bat ecology, threats and survey requirements (Bat Call WA 2021a)
	A review of Pilbara leaf-nosed bat ecology, threats and survey requirements (Bat Call WA 2021b)
	Survey Guidelines for Australia's Threatened Birds (DEWHA 2010a)
	Survey Guidelines for Australia's Threatened Bats (DEWHA 2010b)

7.2.2 Receiving Environment

Studies Undertaken

To date, the following studies have been undertaken within and beyond the development envelope to understand the existing environment as it pertains to terrestrial fauna (Table 7-11). The spatial coverage of each study and associated survey points is illustrated in Figure 9.

Table 7-11: 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, outside of the development envelope
RPS Group	Level 1 (Basic) Survey (Appendix 2)	29th September to 1st October 2024	Site Access Route

Responsible Party	Type of Study	Dates of Study	Coverage of Study
Bamford Consulting Ecologists	Level 1 (Basic) Survey (Appendix 3)	16th July 2024, 6th to 8th August 2024	34,718 ha, including the main infrastructure development envelope
	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 km^2, centred on the Jinbi Project Area and including the main infrastructure development envelope

Data collected from Audio Recording Units (ARU's) distributed throughout the development envelope 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 has committed to undertaking a further series of bird and bat utilisation surveys over the wet and dry seasons of 2025, to better understand the presence, behaviour and risk of impact to aerial fauna across the development envelope. Similar surveys are proposed to continue throughout the construction and operation phases of the proposal, as a part of YEC's adaptive management approach (see section 7.2.4).

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 development envelope 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 within the development envelope, each of which generally correspond to a vegetation community defined by Mattiske Consulting (2025) and RPS Group (2025). These are (Table 7-12; Figure 10):

Table 7-12: Vegetation Substrate Associations (Bamford 2025)

VSA No.	Description	Most similar vegetation community (Mattiske 2025; RPS 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 development envelope 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 development envelope.	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 hald of the development envelope with some small areas in the north-west. Corresponds roughly to the Capricorn Land System	W1

In addition to the VSA's identified within the development envelope, 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 development envelope (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 7-5) 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 development envelope.

Fauna Diversity

A total of 257 vertebrate fauna species were considered to potentially occur within the development envelope, based on the desktop assessment undertaken 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.

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 development envelope. 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 Lead-nosed Bat were confirmed to be present within the development envelope. 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 development envelope. Six fauna species listed as Priority fauna species by DBCA were also considered to be either residents or regular visitors within the development envelope. 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 7.4.2.

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

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 development envelope, 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 (section 7.1.2; Figure 7). It was noted by Mattiske (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 south-western corner of the development envelope.

Major drainage lines within the development envelope 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).

Yirriwardu – Northern Quoll

This species was once widespread across much of northern Australia from the Pilbara to south-east 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 development envelope, 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 development envelope 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 development envelope, 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).

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 development envelope, 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 development envelope (Bamford Consulting Ecologists 2025). While this is considered likely to correspond to the C1 and C6 vegetation communities in this area (Figure 7), 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 11.

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 development envelope, and only following heavy rainfall (Bamford Consulting Ecologists 2025).

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 2021).

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 2021).

The geology in the development envelope 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 development envelope (Figure 10), 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 2021).

Between August and December 2024, three recordings were captured of the Pilbara Leaf-nosed Bat on Audio Recording Units (ARUs) within the development envelope, all of which occurred in August 2024. These recordings are detailed below in Table 7-13. The two ARU's which recorded the species (ARU 16 and 26) were each located within creek lines in the eastern half of the development envelope, 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 2021). Males of the species have been known to move up to 170 km (Bat Call WA 2021).

Table 7-13: Acoustic records of Pilbara Leaf-nosed Bats detected along creek lines within the development envelope

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

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 2021). 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 2021).

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 development envelope have been made to-date, nor have any recordings of the species been collected on audio recording units distributed throughout the development envelope. 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 site by small numbers Ghost Bats for foraging or transiting purposes has not been ruled out, and targeted efforts to record the species within the development envelope 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 development envelope (vegetation communities C1-6) would be utilised for this purpose.

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 2023d; 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 2023d; Higgins 1999). The species usually flies from a slow as one metre to more than 300 m above the ground.

Within the development envelope, 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 12), where birds were flying between 20 m and 40 m. The species was not observed during any other survey undertaken to-date.

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 development envelope to-date, nor are there any records available of the species within 40 km of the development envelope. It is noted that if any breeding activity was occurring within the survey area, then individuals would have been sighted during the bird and bat utilisation surveys (Bamford Consulting Ecologists 2025).

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 Renewable Energy Project main infrastructure development envelope, 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 (section 7.1.2), general topography, and patterns of water permanence across the development envelope, it could be reasonably concluded that the most suitable habitat for SRE species within the development envelope are vegetation communities C2, C3 and C4 (Figure 7).

The SRE assessment is provided at Appendix 4.

7.2.3 Potential Environmental Impacts

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.

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 7.2.2 is quantified in Table 7-14 below.

Recognising that any four of the six optional solar array areas may be implemented, minimum and maximum clearing extents and retention areas have been provided for each fauna habitat value, based on an assessment of each optional solar area.

Table 7-14: Potential extent of direct impacts on Terrestrial Fauna habitat values

Terrestrial Fauna Habitat Value	Maximum extent of potential impacts		Minimum extent of potential impacts	
	Clearing extent	Retention	Clearing extent	Retention
Bargunyji (Pilbara Olive Python) – Preferred habitat (vegetation communities C2, C3, C4)	0 ha	• 175.48 ha • 100% of the mapped total	0 ha	• 175.48 ha • 100% of the mapped total
Bargunyji (Pilbara Olive Python) dispersal habitat (vegetation communities C1, C5, and C6)	• 11.8 ha (temporary) • 139.4 ha (long-term clearing and any solar options B3, M1, M4 and M6) • collectively 7.66% of the mapped total	• 1,822.89 ha • 92.34% of the mapped total	• 11.8 ha (temporary) • 56.6 ha (long-term clearing and any solar options B2, M1, M4, M5) • Collectively 3.46% of the mapped total	• 1,905.69 ha • 96.54% of the mapped total
Yirriwardu (Northern Quoll) preferred habitat (vegetation communities C2, C3, and C4)	0 ha	• 175.48 ha • 100% of the mapped total	0 ha	• 175.48 ha • 100% of the mapped total
Yirriwardu (Northern Quoll) dispersal habitat (all other vegetation communities)	• 735.7 ha (temporary) • 4,250.7 ha (long-term clearing and any solar options M1, M4, M5 and M6) • collectively 11.92% of the mapped total	• 36,839.51 ha • 88.08% of the mapped total	• 735.7 ha (temporary) • 4,084.7 ha (long-term clearing and any solar options B2, B3, M1 and M4) • collectively 11.52% of the mapped total	• 37,005.51 ha • 88.48% of the mapped total
Grey Falcon preferred habitat (vegetation communities C1, C2, C3, C4, C5, C6)	• 11.8 ha (temporary) • 139.4 ha (long-term clearing and any solar options B3, M1, M4 and M6)	• 1,998.37 ha • 92.97% of the mapped total	• 11.8 ha (temporary)	• 2,081.17 ha • 96.82% of the mapped total

Terrestrial Fauna Habitat Value	Maximum extent of potential impacts		Minimum extent of potential impacts	
	Clearing extent	Retention	Clearing extent	Retention
	• collectively 7.03% of the mapped total		• 56.6 ha (long-term clearing and any solar options B2, M1, M4, M5) • collectively 3.18% of the mapped total	
Grey Falcon dispersal habitat (all other vegetation communities)	• 723.9 ha (temporary) • 4,146.7 ha (long-term clearing and any solar options M1, M4, M5 and M6) • collectively 12.22% of the mapped total.	• 34,981.22 ha • 87.78% of the mapped total	• 723.9 ha (temporary) • 3,992.7 ha (long-term clearing and any solar options B2, B3, M1 and M4) • collectively 11.84% of the mapped total.	• 35,135.22 ha • 88.16% of the mapped total.
Pilbara Leaf-nosed Bat dispersal habitat (vegetation communities C1, C2, C3, C4, C5, C6)	• 11.8 ha (temporary) • 139.4 ha (long-term clearing and any solar options B3, M1, M4 and M6) • collectively 7.03% of the mapped total	• 1,998.37 ha • 92.97% of the mapped total	• 11.8 ha (temporary) • 56.6 ha (long-term clearing and any solar options B2, M1, M4, M5) • collectively 3.18% of the mapped total	• 2,081.17 ha • 96.82% of the mapped total
Ghost Bat foraging and dispersal habitat (vegetation communities C1, C2, C3, C4, C5, C6)	• 11.8 ha (temporary) • 139.4 ha (long-term clearing and any solar options B3, M1, M4 and M6) • collectively 7.03% of the mapped total	• 1,998.37 ha • 92.97% of the mapped total	• 11.8 ha (temporary) • 56.6 ha (long-term clearing and any solar options B2, M1, M4, M5), • collectively 3.18% of the mapped total	• 2,081.17 ha • 96.82% of the mapped total
Short Range Endemic Fauna most suitable habitat (C2, C3, and C4)	• 0 ha	• 175.48 ha • 0% of the mapped total	• 0 ha (0%)	• 175.48 ha • 100% of the mapped total

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, irrespective of which four optional solar areas are ultimately pursued.
- 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 development envelope (4,986.4 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 development envelope 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 development envelope.

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

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) has been prepared for the Baru-Marnda Renewable Energy Project, which is provided at Appendix 5. 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 development envelope. 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 development envelope.

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 development envelope. Based on the known and observed flight behaviours of each species, known habitat features within the development envelope, independent advice received from Supersensory Technologies Pty Ltd, and with consideration to the reference turbine being utilised by YEC (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 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.

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 development envelope
- Limitations on opportunities for fauna dispersal within the development envelope, 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.

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 the development envelopes for each project, 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 7-15 below.

Table 7-15: 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	151.2	152.2
Yirriwardu (Northern Quoll) dispersal habitat		4,986.4	5,503.25
Grey Falcon preferred habitat		151.2	152.2
Grey Falcon dispersal habitat	516.85	4,870.6	5,387.45
Pilbara Leaf-nosed Bat dispersal habitat	1	151.2	151.2
Ghost Bat foraging and dispersal habitat	1	151.2	151.2

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 development envelope (see section 7.1.3). Each of these 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 recently referred 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.

7.2.4 Mitigation

Avoidance

Generally, creek lines (comprising vegetation communities C1 through C6) are considered to represent habitat for the widest array of fauna within the development envelope, 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 (see section 7.2.2). 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 development envelope 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 main infrastructure development envelope alone, with 11 distinct locations at the development envelope's boundary where surface water flows leave the site (Pentium Water 2025; Appendix 6). Additionally, the development envelope'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.

In terms of the site access route, the crossing of waterways is considered to be mostly unavoidable given their general north-south alignment, which is perpendicular to the direction of travel.

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 development envelope, 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 151.2 ha, representing only 7.03% of the 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 development envelope, 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 60 m between proposed wind turbines and creek line vegetation
- A mean buffer distance of approximately 600 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 2,899 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.

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 7-1 below.

Plate 7-1: 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 7.1.4, the CEMP will also include following 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 development envelope
- 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 development envelope by specific fauna (such as the Grey Falcon) over successive years.

The BBMP adaptive management approach is underpinned by a 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 2023e). 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.

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

Rehabilitation

Approximately 735.7 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 (4,250.7 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 7.1.4.

7.2.5 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 development envelope
- 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 retention of at minimum, 1,998.37 ha of creek line habitat, representing 92.97% of that mapped within the development envelope
- 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, and the EPA's objective of protecting terrestrial fauna so that biological diversity and ecological integrity are maintained, can both be met.

7.3 Inland Waters

'Long ago Yarndanyirra was dry, until Barrimirndi – the great water snake, came from the sea chasing after two boys who broke the law. He travelled under the ground and at each place where he busted out of the dry river to smell where those two Law breakers were, Barrimirndi made yindangali (deep permanent pools). He finally got up at Nhanggangunha (Deep Reach) and lifted the Law breakers into the sky in a wananggaa (willy willy). They were hit with flying sticks, breaking their arms so they were useless. Barrimirndi got ready then, his thumbu opened wide and red to the sky and when they fell out of the sky, he swallowed them through his thumbu and drowned the whole tribe in the biggest flood of

water. Today Barrimirndi rests deep down in the pool he made at Nhanggangunha. He is the protector of water places all along Yarndanyirra right up to Nhanggangunha. We don't think Barrimirndi is bad, we respect him because he's a giver of water, of life. He only gets wild if the laws for water places are broken.'

- *Juluwarlu Aboriginal Corporation (2004)*

7.3.1 EPA Objective, Policy and Guidance

The EPA's objective of the factor Inland Waters is (EPA 2018) is:

> *To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.*

Policies and guidance which are relevant to the Inland Waters environmental factor are outlined below in Table 7-16.

Table 7-16: Inland Water - Policies and Guidance

Source	Policy and Guidance
EPA policy and guidance	Environmental Factor Guideline: Inland Waters (EPA 2018)
Other policy and guidance	Water Quality Protection Note 25: Land Use compatibility tables for Public Drinking Water Source Areas (DWER 2021)

7.3.2 Receiving Environment

To understand the existing environment within the development envelope as it relates to inland waters, a desktop hydrology and hydrogeology assessment was undertaken by Pentium Water (2025) (Appendix 6). The assessment included consideration of the existing surface and ground water environment, hydrologic and hydraulic modelling, an assessment of potential impacts from the proposal on inland waters, as well as consideration of potential mitigation measures that could be employed to avoid and minimise these impacts.

A description of the key findings of this assessment is provided in the following sections.

Surface Water

The development envelope is located at the intersection of three catchment areas (Figure 13). In the north of the development envelope, surface water drains north into the Maitland River. In the east, water drains into the Harding River. In the south of the development envelope, surface water drains into the Fortescue River. While the Munni Munni Creek and Maitland River are the only identified surface water expressions in the DWER linear hydrography data layer (DWER-031) (both of which are within the Maitland River catchment), numerous ephemeral creek lines are dispersed throughout the development envelope, and are easily identified through the C1 to C6 vegetation communities identified by Mattiske Consulting (2025) (Figure 7), and in Figure C of Appendix 6.

Pre-development flood modelling undertaken by Pentium Water (2025) 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 2025). The pre-development 5% and 1% maximum flood depths and velocities within the development envelope are displayed in figures D through G in Appendix 6.

The east of the development envelope and access route partially intersects a Public Drinking Water Source Area (PDSWA) (Priority 1), being the Harding Dam Surface Water Catchment Area (Figure 13). Priority 1 source protection 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 Dam Catchment Area 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.

The development envelope is located approximately 22 km southwest of the Harding Dam Reservoir Protection Zone.

Groundwater

The development envelope is located within the Pilbara proclaimed groundwater area pursuant to the RIWI Act, and therefore a license will be required to construct or alter a well, and to take groundwater for the purposes of the project. The development envelope is specifically located within the Hamersley – Fractured Rock, and Pilbara – Fractured Rock groundwater resources (DWER 2024a). Neither resource has a set allocation status (DWER 2024b).

Fractured rock aquifers are not anticipated to be extensive across the development envelope. The predominately igneous (and to a lesser extent metamorphic) rocks of the area have negligible primary porosity, and the fresh rock is typically a very poor aquifer. Weathering of this rock, where present, will have developed secondary porosity due to the break-up of the rock fabric and the development of small open fractures that can act as a conduit for water flow (Pentium Water 2025; Appendix 6).

There are no recorded, publicly available data on the depth to water in the development envelope or the quality of groundwater. However, the drilled depth of water bores in the region tends to be less than 30 m. Experience in the local area also suggests that the water is low salinity (fresh to brackish) with few dissolved metals (Pentium Water 2025; Appendix 6).

Stygofauna

Stygofauna are a group of subterranean fauna which live their entire lives below the surface of the earth, in groundwater (EPA 2016d). The presence of stygofauna 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 development envelope (DWER 2024a).

The prevalence of stygofauna within the development envelope and broader area is largely unknown, however stygofauna species habitat is typically related to the local water quality (Pentium Water 2025; Appendix 6). Given the regional water quality is likely to be very similar, the species potentially encountered are likely to be similar everywhere (Pentium Water 2025; Appendix 6). The risk of encountering unusual stygofauna species within the development envelope is considered to be low.

7.3.3 Potential Environmental Impacts

Potential Direct Impacts

To address the water use needs of the Baru-Marnda Renewable Energy project, YEC proposes to identify an appropriate source of groundwater within the development envelope, and abstract water for use in the construction and operational phases of the proposal's implementation. No more than 410,000 kilolitres (kL) annually is anticipated to be required for the construction phase of the proposal (anticipated to be three to six years), and no more than 3,100 kL anticipated to be required annually for the proposal's operational phase (anticipated to be at minimum, approximately 50 years).

In terms of the potential for water abstraction to impact stygofauna species, Pentium Water (2025) (Appendix 6) concluded that the project's water demand is very low. The likelihood of this abstraction leading to substantial impacts on stygofauna is therefore considered to be vanishingly small.

Recognising the development envelope is located within the Pilbara proclaimed groundwater area pursuant to the RIWI Act, YEC intends to apply for licensing from DWER to construct or alter a well, and to abstract groundwater under section 26D and 5C of the RIWI Act, respectively. It is anticipated that any potential impacts on inland waters which may result from the abstraction of groundwater can be effectively controlled through the application of conditions on future licenses, consistent with the EPA objective for the Inland Waters environmental factor.

To ensure safe vehicle access and the transmission of energy within the development envelope, a number of crossing points will be required across mapped flow lines. While the ultimate design of these crossings will be dependent on the specific hydrological conditions at each location, YEC proposes at this stage to utilise either culverts in high flow areas, or low water rock crossings in low flow areas. Both approaches will be designed in a manner that maintains pre-development hydrological regimes.

Where the construction of crossing points across mapped flow lines will disturb or interfere with the bed or banks of a watercourse, YEC will seek approval from DWER through a Beds and Banks Permit pursuant to the RIWI Act. It is considered that any potential impacts on inland waters which may result from the construction of creek crossings can be effectively controlled through the

application of conditions on a future Bed and Banks Permit, consistent with the EPA objective for the Inland Waters environmental factor.

Potential Indirect Impacts

Some portions of the proposal (namely the north-east of the indicative disturbance footprint and portions of the access route) are proposed within the Harding Dam Surface Water Catchment Area PDWSA. Indicative infrastructure proposed in this area includes (Figure 13):

- Solar energy generating infrastructure
- Wind turbines
- Laydown areas
- Internal access routes and transmission corridors

While the construction and operation of these or similar facilities have not been identified as potential sources of contamination in the Harding Dam Water Source Protection Plan (Waters and Rivers Commission 1999), it is considered that these project components could potentially indirectly impact the reserve through the clearing of vegetation, and the generation of dust and sedimentation which could contribute to increased turbidity at the Harding Dam.

Potential Cumulative Impacts

Given the isolated nature of groundwater resources within the development envelope (i.e. fractured rock), there are not anticipated to be any successive, incremental, or interactive impacts on groundwater between the Baru-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.

In terms of the Jinbi Solar Facility, it is anticipated that no more than 100,000kL of groundwater will be required for the construction phase of that project per year, and no more than 2,000kL per year will be required for ongoing operations. This compares to no more than 410,000kL per year for the construction phase of the Baru-Marnda Renewable Energy Project, and no more than 3,100kL per year during the operational phase. Cumulatively, this equates to approximately 510,000kL annually during construction, and approximately 5,100kL 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.

7.3.4 Mitigation

Avoidance

As the primary means of mitigating potential impacts on the Harding Dam PDWSA, YEC has strategically located all potentially incompatible land uses (such as temporary concrete batching plants and satellite offices; DWER 2021) completely outside of the PDWSA. While some compatible

infrastructure is proposed within the PDWSA, this is located approximately 30 km southwest of the Harding Dam Reservoir Protection Zone.

In terms of the groundwater abstraction component of the proposal, YEC understands that the success rate of water bores within fractured rock aquifers can be as low as 25% (Pentium Water 2025). Therefore, the ultimate number of required wells and their respective locations within the development envelope are difficult to predict. Notwithstanding, as a means of avoiding potential impacts on environmental values associated with groundwater abstraction, YEC will seek to prioritise the construction of wells away from both the 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 (see section 7.1.2).

Minimisation

Where possible, YEC will seek to co-locate linear infrastructure where possible, so as to minimise both the number of creek line crossings required, and the extent of clearing required at each crossing. YEC will also investigate the potential to utilise overhead internal transmission lines as opposed to underground transmission, so as to minimise the potential extent of clearing required.

To minimise the potential for sedimentation and erosion, YEC will look to construct appropriate bunding and sedimentation basins where necessary, which will effectively capture and treat dirty water run-off prior to release downstream. The ultimate location and design of stormwater infrastructure will be determined based on the identification of site watersheds, internal drainage areas, and flood / flow calculations, as the proposal is further refined.

Methods to address the risks of water erosion, sedimentation, and dust generation are anticipated to be a required component of the Construction Environmental Management Plan, the development of which is expected to be included as a condition of development approval. Further information on the CEMP's anticipated scope is provided in section 7.1.4.

In terms of potential impacts on the Harding Dam Surface Water Catchment PDWSA, guidance on appropriate land uses and activities within PDWSA's is provided within *Water Quality Protection Note 25: Land use compatibility tables for public drinking water source areas* (DWER 2021). The note sets out the DWER's recommendations on land uses and activities within the different priority areas of a PDWSA. For Priority 1 areas, wind farms, solar energy production infrastructure, and powerlines are considered to be compatible land use or activity, subject to conditions 6, 10, 13 and 24 which state:

6. Pesticides should be applied in accordance with best management practices (i.e. in accordance with label instructions).
10. There should be no refuelling, repair or maintenance of motor vehicles, nor any on-site use or storage of chemicals, unless special circumstances apply
13. The department does not support this activity within protection zones (Wellhead Protection Zones and Reservoir Protection Zones) unless special circumstances apply

24. Hydrocarbons, chemicals and other toxic or hazardous substances should be stored so there is no discernible risk of contamination of groundwater or surface water. This should include effective secondary barriers to contain the system, such as double-walled tanks and bunding. Restrictions apply for storage tanks as explained in *Water Quality Protection Note 65: Tanks for fuel and chemical storage near sensitive water resources*.

To minimise potential impacts associated with construction and operation activities within the PDWSA, YEC commits to the complete implementation of each of the above conditions as recommended by DWER.

Rehabilitation

Approximately 735.7 ha of native vegetation 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 (4,250.7 ha) will be rehabilitated during the decommissioning phase, at the conclusion of the proposal's operational life (at minimum, 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 7.1.4.

7.3.5 Environmental Outcomes

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

- No direct, indirect or cumulative impacts on the Harding Dam Reservoir Protection Zone
- The development of land uses within the Harding Dam Surface Water Catchment PDWSA which are compatible with the PDWSA's Priority 1 status
- No to negligible cumulative impacts on groundwater resources associated with the Jinbi Solar Facility and Baru-Marnda Renewable Energy Project
- No dams on any watercourses within the development envelope
- The maintenance of natural surface water flow paths

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, and the EPA's objective to maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected, can be met.

7.4 Social Surroundings

'In our Law it is said that in the beginning the sky was very low. When the creation spirits got up from the ground, they lifted the sky and the world out of the sea. The creation spirits are called Marrga. They still live in the rocky mountains and gullies. In the early morning the mist over the water is smoke from their breakfast fires. If Marrga are not approached and spoken to in the proper way, they might hurt visitors or make them sick. It was the Marrga and Minkala/Mangunyba (Skygod) that named and shaped the country, then all the birds and animals, and finally the Ngardangali (Aboriginal people) came from the Marrga themselves. In other places they all this the 'dreaming', but here we call it Ngurra Nyujunggamu – 'when the world was soft".

- Juluwarlu Aboriginal Corporation (2004).

7.4.1 EPA Objective, Policy and Guidance

The EPA's objective of the factor Social Surroundings is (EPA 2023):

To protect social surroundings from significant harm.

Policies and guidance which are relevant to the Social Surroundings environmental factor are outlined below in Table 7-17.

Table 7-17: Social Surroundings – Policies and Guidance

Source	Policy and Guidance
EPA policy and guidance	Environmental Factor Guideline: Social Surroundings (EPA 2023a)
	Technical Guidance: Environmental Impact Assessment of Social Surroundings – Aboriginal cultural heritage (EPA 2023b)
Other policy and guidance	Wind farms environmental noise guidelines (South Australian EPA 2021)
	Environmental Protection (Noise) Regulations 1997
	Visual Landscape Planning in Western Australia: A manual for evaluation, assessment, siting and design (WAPC 2007)
	Position Statement: Renewable Energy Facilities (WAPC 2020)
	Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999 (DCCEEW 2023)

As outlined in section 5.1, in WA, there is no standalone legislative requirement or express provision for undertaking SIA. Section 4.2.4 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 (Part IV Divisions 1 and 2) Administrative Procedures 2021 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 SIA within WA, YEC is guided by the following international best practice SIA guidelines:

- The International Association for Impact Assessment (IAIA) (Vanclay, 2003).
- NSW Department of Planning and Environment's SIA 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.

7.4.2 Receiving Environment

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 development envelope 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 development envelope 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 AH Act, the following are located within the development envelope (Table 7-18; Figure 14):

Table 7-18: Registered and Lodged Aboriginal Heritage Sites within the Development Envelope

Site Name (ID No.)	Registered / Lodged Site	Place type
Access Route		
Plateau Hill / Powerline 084 (10943)	Registered	Engraving; Other; Quarry
Powerline Survey 085 (10944)	Registered	Quarry
Mirinkinya (7855)	Registered	Camp; Water Source
W3-01 Artefact Scatter, Grinding Patches (18777)	Registered	Artefacts / Scatter; Grinding areas / Grooves
KTP/FS5 (19908)	Registered	Artefacts / Scatter; Engraving; Grinding areas / Grooves; Quarry
W3-03 Artefact Scatter (18780)	Registered	Artefacts / Scatter
W3-02 Grinding Patches	Registered	Grinding areas / Grooves
KTP/FS6 (19909)	Lodged	Artefacts / Scatter
Artefact Scatter (23046)	Lodged	Artefacts / Scatter
Main Infrastructure Development Envelope		
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

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 development envelope, the Capricorn land system of undulating sandstone hills is considered to be suitable for this species (Bamford Consulting Ecologists 2025; Figure 3).

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 development envelope will be undertaken as a component of the cultural heritage surveys scheduled for 2025, consistent with the approach taken for the Jinbi Project (Plate 7-2).

Plate 7-2: Example of an active Gurdi Maya *with Yindjibarndi representative Curtis Lockyer (Echoes 2025)*

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 (Appendix 7). The noise impact assessment was undertaken by Sonus (2025a, 2025b), and 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; Appendix 7).

The above notwithstanding, YEC will 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.

Visual Amenity

Implementation of the Baru-Marnda Renewable Energy Project has the potential to impact the visual amenity of the development envelope 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 is provided at Appendix 8 and includes:

- The identification of key view locations within and in proximity to the development envelope, 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 development envelope, 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 project'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. The Ngurrawaana community was the only view location assessed as having a 'Level 1' visual impact level, on this basis (Ecoscape 2025; Appendix 8).

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.

7.4.3 Potential Environmental Impacts

Potential impacts on social surrounding are anticipated to be identified and assessed through the preliminary social risk analysis which is currently being undertaken to support and inform the Baru Marnda Renewable Energy Project. Ahead of this analysis being finalised, YEC has identified the following provisional impacts.

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 7.1.3)
- The loss of culturally significant fauna and/or the clearing of habitat for culturally significant fauna (see section 7.2.3)
- The abstraction of culturally significant groundwater (see section 7.3.3)
- Disturbance to culturally significant creek lines (see section 7.3.3)

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 development envelope and surrounds, including the Ngurrawaana community.

7.4.4 Mitigation

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 development envelope) 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 development envelope 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 2,899 m buffer between the community, and any proposed turbine. Further, two optional solar areas which were in closest proximity to the Ngurrawaana community (being M2 and M3; Figure 2) have been removed from the proposal, such that the closest optional solar area (M1) is located approximately 3,787 m from the community.

With specific regard to the construction phase of development, YEC will ensure that the majority of vehicles accessing the main infrastructure development envelope will do so without going through Ngurrawaana community – instead utilising the more northern route provides access to the main infrastructure development envelope directly from Warlu Road/Manuwarra Red Dog Highway (Figure 2).

Minimisation

To ensure the promotion, preservation and management of Yindjibarndi cultural heritage within and in the vicinity of the development envelope, 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 development envelope. 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.

7.4.5 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.

Throughout implementation of the mitigation hierarchy, YEC considers that the EPAs objective to protect social surroundings from significant harm, can be met.

7.5 Other Environmental Factors or Matters

7.5.1 Greenhouse Gas Emissions

EPA Objective, Policy and Guidance

The EPA's objective of the factor Greenhouse Gas Emissions is (EPA 2023c):

> *To minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable.*

Policies and guidance which are relevant to the Greenhouse Gas Emissions environmental factor are outlined below in Table 7-19.

Table 7-19: Greenhouse Gas Emissions: Policies and Guidance

Source	Policy and Guidance
EPA policy and guidance	Environmental Factor Guideline: Greenhouse Gas Emissions (EPA 2023c)
Other policy and guidance	*National Greenhouse and Energy Reporting Act 2007* (NGER Act).
	National Greenhouse and Energy Reporting Regulations 2008
	National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015

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 (CO_2), methane (CH_4), nitrous oxide (N_2O), sulphur hexafluoride (SF_6), hydro fluorocarbons (HFCs), perfluorocarbons (PFCs) and nitrogen trifluoride (NF_3). 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 CO_2 equivalent per year [t CO_2e]) 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 CO_2e emissions per year. In 2022-23, total reported scope 1 emissions from grid-connected generators were 137.2 million t CO_2e emissions (Clean Energy Regulator 2024).

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 7-20 below.

Table 7-20: Proposal Greenhouse Gas Emissions Estimates

Proposal Element	Estimated emissions	Source
Scope 1		
Native vegetation clearing	467,577 t CO_2e	Assumes an emission factor of 110 t CO_2e 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	56,064 t CO_2e per annum	Assumes 6.4 g CO_2e per Kilowatt hour (kWh) (Table 2-1).
Solar PV lifecycle emissions	25,185 t CO_2e per annum	Assumes 23 g CO_2e per kWh for a 25% capacity solar farm, as taken from similar regional infrastructure (Woodside Energy 2023).

Environmental Outcomes

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 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 CO_2e per kWh (DCCEEW 2023b). 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 1,500 MWac could therefore be expected to avoid the emission of approximately 7,679,223 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.

8. 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 8-1 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.

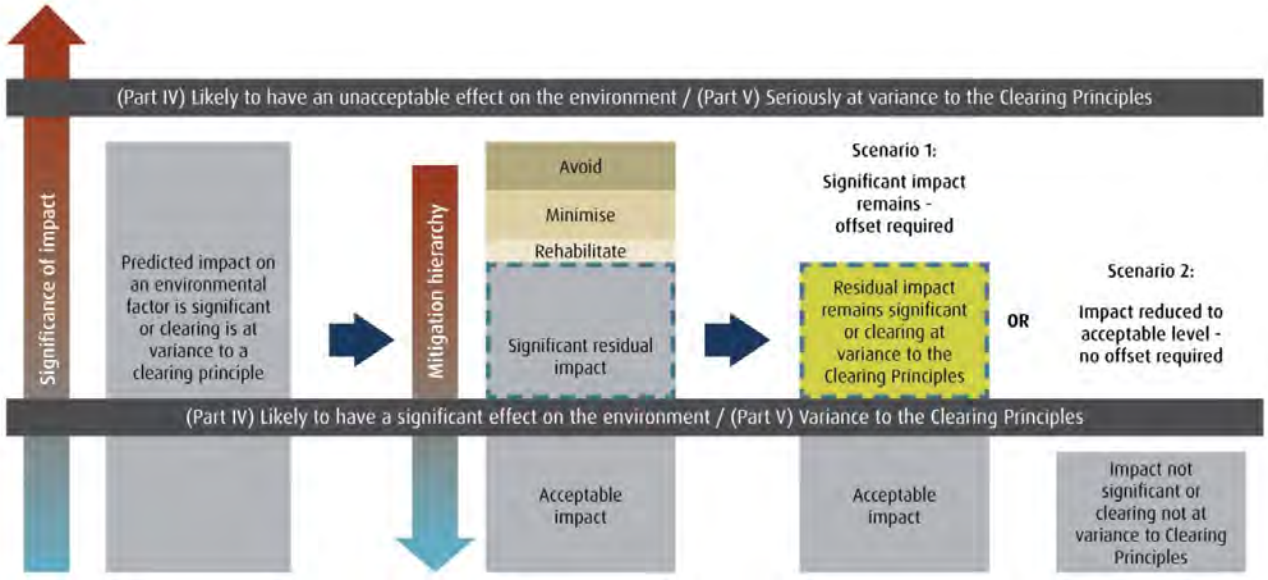

Plate 8-1: Mitigation Hierarchy. Taken from WA Environmental Offsets Guidelines *(GoWA 2014)*

Yindjibarndi Energy Corporation proposes to employ all three mitigation approaches to ensure that there are no significant residual impacts resulting from implementation of the Baru-Marnda Renewable Energy Project.

The indicative disturbance footprint has been strategically designed to avoid areas of greatest environmental value, where possible. This includes:

- The complete avoidance of all occurrences of the Riparian Flora PEC
- The avoidance of at minimum, 2,698.07 of the Cracking Clays PEC, representing 92.29% of the total mapped extent
- The complete avoidance of all mapped occurrences of *Trianthema* sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023) and *Euphorbia stevenii*
- The avoidance of, at minimum:
    - 176 individuals of Neptunia longipila (greater than 99% of the mapped total)
    - 78 individuals of Pentalepis trichodesmoides subsp. hispida (Barraburratha) (87.64% of the mapped total
    - 450 individuals of Dolichocarpa sp. Hamersley Station (A.A. Mitchell PRP 1479) (89.64% of the mapped total)
    - One individual of Euphorbia inappendiculata var. inappendiculate (20% of the mapped total)
    - 39 individuals of Rynchosia bungarensis (68.42% of the mapped total)
- The complete avoidance 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 avoidance of 1998.37 ha of creek line habitat, representing 92.97% of the total mapped extent
- The complete avoidance of all identified caves, with minimum buffers established between caves and wind turbines
- Buffer distances being established between wind turbines and important areas for bird and bat fauna, including caves, creek lines, and the Ngurrawaana community

Where potential impacts cannot be avoided, minimisation measures are proposed to be implemented so as to further mitigate potential impacts, which include:

- The preparation and implementation of dedicated management plans, including:
    - Cultural Heritage Management Plan
    - Bird and Bat Management Plan (Appendix 5)
    - Construction Environmental Management Plan (or similar)
- The implementation of dark sky lighting principles, to minimise the potential for infrastructure to act as a fauna attractant
- Solar arrays which provide opportunities for fauna movement within and between panel rows, and which are spaced to avoid visual similarities with water bodies

For all residual impacts, the proposal's finite operational life means that these potential impacts are anticipated to be temporary in nature. YEC's commitment to rehabilitation with the aim of returning the land to its pre-development uses where possible mean that, at the conclusion of the proposal's implementation, there is not anticipated to be a significant difference from the current, baseline environment.

On this basis, there are not anticipated to be any significant residual impacts from the proposal, and so no offsets are considered to be required.

9. Matters of National Environmental Significance (MNES)

At a national level, impacts on the environmental are regulated through the EPBC Act. Matters protected under the Act (referred to as 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.

The MNES considered to be relevant to the proposal include listed threatened species and ecological communities, and listed migratory species, namely:

- Bargunyji (Pilbara Olive Python; *Liaisis olivaceaus barroni*) – resident – listed as Vulnerable under the EPBC Act
- Yirriwardu (Northern Quoll; *Dasyurus hallucatus*) – resident – listed as Vulnerable under the EPBC Act
- Grey Falcon (*Falco hypoleucos*) – regular visitor – listed as Vulnerable under the EPBC Act
- Pilbara Leaf-nosed Bat (*Rhinonicteris aurantia*) – regular visitor – listed as Vulnerable under the EPBC Act
- Ghost Bat (*Macroderma gigas*) – regular visitor - listed as Vulnerable under the EPBC Act
- Fork-tailed Swift (*Apus pacificus*) – regular visitor – listed as Migratory under the EPBC Act.

9.1 Policies and Guidance

Federal policies and guidance considered to be relevant to the above MNES include:

- Matters of National Environmental Significant: Significant Impact Guidelines 1.1 (DoE 2013)

- EPBC Act Referral Guideline for the Endangered Northern Quoll *Dasyurus hallucatus* (DoE 2016)
- Conservation Advice: *Macroderma gigas* Ghost Bat (TSSC 2016a)
- Conservation Advice *Rhinonicteris aurantia* (Pilbara form) (Pilbara Leaf-nosed Bat) (TSSC 2016b)
- Conservation Advice: Falco hypoleucos Grey Falcon (TSSC 2020)
- Approved Conservation Advice for *Liasis olivaceus barroni* (Olive python – Pilbara subspecies) (DEWHA 2008)
- Draft referral guideline for 14 birds listed as migratory species under the EPBC Act (DoE 2015)
- A review of ghost bat ecology, threats and survey requirements (Bat Call WA 2021a)
- A review of Pilbara leaf-nosed bat ecology, threats and survey requirements (Bat Call WA 2021b)
- Draft Onshore Wind Farm Guidance: Best practice approaches when seeking approval under Australia's national environmental law (DCCEEW 2024b).
- Survey Guidelines for Australia's Threatened Birds. (DEWHA 2010a)
- Survey Guidelines for Australia's Threatened Bats (DEWHA 2010b)
- National Light Pollution Guidelines for Wildlife (DCCEEW 2023e)

9.2 Existing Environment, Potential Impacts, and Mitigation

A summary of the existing environment as it pertains to MNES is presented in section 7.2.2. A description of potential direct, indirect and cumulative impacts on these MNES is provided in section 7.2.3. How YEC proposes to implement all aspects of the mitigation hierarchy, including avoidance, minimisation, and rehabilitation actions, is discussed in section 7.2.4.

Following application of the mitigation hierarchy, there are not anticipated to be any significant residual impacts on MNES resulting from the proposed action. On this basis, no offsets are considered to be required. Further discussion on the requirement for offsets is provided in section 8.

10. 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
- Social Surroundings

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

- Greenhouse Gas Emissions

The potential connections and interactions between these environmental factors are illustrated in Plate 10-1 below, with an assessment of their potential environmental effects, the proposed mitigation approach, and anticipated environmental outcomes provided in Table 10-1 overleaf.

Plate 10-1: Holistic interactions between environmental factors associated with the proposal.

Table 10-1: Holistic Impact Assessment of Potentially Interacting Environment 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 of110 t CO_2e per ha, the long term clearing of 4,250.7 ha will result in an estimated emission of 467,577t CO_2e.	The majority of native vegetation clearing will be undertaken across Hummock Grasslands (vegetation communities G1 and S1; Table 7-8), which have an emissions factor of 110 t CO_2e. This compares to the higher emissions factors of other vegetation communities within the development envelope which YEC have 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 development envelope represents habitat for native terrestrial fauna. The clearing of native vegetation may result in impacts on fauna distribution and abundance throughout the development envelope	• 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 development envelope, 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 development envelope, and have provided advice to YEC on the importance of retaining native flora within the development envelope. • Final development layout will be informed by dedicated cultural heritage surveys to be undertaken in 2025, and which will 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 development envelope. Yindjibarndi have and continue to provide advice to YEC on the importance of retaining native terrestrial fauna within the development envelope • Final development layout will be informed by dedicated cultural heritage surveys to be undertaken in 2025, and which will 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 development envelope 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 development envelope. • 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 401 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 development envelope 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. Pre-development surface water flows will be maintained during the construction and operation of 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 development envelope 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 development envelope. • 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.	Pre-development surface water flows will be maintained during the construction and operation of the proposal. 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.
	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 development envelope. • Final development layout will be informed by dedicated cultural heritage surveys to be undertaken in 2025, 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 410 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 development envelope 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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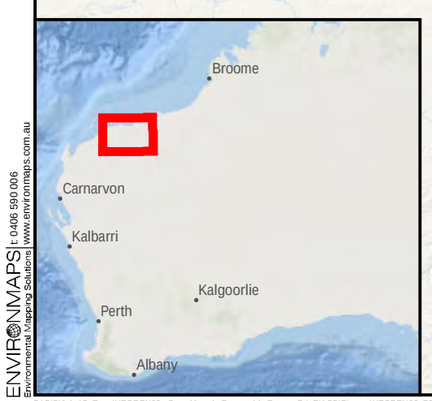
FINUCANE
PORT HEDLAND
MURUJUGA NATIONAL PARK
DAMPIER
POINT SAMSON
WICKHAM
KARRATHA
ROEBOURNE
NORTH WEST COASTAL HWY
NORTH WEST COASTAL HWY
MANUWARRA RED DOG HWY
GREAT NORTHERN HWY
Ngurawaana
MILLSTREAM CHICHESTER NATIONAL PARK
MUNGAROONA RANGE NATURE RESERVE
PANNAWONICA
KARRATHA TOM PRICE RD



LEGEND
- Development Envelope
- National Park
- Nature Reserve
- Section 5(1)(h) Reserve
- Aboriginal Community - Ngurawaana

N
0 5 10 20 30 40 km
Scale: 1:750,000 @ A3
GDA2020 MGA Zone 50

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ENVIRONMENTAL IMPACT ASSESSMENT - SUPPORTING DOCUMENT
BARU-MARNDA RENEWABLE ENERGY PROJECT

PROPOSAL LOCATION

Figure 1

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DAMPIER
POINT SAMSON
WICKHAM
KARRATHA
ROEBOURNE
SITE ACCESS ROUTE
SITE ACCESS ROUTE
SITE ACCESS ROUTE
SITE ACCESS ROUTE
SITE ACCESS ROUTE
NORTH WEST COASTAL HWY
GREAT NORTHERN HWY
NORTH WEST COASTAL HWY
GREAT NORTHERN HWY
MADIGAN RD
NORTH WEST COASTAL HWY
MANUWARRA RED DOG HWY
ROE ST
CHERRATTA RD
NORTH WEST COASTAL HWY
B1
M2
M3
Ngurawaana
Little Sherlock River
Harding River
George River
Sherlock River
Peawah River
Yule River
Paddy Creek

LEGEND

- Development Envelope
- Site Access Route
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Area
- Optional Solar Area – No Longer Proposed

N
0 2.5 5 10 15 20 km
Scale: 1:500,000 @ A3
GDA2020 MGA Zone 50

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PROPOSAL COMPONENTS

Figure 2a

B1
B2
B3
M1
M2
M3
M4
M5
M6
Manuwarra Red Dog Hwy
Ngurawaana

LEGEND

- Main Infrastructure Development Envelope
- Site Access Route
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Area
- Optional Solar Area – No Longer Proposed

N

0 0.5 1 2 3 4 km

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

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BARU-MARNDA RENEWABLE ENERGY PROJECT

PROPOSAL COMPONENTS

Figure 2b

C:\GIS\Jobs\CoTerra\YECREN03 - Baru-Marnda Renewable Energy Prj, EIASD\Figures\YECREN03_F02b Proposal Components_250528.mxd

DAMPIER
POINT SAMSON
WICKHAM
KARRATHA
ROEBOURNE
Ngurawaana

NORTH WEST COASTAL HWY
GREAT NORTHERN HWY
MADIGAN RD
MANUWARRA RED DOG HWY
ROE ST
CHERRATTA RD

Little Sherlock River
Harding River
George River
Sherlock River
Peawah River
Yule River
Paddy Creek

LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

Soil Landscape (DPIRD)

- Boolaloo System
- Boolgeeda System
- Capricorn System
- Macroy System
- River System
- Robe System
- Rocklea System
- Ruth System
- Uaroo System
- Wona System

N
0 2.5 5 10 15 20 km
Scale: 1:500,000 @ A3
GDA2020 MGA Zone 50

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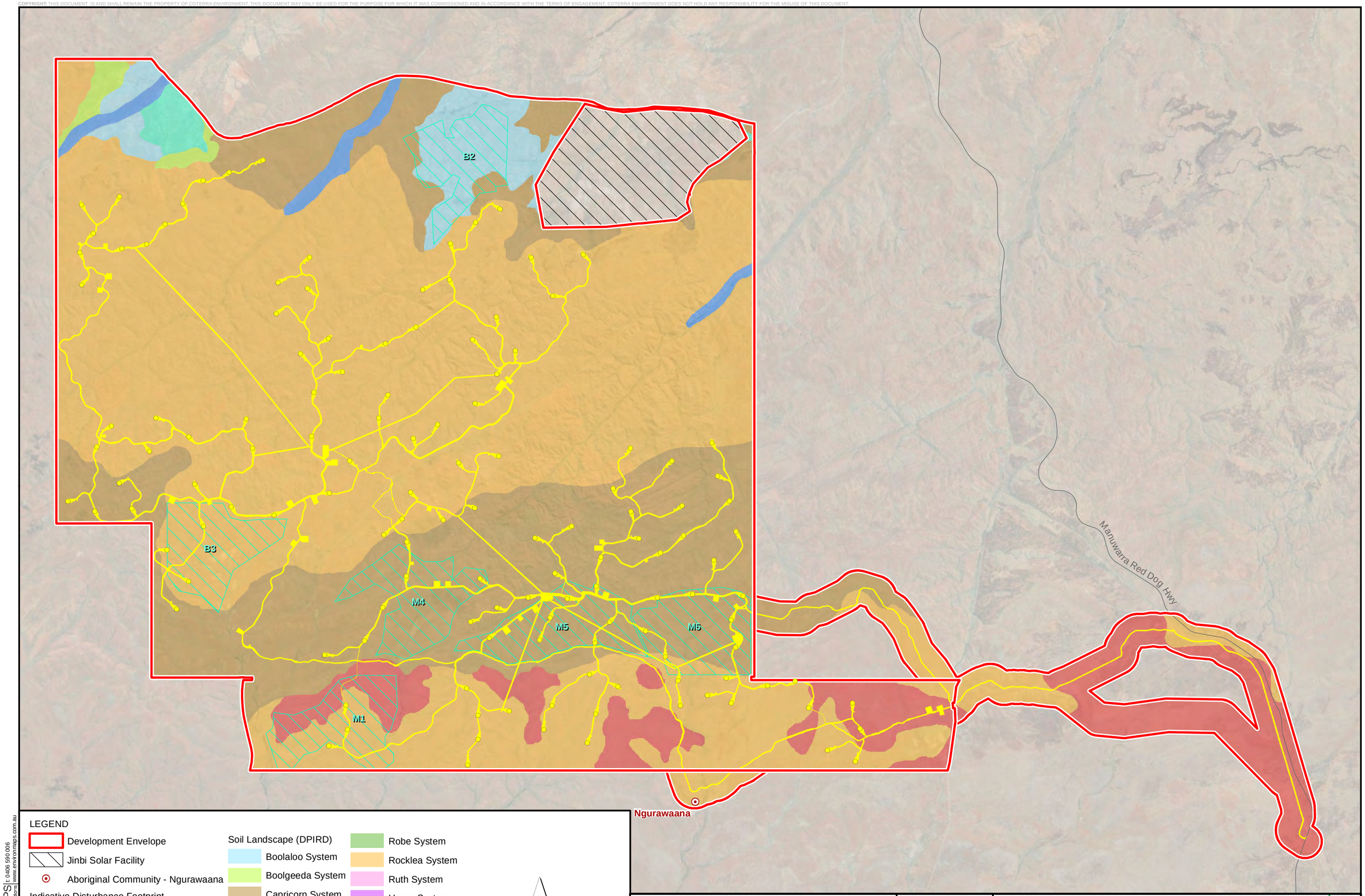
BARU-MARNDA RENEWABLE ENERGY PROJECT

LAND SYSTEMS

Figure 3a



LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

Soil Landscape (DPIRD)

- Boolaloo System
- Boolgeeda System
- Capricorn System
- Macroy System
- River System
- Robe System
- Rocklea System
- Ruth System
- Uaroo System
- Wona System

N

0 0.5 1 2 3 4 km

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

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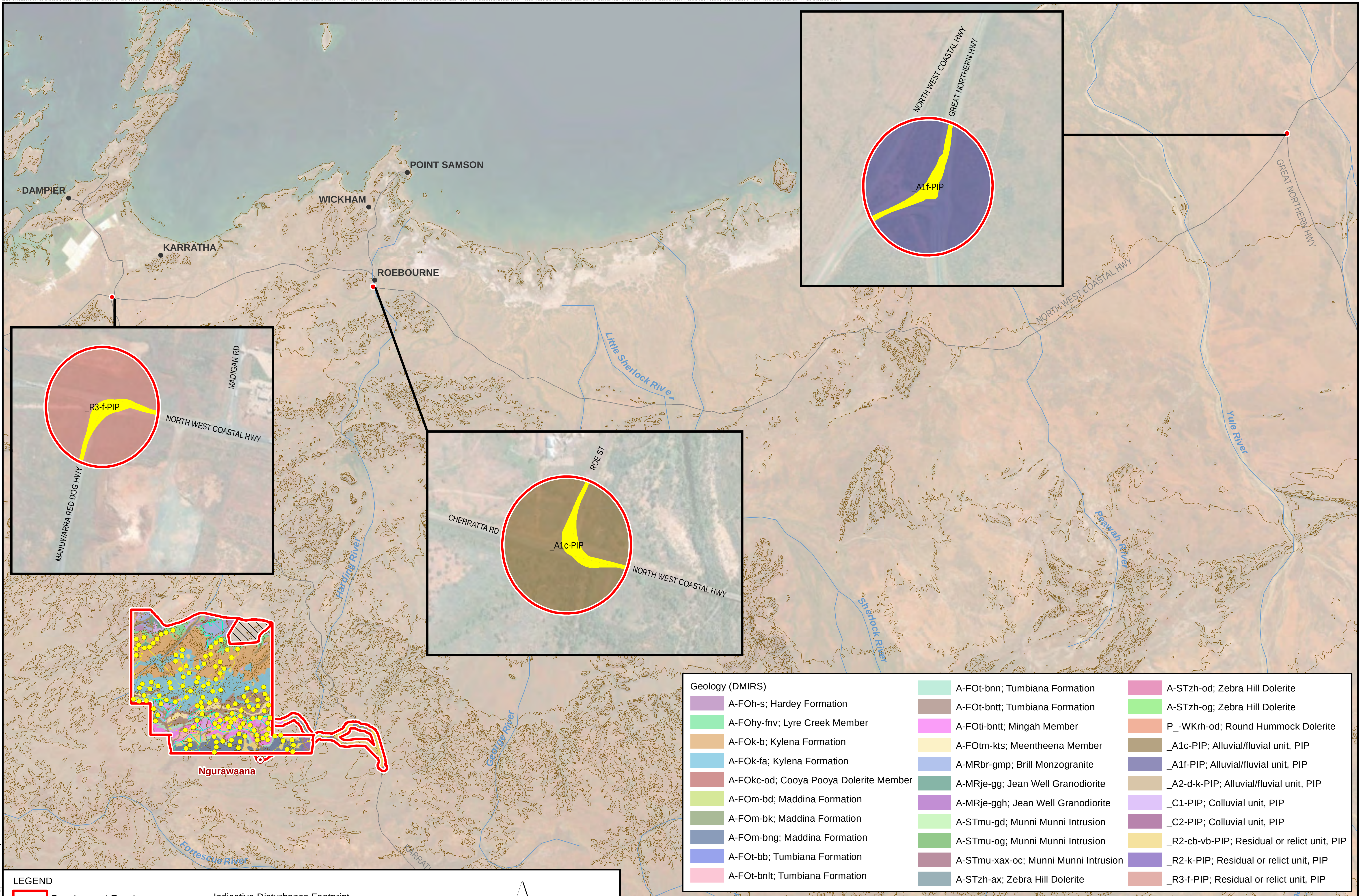
BARU-MARNDA RENEWABLE ENERGY PROJECT

LAND SYSTEMS

Figure 3b



POINT SAMSON
DAMPIER
WICKHAM
KARRATHA
ROEBOURNE
Ngurawaana
Little Sherlock River
Harding River
Sherlock River
Yule River
Peawah River
George River
Fortescue River
NORTH WEST COASTAL HWY
GREAT NORTHERN HWY
NORTH WEST COASTAL HWY
GREAT NORTHERN HWY
_A1f-PIP
MADIGAN RD
_R3-f-PIP
NORTH WEST COASTAL HWY
MANUWARRA RED DOG HWY
ROE ST
CHERRATTA RD
_A1c-PIP
NORTH WEST COASTAL HWY
Geology (DMIRS)
A-FOh-s; Hardey Formation
A-FOhy-fnv; Lyre Creek Member
A-FOk-b; Kylena Formation
A-FOk-fa; Kylena Formation
A-FOkc-od; Cooya Pooya Dolerite Member
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-STmu-gd; Munni Munni Intrusion
A-STmu-og; Munni Munni Intrusion
A-STmu-xax-oc; Munni Munni Intrusion
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
_A1f-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

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana
- Contour (mAHD)

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

N

0 2.5 5 10 15 20 km

Scale: 1:500,000 @ A3
GDA2020 MGA Zone 50

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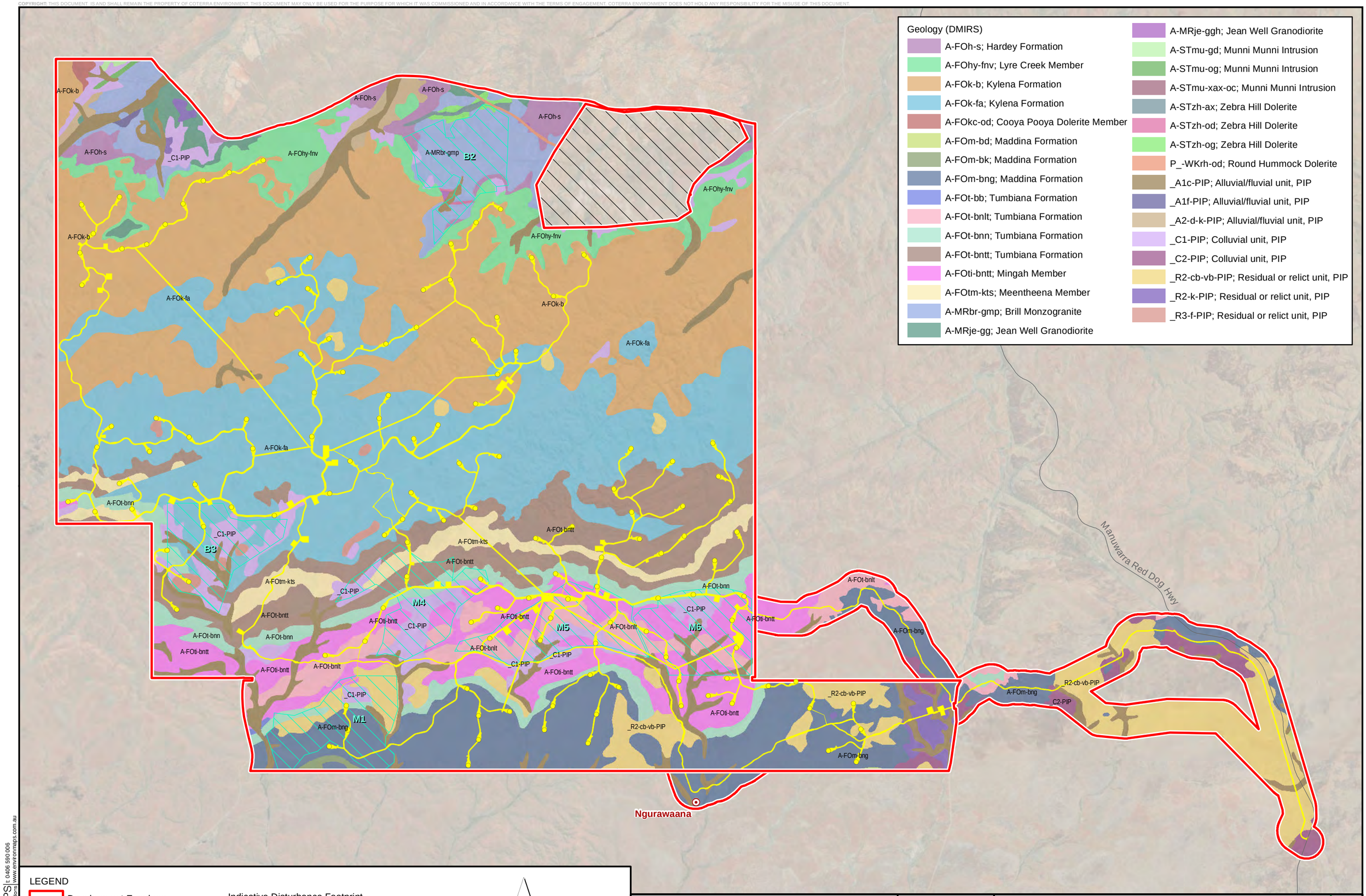
BARU-MARNDA RENEWABLE ENERGY PROJECT

GEOLOGY AND TOPOGRAPHY

Figure 4a



Geology (DMIRS)

- A-FOh-s; Hardey Formation
- A-FOhy-fnv; Lyre Creek Member
- A-FOk-b; Kylena Formation
- A-FOk-fa; Kylena Formation
- A-FOkc-od; Cooya Pooya Dolerite Member
- 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-STmu-gd; Munni Munni Intrusion
- A-STmu-og; Munni Munni Intrusion
- A-STmu-xax-oc; Munni Munni Intrusion
- 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
- _A1f-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

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

N

0 0.5 1 2 3 4 km

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

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BARU-MARNDA RENEWABLE ENERGY PROJECT

GEOLOGY AND TOPOGRAPHY

Figure 4b

N

0 2.5 5 10 15 20 km

Scale: 1:500,000 @ A3
GDA2020 MGA Zone 50

DAMPIER
KARRATHA
WICKHAM
POINT SAMSON
ROEBOURNE
Ngurawaana

NORTH WEST COASTAL HWY
GREAT NORTHERN HWY
MADIGAN RD
MANUWARRA RED DOG HWY
ROE ST
CHERRATTA RD

Little Sherlock River
Harding River
George River
Sherlock River
Peawah River
Yule River
Paddy Creek

LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

PreEuropean Vegetation (DPIRD)

- ABYDOS PLAIN - CHICHESTER
- ABYDOS PLAIN - CHICHESTER_157
- ABYDOS PLAIN - ROEBOURNE_589
- ABYDOS PLAIN_619
- ABYDOS PLAIN_647
- CHICHESTER PLATEAU_152
- CHICHESTER PLATEAU_173
- CHICHESTER PLATEAU_175
- CHICHESTER PLATEAU_587
- CHICHESTER PLATEAU_93

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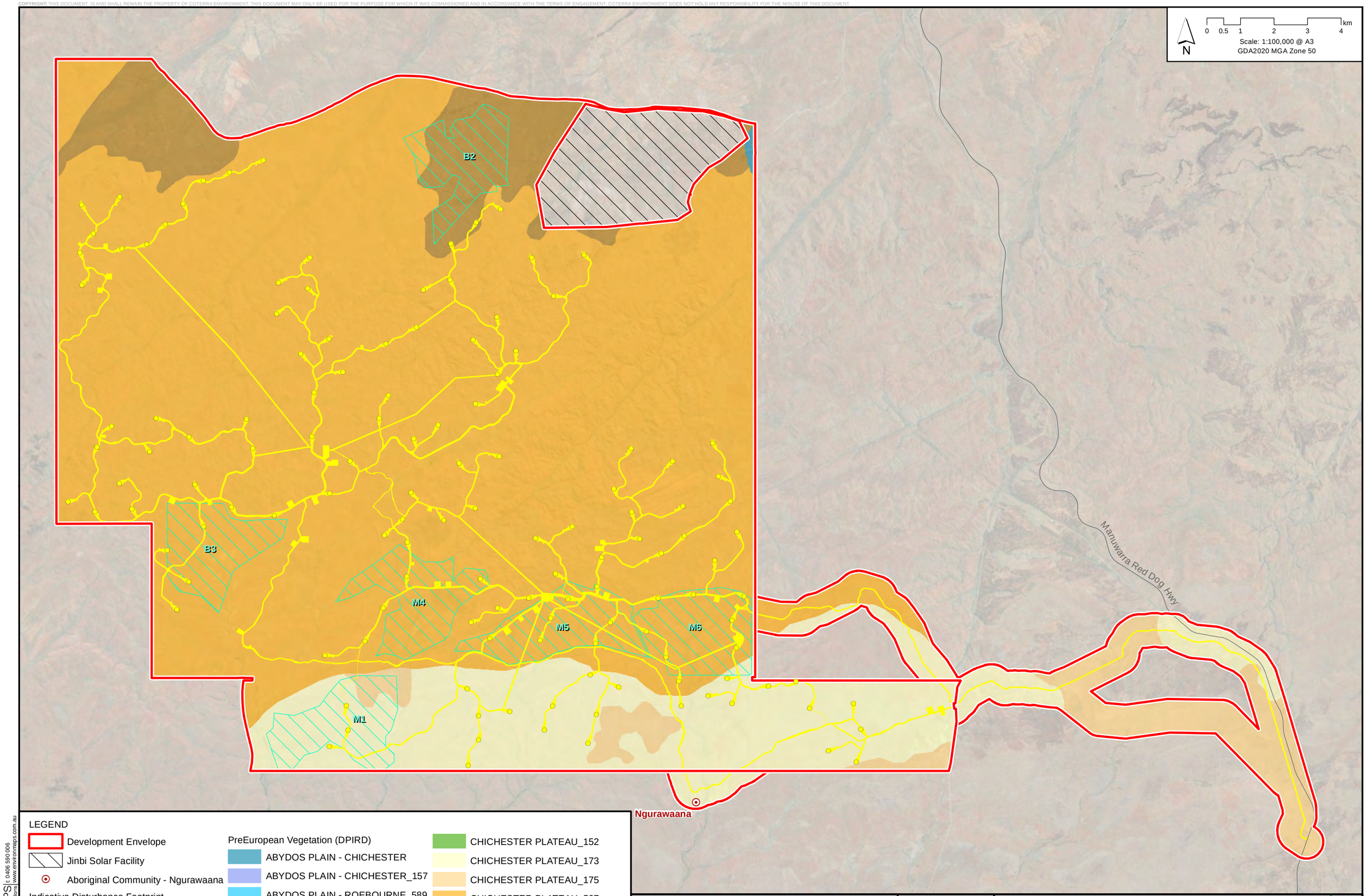
PRE-EUROPEAN VEGETATION

Figure 5a



LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

PreEuropean Vegetation (DPIRD)

- ABYDOS PLAIN - CHICHESTER
- ABYDOS PLAIN - CHICHESTER_157
- ABYDOS PLAIN - ROEBOURNE_589
- ABYDOS PLAIN_619
- ABYDOS PLAIN_647
- CHICHESTER PLATEAU_152
- CHICHESTER PLATEAU_173
- CHICHESTER PLATEAU_175
- CHICHESTER PLATEAU_587
- CHICHESTER PLATEAU_93

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BARU-MARNDA RENEWABLE ENERGY PROJECT

PRE-EUROPEAN VEGETATION

Figure 5b

N

0 2.5 5 10 15 20 km

Scale: 1:500,000 @ A3
GDA2020 MGA Zone 50

POINT SAMSON
DAMPIER
WICKHAM
KARRATHA
ROEBOURNE

NORTH WEST COASTAL HWY
GREAT NORTHERN HWY

MADIGAN RD
NORTH WEST COASTAL HWY
MANUWARRA RED DOG HWY

ROE ST
CHERRATTA RD
NORTH WEST COASTAL HWY

Little Sherlock River
Harding River
George River
Sherlock River
Peawah River
Yule River

Ngurawaana

LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

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

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BARU-MARNDA RENEWABLE ENERGY PROJECT

SPATIAL COVERAGE OF FLORA AND VEGETATION STUDIES UNDERTAKEN TO-DATE

Figure 6a

C:\GIS\Jobs\CoTerra\YECREN03 - Baru-Marnda Renewable Energy Prj, EIASD\Figures\YECREN03_F06a Spatial Coverage of Flora and Vegetation Studies Undertaken to-date_250528.mxd

N

0 0.5 1 2 3 4 km

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

B2

B3

M1

M4

M5

M6

Manuwarra Red Dog Hwy

Ngurawaana

LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

- 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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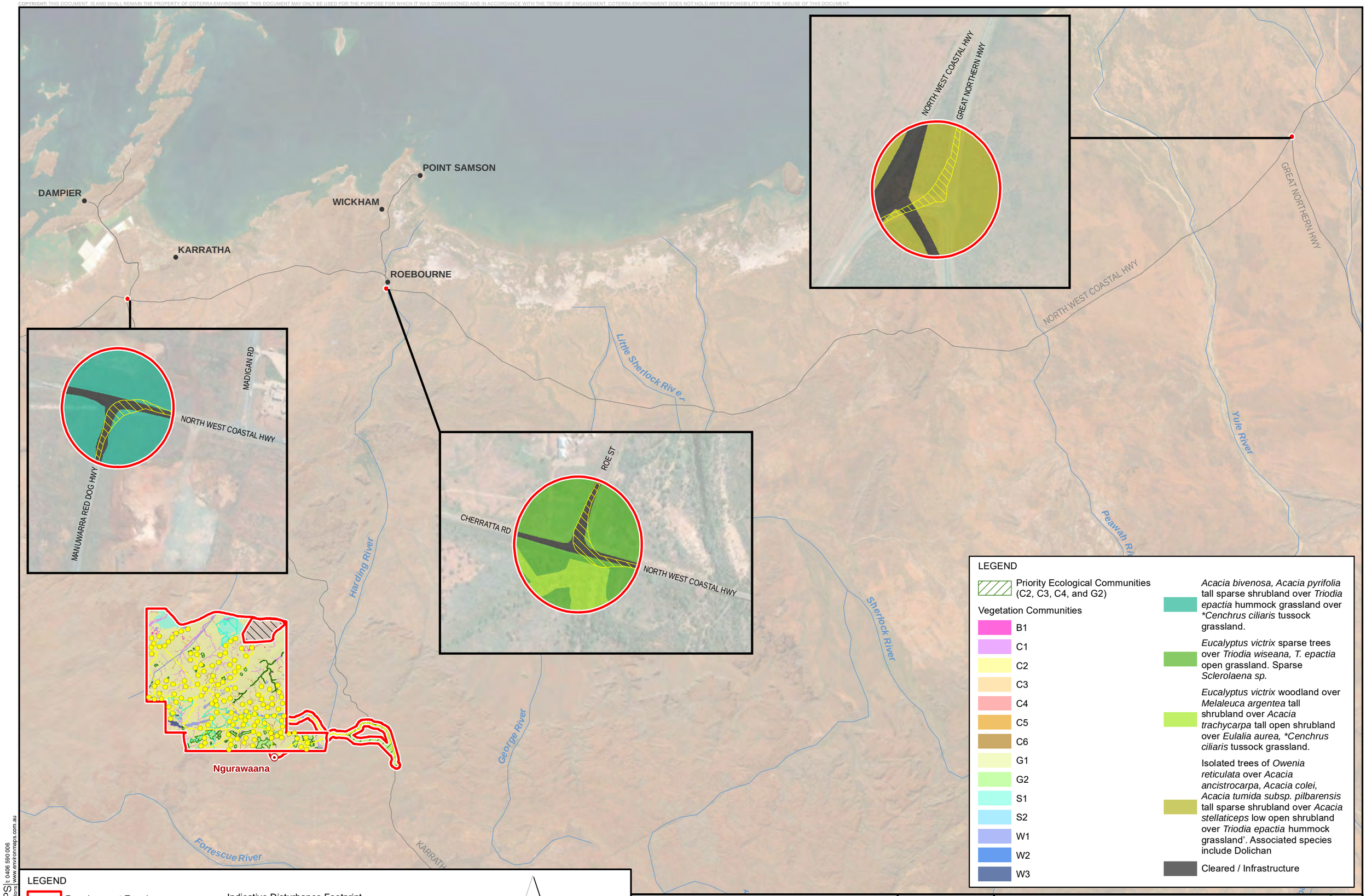
SPATIAL COVERAGE OF FLORA AND VEGETATION STUDIES UNDERTAKEN TO-DATE

Figure 6b



LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

N

0 2.5 5 10 15 20 km

Scale: 1:500,000 @ A3
GDA2020 MGA Zone 50

LEGEND

- 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

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BARU-MARNDA RENEWABLE ENERGY PROJECT

VEGETATION COMMUNITIES

Figure 7a

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B1
B2
B3
M1
M2
M3
M4
M5
M6
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

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

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 7b

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
B3
M4
M5
M6
M1
Manuwarra Red Dog Hwy
Ngurawaana

LEGEND
- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint
- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar

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 8

N

0 2.5 5 10 15 20 km

Scale: 1:500,000 @ A3
GDA2020 MGA Zone 50

DAMPIER
KARRATHA
WICKHAM
POINT SAMSON
ROEBOURNE

NORTH WEST COASTAL HWY
GREAT NORTHERN HWY
MADIGAN RD
MANUWARRA RED DOG HWY
ROE ST
CHERRATTA RD

Little Sherlock River
Harding River
George River
Sherlock River
Peawah River
Yule River
Maddy Creek

Ngurawaana

LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

Site Utilisation Survey Points

- Acoustic Recording Unit
- Bird Census
- Camera Trap
- Vantage Point

- Bamford Consulting Ecologists – Level 1 (Basic) Survey and Site Utilisation Surveys – July 2024 to March 2025
- RPS Group – Level 1 (Basic) Survey – September to November 2024
- Bamford Consulting Ecologists – Level 1 (Basic) Survey – December 2023

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SPATIAL COVERAGE OF TERRESTRIAL FAUNA STUDIES UNDERTAKEN TO-DATE

Figure 9a

C:\GIS\Jobs\CoTerra\YECREN03 - Baru-Marnda Renewable Energy Prj, EIASD\Figures\YECREN03_F09a Spatial Coverage of Terrestrial Fauna Studies Undertaken to-date_250528.mxd

N

0 0.5 1 2 3 4 km

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

B2

B3

M1

M4

M5

M6

Manuwarra Red Dog Hwy

Ngurawaana

LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

Site Utilisation Survey Points

- Acoustic Recording Unit
- Bird Census
- Camera Trap
- Vantage Point

- Bamford Consulting Ecologists – Level 1 (Basic) Survey and Site Utilisation Surveys – July 2024 to March 2025
- RPS Group – Level 1 (Basic) Survey – September to November 2024
- Bamford Consulting Ecologists – Level 1 (Basic) Survey – December 2023

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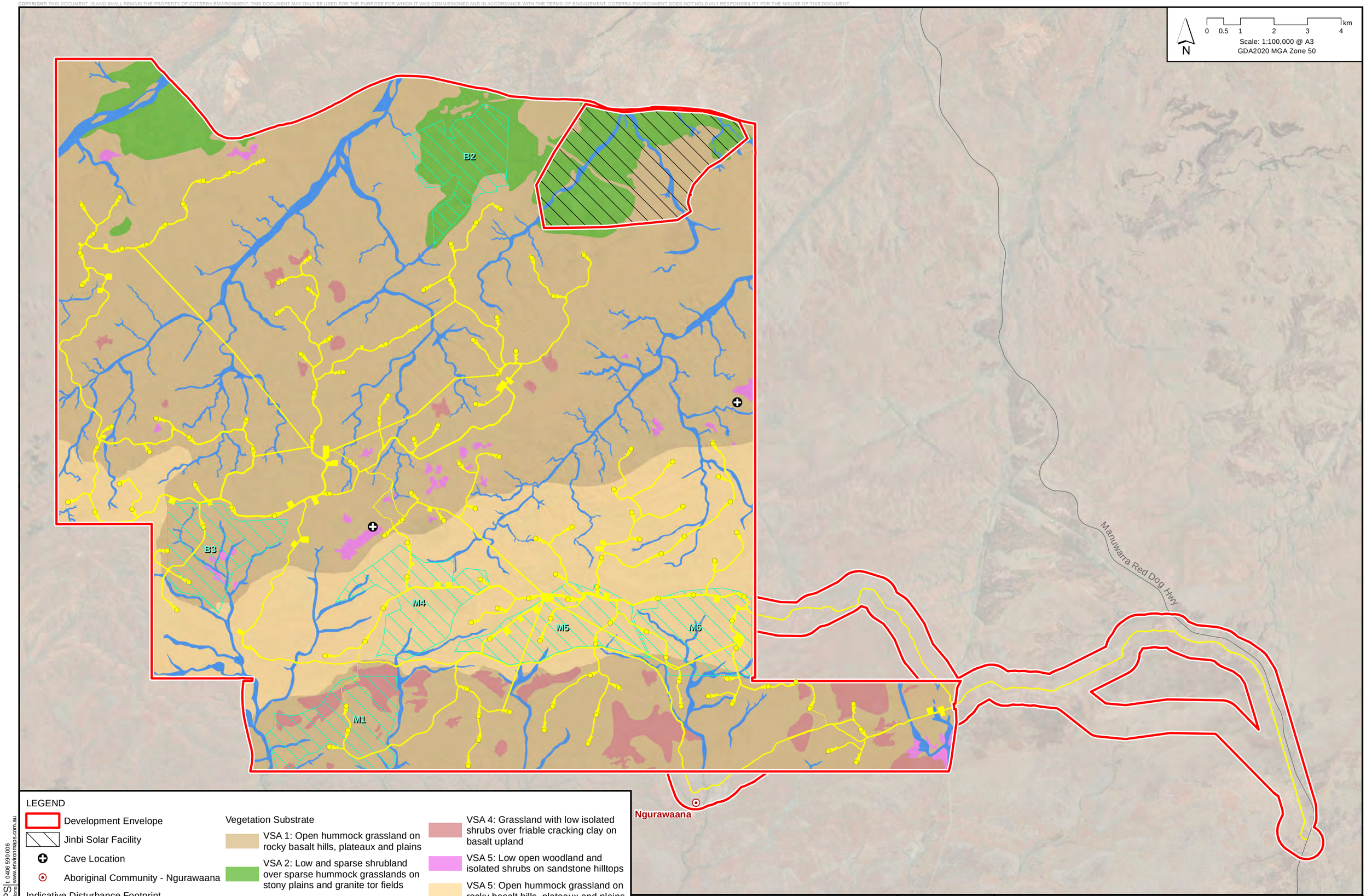
SPATIAL COVERAGE OF TERRESTRIAL FAUNA STUDIES UNDERTAKEN TO-DATE

Figure 9b



LEGEND

- Development Envelope
- Jinbi Solar Facility
- Cave Location
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar

Vegetation Substrate

- 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

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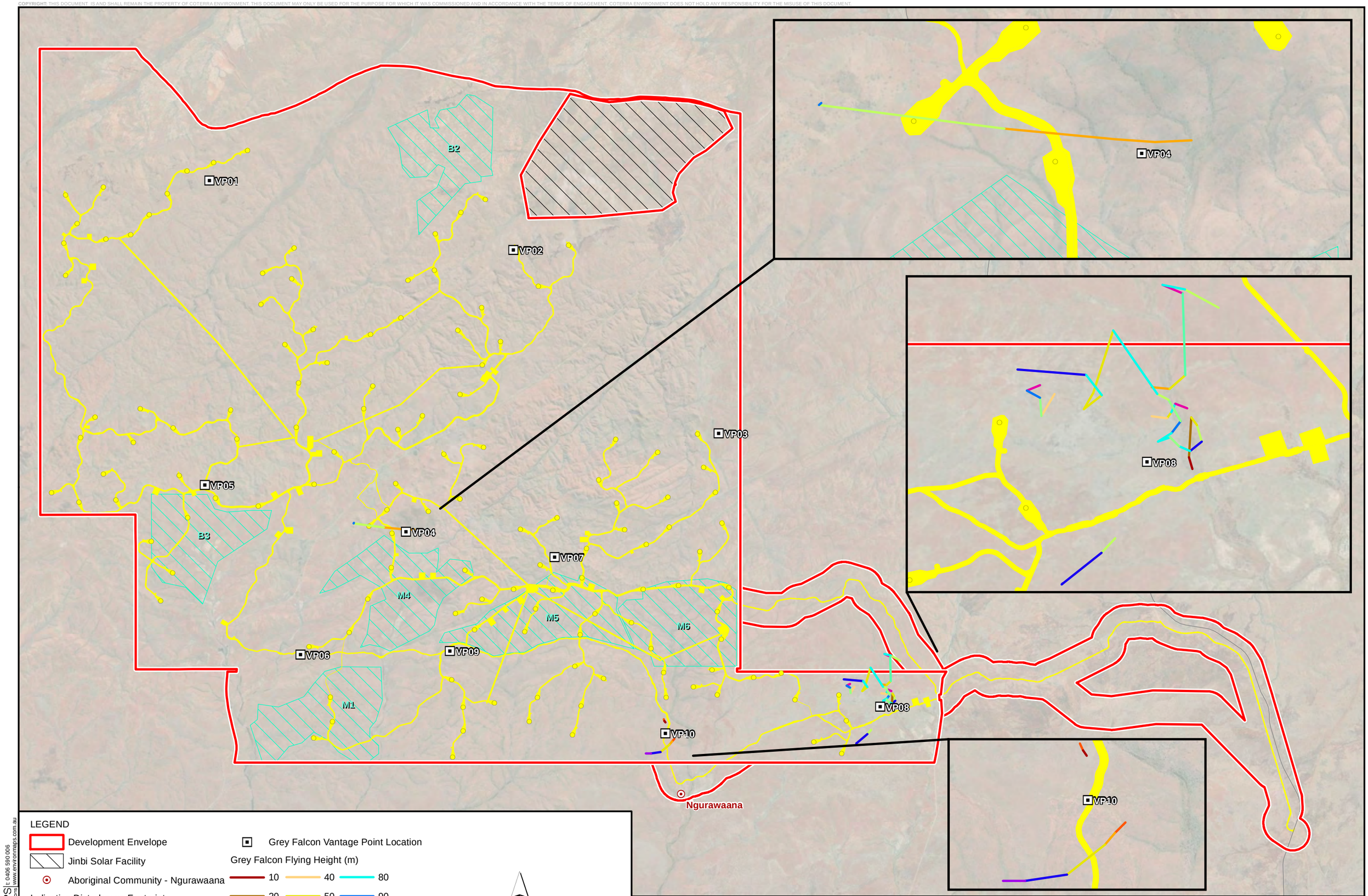
VEGETATION SUBSTRATE ASSOCIATIONS

Figure 10

C:\GIS\Jobs\CoTerra\YECREN03 - Baru-Marnda Renewable Energy Prj, EIASD\Figures\YECREN03_F10 Vegetation Substrate Associations_250529.mxd



LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana
- Indicative Disturbance Footprint
- Wind and supporting infrastructure
- Optional Solar Areas
- Turbine Layout
- Grey Falcon Vantage Point Location

Grey Falcon Flying Height (m)

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

N

0 0.5 1 2 3 4 km

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

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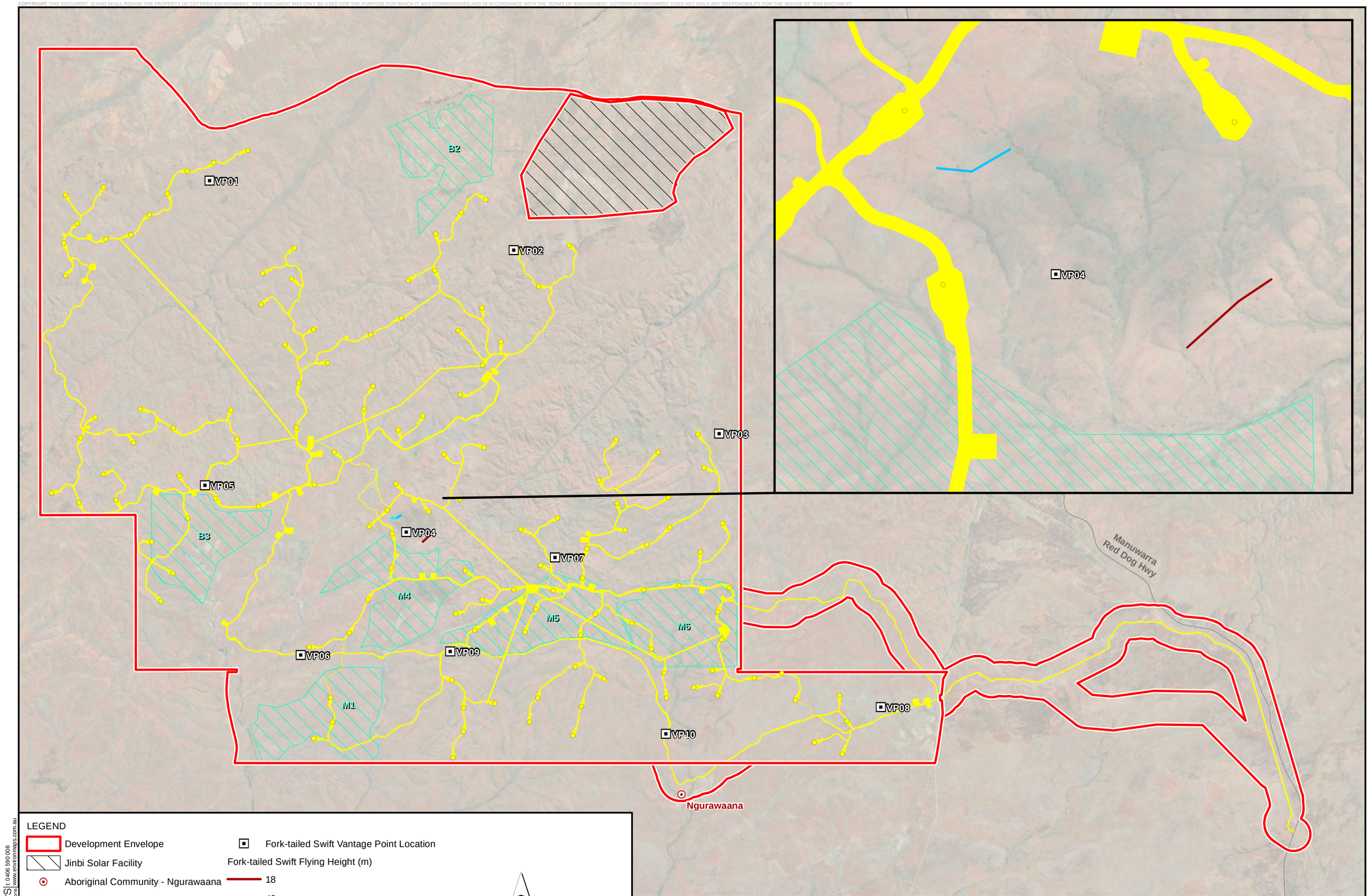
GREY FALCON OBSERVATIONS

Figure 11



LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana
- Indicative Disturbance Footprint
- Wind and supporting infrastructure
- Optional Solar Areas
- Turbine Layout
- Fork-tailed Swift Vantage Point Location

Fork-tailed Swift Flying Height (m)

- 18
- 40

N

0 0.5 1 2 3 4 km

Scale: 1:100,000 @ A3
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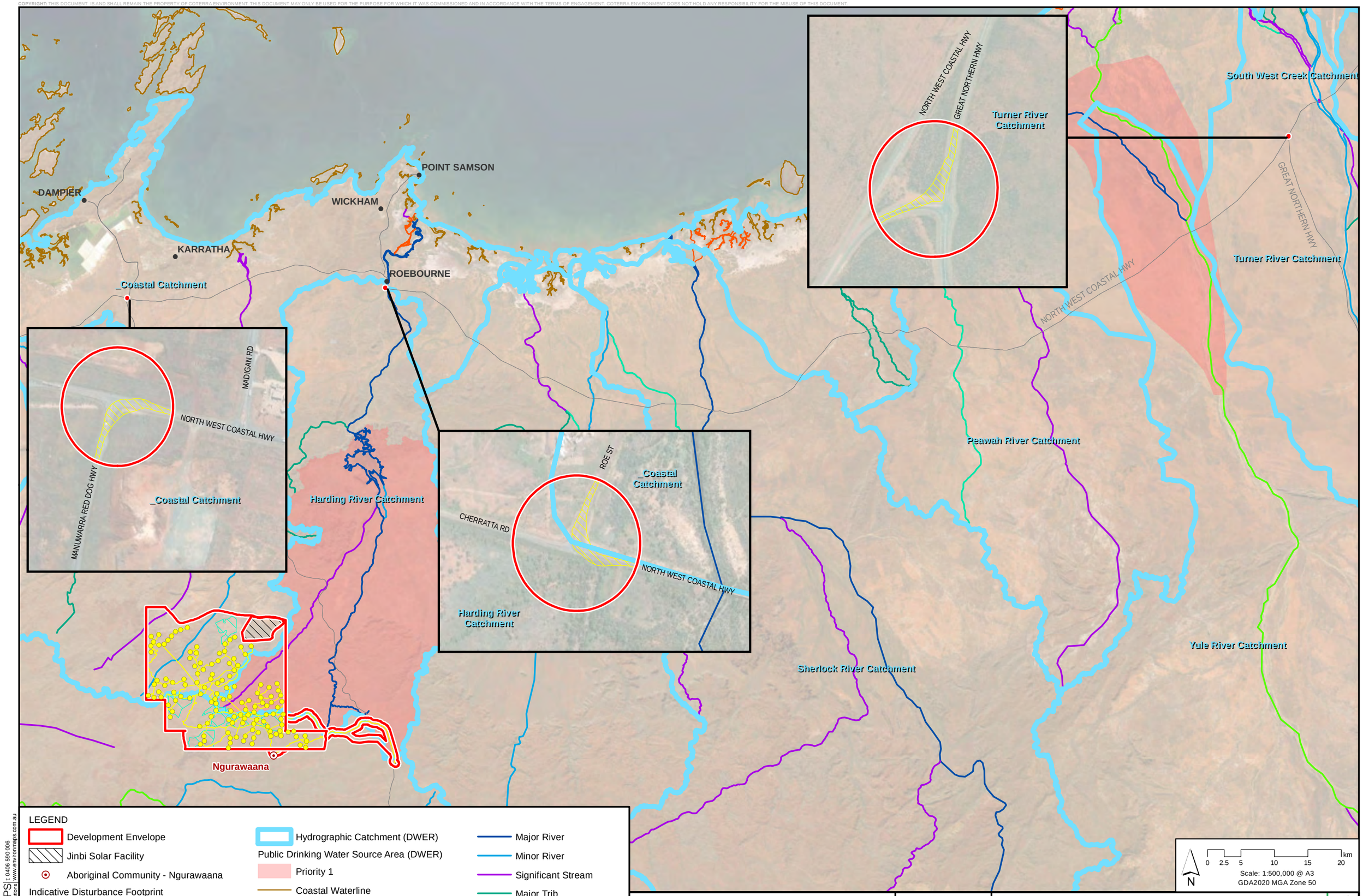
FORK-TAILED SWIFT OBSERVATIONS

Figure 12



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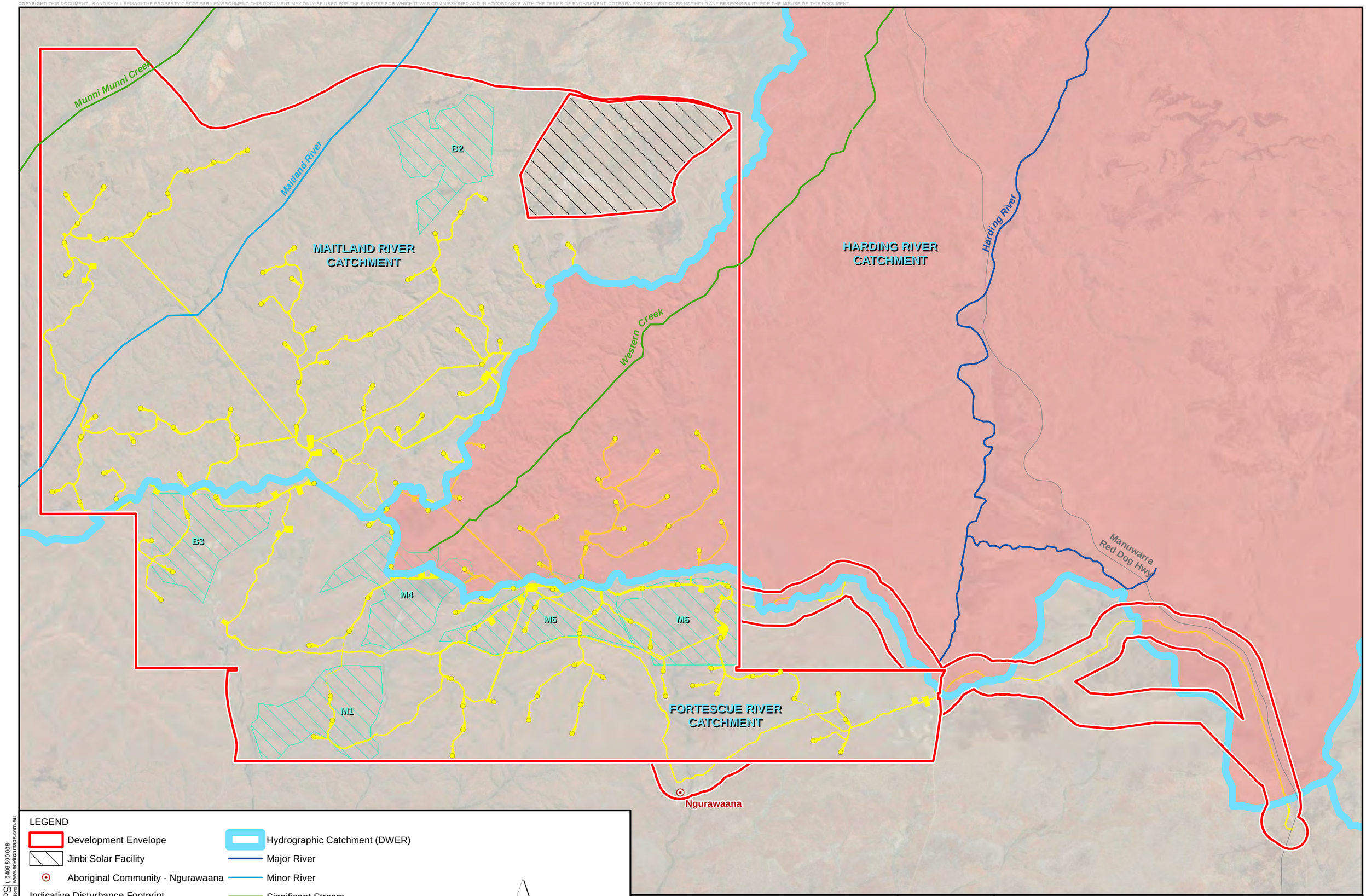
BARU-MARNDA RENEWABLE ENERGY PROJECT

SURFACE HYDROLOGY

Figure 13a

C:\GIS\Jobs\CoTerra\YECREN03 - Baru-Marnda Renewable Energy Prj, EIASD\Figures\YECREN03_F14a Surface Hydrology_250528.mxd



LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar
- Hydrographic Catchment (DWER)
- Major River
- Minor River
- Significant Stream

Public Drinking Water Source Area

- Priority 1

N

0 0.5 1 2 3 4 km

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

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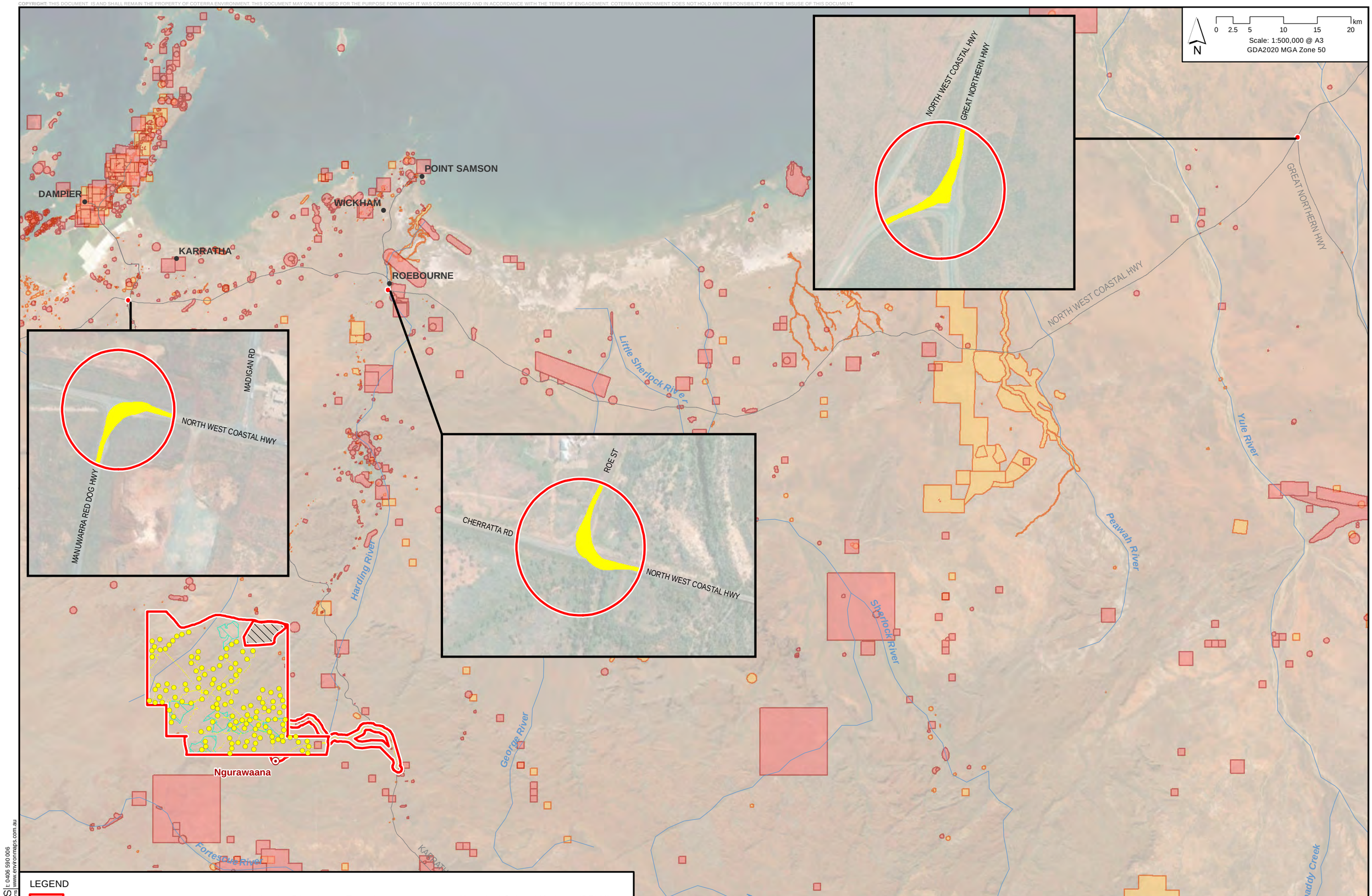
SURFACE HYDROLOGY

Figure 13b



LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar

Aboriginal Cultural Heritage (DPLH)

- Register
- Lodged

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DWER SITE VISIT - BRIEFING NOTE
BARU-MARNDA RENEWABLE ENERGY PROJECT

REGISTERED AND LODGED ABORIGINAL HERITAGE SITES

Figure 14a

N

0 0.5 1 2 3 4 km

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

18995 18996 18993 10934 10936 10937 10938 10939 10940 10941 10942 11592 B2 B3 M4 M5 M6 M1 6891 6892 17692 18242 18243 18621 18241 21298 18245 420 33198 15274 15276 17695 17700 15275 17695 19916 663 23041 17693 7881 7858 19910 19912 19911 630 23047 10944 10943 7855 10894 18777 19908 18779 Ngurawaana 10895 11355 18780 10813 18781 10897

LEGEND

- Development Envelope
- Jinbi Solar Facility
- Aboriginal Community - Ngurawaana

Indicative Disturbance Footprint

- Wind and supporting infrastructure
- Turbine Layout
- Optional Solar Areas

Aboriginal Cultural Heritage Site (DPLH)

- Register
- Lodged

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BARU-MARNDA RENEWABLE ENERGY PROJECT

REGISTERED AND LODGED ABORIGINAL HERITAGE SITES

Figure 14b

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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 Jinbi Project: Short Range Endemic Invertebrate Desktop Assessment.

Appendix 5 Coterra Environment (2025). Baru-Marnda Renewable Energy Project: Bird and Bat Management Plan.

Appendix 6 Pentium Water (2025). Hydrology and Hydrogeology Assessment: Yindjibarndi Energy Corporation Renewable Energy Project

Appendix 7 Sonus (2025). Yindjibarndi Renewable Energy Hub: Noise Impact Assessment

Appendix 8 Ecoscape (2025): Yindjibarndi Energy Project Baru and Marnda: Visual Impact Assessment.