Wind Farm in Scott River

Section 38 Referral Supporting Document

Synergy Renewable Energy Developments Pty Ltd

September 2025

ecological AUSTRALIA
A TETRA TECH COMPANY

Document Tracking

Project Name: Wind Farm in Scott River

Project Number: 24PER7886

Version	Prepared by	Reviewed by	Approved by	Status	Date
A	L.Sinclair/D.Snell	A.Bowley, J.Mitchell	SynergyRED	Draft for submission with EPA Referral	25/09/2025

This report should be cited as 'Eco Logical Australia 2024, Wind Farm in Scott River, Prepared for Synergy Renewable Energy Developments Pty Ltd.'

Abbreviations

Abbreviation	Description
%S	% sulphur
µS/cm	microSiemens per centimetre
AASS	Actual Acid Sulfate Soils
AEP	Annual Exceedance Probability
AH Act	*Aboriginal Heritage Act 1972*
AMRCCE	Augusta-Magaret River Clean Community Energy
APZ	Asset Protection Zones
ASS	Acid Sulfate Soils
ASSDMP	Acid Sulfate Soils and Dewatering Management Plan
BAM Act	Biosecurity and Agriculture Management Act 2007
BBAMP	Bird and Bat Adaptive Management Plan
BBRA	Bird and Bat Risk Assessment
BBUS	Bird and Bat Utilisation Survey
BC Act	Biodiversity Conservation Act 2016
BHP	BHP Group Ltd
BMP	Bushfire Management Plan
BNP	Beenup
BoM	Bureau of Meteorology
BRMP	Bushfire Risk Management Plan
°C	Degree Celsius
Ca	Calcium
CALM	Department of Conservation and Land Management
CASA	Air Services Australia and Civil Aviation Safety Authority
CB	Citizen's Band
CEMP	Construction Environmental Management Plan
CFA	Country Fire Authority
Cl	Chlorine
CR	Critically Endangered
DA	Development Application
DAWE	Department of Agriculture, Water and the Environment
DBCA	Department of Biodiversity, Conservation and Attractions
db	decibel
db(A)	decibel A
DBH	Diameter at Breast Height
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DER	Department of Environmental Regulation
DEWHA	Department of the Environment, Water, Heritage and the Arts
DFES	Department of Fire and Emergency Services
DGV	Default Guideline Value
DoE	Department of the Environment
DoEE	Department of the Environment and Energy
DoH	Department of Health

Abbreviation	Description
Dongas	Modular transportable offices
DoW	Department of Water
DPaW	Department of Parks and Wildlife
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage
DSEWPaC	Department of the Sustainability, Environment, Water, Population and Communities
DWER	Department of Water and Environmental Regulation
EAAF	East Asian – Australasian Flyway
EIA	Environmental Impact Assessment
EIL	Ecological Investigation Levels
EMI	Electromagnetic Interference
EN	Endangered
EPA	Environmental Protection Authority
EP Act	Environmental Protection Act 1986
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERGA	Environmental Research Group Augusta
ESA	Environmentally Sensitive Area
ESL	Ecological Screening Levels
GDE	Groundwater Dependent Ecosystem
GDV	Groundwater Dependent Vegetation
GHG	Greenhouse Gas
GoWA	Government of Western Australia
ha	hectare
HCO_3	Bicarbonate
HILs	Health Investigation Levels
HSL	HSL Screening Levels
IBRA	Interim Biogeographic Regionalisation for Australia
JAF02	Southern Jarrah Forest subregion
K	Potassium
KKAC	Karri Karrak Aboriginal Corporation
kL	kilolitres
km	kilometre
km^2	square kilometre
KNT	Potassium, Nitrogen and Trace Elements
kV	kilovolt
LCDC	Lower Blackwood Land Conservation District Committee
LCU	Landscape Character Unit
LG Act	Local Government Act 1995
LIA	Local Impact Area
LTV	Long-term Trigger Value
m	metre
m^3	cubic meter
m^3/s	cubic meter per second
m/km	metres per kilometre

Abbreviation	Description
m AHD	metres with respect to the Australian Height Datum
mbgl	metres below ground level
Mg	Magnesium
mg/L	milligrams per litre
MI	Migratory
MJP	Manjimup
MLA	Member of the Legislative Assembly
mm	millimetre
MNES	Matters of National Environmental Significance
MP	Member of Parliament
MW	Megawatt
Na	Sodium
NBN	National Broadband Network
NEPM	National Environment Protection Measure
NHMRC	The Australian National Health Medical Research Council
NTU	Nephelometric Turbidity Unit
NVZ	Non-vegetation Zones
NSHA	Noongar Standard Heritage Agreement
NVCP	Native Vegetation Clearing Permit
O&M Area	Operations and Maintenance Area
P	Priority
PASS	Potential Acid Sulfate Soils
PD Act	Planning and Development Act 2005
PFAS	Per- and Polyfluoroalkyl Substances
pH_{FOX}	pH Field Oxidation
PMST	Protected Matters Search Tool
PPE	Personal Protective Equipment
PTD	PTG Consulting Pty Ltd
Q&A	Question and Answer
RDAP	Regional Development Assessment Panel
RiWI Act	Rights in Water and Irrigation Act 1914
RSA	Rotor Swept Area
RSD	Referral Supporting Document
SA	South Australia
SCADA	Supervisory Control and Data Acquisition
SDS	Safety Data Sheet
SO_4	Sulfate
SPOCAS	Suspension Peroxide Oxidation Combined Acidity and Sulfate
SPPs	State Planning Policies
SRE	Short Range Endemic
STATCOMS	Static Synchronous Compensators
SWALSC	South West Aboriginal Land and Sea Council
SWIS	South West Interconnected System
SynergyRED, the Proponent	Synergy Renewable Energy Developments Pty Ltd

Abbreviation	Description
t	tonne
tCO2-e	tonnes of Carbon Dioxide equivalent
TDS	Total Dissolved Solids
TEC	Threatened Ecological Community
TKN	Total Kjeldahl Nitrogen
UBC	Urban Bushland Council
VA	Vegetation Association
VU	Vulnerable
WA	Western Australia
WAM	Western Australian Museum
WAR01	Warren bioregion and subregion
WoNS	Weeds of National Significance
WSWA	Wildflower Society of Western Australia
WTG	Wind Turbine Generator

Executive Summary

Synergy Renewable Energy Developments Pty Ltd (SynergyRED; the Proponent) is proposing to develop an onshore wind farm generating up to 100 Megawatts (MW) in the Scott River region, approximately 15 km north-east of Augusta, in the South West of Western Australia (WA) (the Proposal). The Proposal will include the construction and operation of up to 20 wind turbines and is part of an initiative by SynergyRED to explore, scope and develop a range of renewable energy assets across WA, to meet the State Government's 2030 decarbonisation targets.

A general description of the Proposal and its physical, construction and operational elements are provided in Table ES-1 and Table ES-2.

Table ES-1: General Proposal Content Description

General Proposal Content Description	
Proposal Title	Wind Farm in Scott River
Proponent Name	Synergy Renewable Energy Developments Pty Ltd (SynergyRED)
Short Description	This proposal is for the development of an onshore wind farm in the Scott River region, approximately 15 km north-east of the town of Augusta, in the South West of Western Australia. The Proposal will involve the construction and operation of up to 20 wind turbines, generating up to 100 MW, with associated infrastructure including meteorological masts and communication towers, operation and maintenance building, substation and transmission infrastructure and other supporting infrastructure. It is located across numerous freehold properties primarily cleared for agricultural purposes and Blue Gum plantation. The wind farm substation will connect the Proposal to the South West Interconnected System (SWIS) via the existing 132 kV Beenup to Manjimup transmission line.

Table ES-2: Proposal Elements

Proposal Element	Location / Description	Maximum Extent, Capacity or Range
Physical elements		
Wind turbines including associated foundations and hardstands	Figure 2-1	107 ha of disturbance, including clearing of no more than 1 ha of remnant native vegetation, within a 3,597 ha Development Envelope.
Meteorological masts and communication towers		
Substation and transmission infrastructure		
Operations and maintenance area		
Site entrances, internal access roads and public viewing area		
Other supporting infrastructure and utilities (e.g. concrete batching plants, borrow pits, site office, water storage and construction laydown areas)		
Construction elements		
Construction water supply	Within the Development Envelope (Figure 2-1)	Water tanks and/or storage dams will be installed to support construction and operational water requirements. Water will be sourced elsewhere, purchased and ported in. There is a possibility that any dewater collected during construction, if treated appropriately to a suitable quality, may also be able to be used during construction.
Concrete batching plants	Within the Development Envelope (Figure 2-1)	Concrete for the foundations will be mixed at concrete batching plants. Concrete batching material may be sourced offsite.
Dewatering for construction of underground infrastructure including turbine, meteorological mast and communication tower foundations	Within the Development Envelope (Figure 2-1)	Groundwater drawdown will not exceed 2 mbgl, measured from the natural land surface at the perimeter of each foundation.
Operational elements		
Wind energy production	Within the Development Envelope (Figure 2-1)	A maximum of 20 turbines, with a maximum total energy production of 100 MW.
Proposal elements with greenhouse gas emissions^		
Construction elements:		
Scope 1	3,799 tCO_2-e	
Scope 2	149 tCO_2-e	
Scope 3	99,958 tCO_2-e	
Operation elements:		
Scope 1	156 tCO_2-e per year	
Scope 2	134 tCO_2-e per year	
Scope 3	40 tCO_2-e per year	
Rehabilitation		
The Proposal utilises existing cleared areas (i.e. agricultural and tree plantation land devoid of native vegetation) wherever possible. Minor areas of native vegetation necessary for construction and operation of the Proposal will be cleared.		

Proposal Element	Location / Description	Maximum Extent, Capacity or Range
Following construction, and where practicable, the Proponent will conduct progressive rehabilitation in areas no longer required, to meet the original land use or to an agreed post closure land use with the landowners. The rehabilitation of sites used for temporary infrastructure can inform the broader post-decommissioning rehabilitation strategy by identifying the most effective rehabilitation techniques.		
Commissioning		
The Proposal's commissioning stage has no additional effects on the environment.		
Decommissioning		
Once the initial operational life of the Proposal comes to an end, the wind farm can be repowered by replacing the wind turbines, or wind turbine components to extend Proposal life. If repowering the wind farm is not viable, the Proponent will decommission and rehabilitate the Proposal site to an agreed post-closure land use with landowners. This will involve the dismantling and removal of all turbines and above ground infrastructure, unless otherwise agreed with the relevant landowners, noting it's likely that the landowner may want to retain some infrastructure (e.g. access roads). Below ground infrastructure will also be removed if environmentally acceptable and agreed upon with landowners, in accordance with the Decommissioning Plan. The removal and disposal of materials and components will be conducted in a manner that minimises impacts to the environment and the infrastructure itself, to allow for the reuse of components, if viable.		
Other elements which affect extent of effects on the environment		
Proposal time	Maximum project life	64 years*
	Construction phase	18 to 24 months
	Operations phase	30 to 60 years
	Decommissioning and rehabilitation phase	24 months

^The greenhouse gas assessment is considered to be conservative due to the application of the mitigation hierarchy, which has changed since the Proposal design (e.g. reduced clearing)

*This accounts for potential repower after 30 years of operation.

The purpose of this Referral Supporting Document (RSD) is to provide additional supporting information to that provided in the associated referral application form to guide the Environmental Protection Authority's (EPA's) determination of the validity of the referral and on its decision whether to assess the Proposal. The RSD describes the existing environmental values present within and immediately surrounding the Proposal and assesses the environmental impacts that have the potential to occur from its implementation.

In preparing this document, the following guidance has been considered:

- *Instructions on how to prepare an Environmental Review Document* (EPA 2024)
- *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual* (EPA 2024)
- *Instructions and template: How to identify the content of a proposal* (EPA 2024)
- *Instructions: Referral of a proposal under section 38 of the Environmental Protection Act 1986* (EPA 2024).

Comprehensive and ongoing stakeholder engagement has formed an important part of the Proposal planning process. The Proponent commenced engagement with key stakeholders in September 2022, and engagement is ongoing. Key stakeholder groups include Federal and State government agencies, local government, Traditional Owners, landowners and neighbours, local community and non-government organisations.

Based on an assessment of potential impacts associated with the Proposal, the key environmental factors considered relevant to the Proposal are:

- Terrestrial Environmental Quality

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

A summary of potential impacts, key proposed mitigation strategies and proposed environmental outcomes for each of the relevant environmental factors is provided in Table ES-3.

No residual impacts to individual factors are considered significant and the Proponent considers that the Proposal meets the EPA's environmental factor objectives.

Table ES-3: Summary of Potential Impacts, Proposed Mitigation and Proposed Environmental Outcomes

Environmental Factors	
Factor 1: Terrestrial Environmental Quality	
Potential Impacts	• Soil acidification and/or toxicity due to disturbance of Potential Acid Sulfate Soils (PASS) during construction • Soil erosion due to ground disturbing activities • Soil contamination from accidental loss or spill of hydrocarbons and other hazardous materials
Key Mitigation	Potential impacts to Terrestrial Environmental Quality have primarily been avoided or minimised through the design of the Proposal during the planning phase, including through the following: • Clearing of remnant native vegetation within the Development Envelope will be limited to a maximum of 1 ha. • Turbine/mast/tower foundations will be designed to limit the excavation of PASS and dewatering requirements. Three foundation options are being considered, with the specific foundation option for each location to be determined based on detailed site investigation and revised modelling • Borrow pits will be excavated above the groundwater level and will be assessed for the presence of PASS prior to disturbance. • Any dewatering required for construction will not exceed 2 mbgl at the perimeter of each foundation and will be managed to ensure drawdown does not exceed 0.1 m beyond 100 m from any dewatering location. The following management plans will be implemented to minimise the impacts to Terrestrial Environmental Quality: • An Acid Sulfate Soils and Dewatering Management Plan (ASSDMP) will be prepared and implemented to manage the potential risks associated with the exposure of PASS from excavation and dewatering during construction. The ASSDMP will be informed by the Preliminary ASSDMP. • A Construction Environmental Management Plan (CEMP) will be implemented during construction to manage impacts associated with soil erosion and contamination.
Residual Impacts and Environmental Outcomes	No significant residual impacts to Terrestrial Environmental Quality associated with the Proposal are anticipated due to the following: • Impacts to soil quality as a result of the disturbance of PASS and/or erosion will be minor and short-term, to the Development Envelope. • Impacts to soil quality as a result of any accidental loss or spill of hazardous materials will be minor and remediated and limited to the Development Envelope. • Impacts will be managed through the implementation of management plans throughout construction and operation of the of the Proposal, including a CEMP and a detailed ASSDMP to be informed by the Preliminary ASSDMP. The Proponent considers that the Proposal can be implemented to meet the EPA's objective for the Terrestrial Environmental Quality environmental factor *"to maintain the quality of land and soils so that environmental values are protected"*.

Environmental Factors	
Factor 2: Inland Waters	
Potential Impacts	• Dewatering leading to temporary reduction in groundwater levels and reduced interaction with surface water • Penetration of an aquitard causing excessive leakage from the Superficial Aquifer • Changes to surface hydrological regimes due to Proposal infrastructure • Changes to groundwater flow due to Proposal infrastructure • Acidification and/or toxicity of surface water and/or groundwater during construction due to: - Disturbance and/or inappropriate handling of PASS - Inappropriate management of dewater. • Reduced water quality due to erosion, sedimentation or mobilisation of nutrients • Contamination of surface water and/or groundwater from accidental loss or spills of hydrocarbons and other hazardous materials • Draw-in of the adjacent Beenup Mineral Sands acid mine plume during construction dewatering • Groundwater drawdown associated with construction dewatering reducing water security for surrounding bore users.
Key Mitigation	Potential impacts to Inland Waters have primarily been avoided or minimised through the design of the Proposal during the planning phase, including through the following: • Civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable. • Turbine/mast/tower foundations have been designed to limit dewatering requirements. Three foundation options are being considered, with the specific foundation option for each location to be determined based on detailed site investigation and revised modelling. • Borrow pits will be located and designed to ensure that no dewatering is required. • Any dewatering required for construction will not exceed 2 mbgl at the perimeter of each foundation and will be managed to ensure drawdown does not exceed 0.1 m beyond 100 m from any dewatering location and does not exceed natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at Groundwater Dependent Ecosystems (GDEs). • Strategic disposal of dewater to, and location of, infiltration basins/trenches around the point of extraction to minimise the cone of depression. • Drainage controls (e.g. drains and culverts) will be appropriately located, designed, constructed and maintained to maintain surface water flow regimes and minimise erosion. • Flow velocities will be maintained below 2 m/s upstream and downstream of disturbance areas, including at culvert inlet and outlets. • Civil infrastructure will be located and designed to ensure specific risk-based flood vulnerability requirements have been addressed and will be located outside of the 1% AEP flood extent, where practicable. • Drainage controls (e.g. drains and culverts) will be appropriately located, designed, constructed and maintained to maintain surface water flow regimes and minimise erosion • Infrastructure which may be a source of contamination (e.g. substation and switchyard, operations and maintenance building and workshop, concrete batching area, refuelling locations) will be located at least 100 m from wetland habitats. The following management plans will be implemented to minimise the impacts to Inland Waters: • An ASSDMP will be prepared and implemented to manage the potential risks associated with the exposure of PASS from excavation and dewatering during construction. The ASSDMP will be informed by the Preliminary ASSDMP. • A CEMP will be implemented during construction to manage impacts associated with changes to hydrological regimes, erosion and contamination.

Environmental Factors	
Residual Impacts and Environmental Outcomes	No significant residual impacts to Inland Waters associated with the Proposal are anticipated due to the following: • Minor, localised (i.e. largely within the watertables natural seasonal variation and managed to within 100 m of each dewatering location), and temporary impact to groundwater levels as a result of construction dewatering, with the Superficial Aquifer expected to recover by the subsequent winter period following construction • No excessive leakage of the Superficial Aquifer as a result of excavations penetrating an aquitard • Minor, short-term and localised acidification of groundwater as a result of construction dewatering • Minor and localised impact to surface and ground water flows as a result of Proposal infrastructure • Minor, localised and temporary impacts to surface water and/or groundwater quality resulting from Acid Sulfate Soils (ASS) disturbance and management, erosion and sedimentation, mobilisation of nutrients, and/or the accidental loss or spill of hazardous materials • No interaction with the Beenup Mineral Sands acid mine plume • No impact on surrounding bore users. • Impacts will be managed through the implementation of management plans, including a CEMP and a detailed ASSDMP prepared in consideration of Preliminary ASSDMP. The Proponent considers that the Proposal can be implemented to meet the EPA's objective for the Inland Waters environmental factor *"to maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected"*.
Factor 3: Flora and Vegetation	
Potential Impacts	• Loss and increased fragmentation of native vegetation due to clearing • Loss of conservation significant flora and/or vegetation communities species due to clearing • Degradation of vegetation from increased dust deposition, introduction and/or spread of weeds and/or dieback, altered hydrological regimes and increased risk of bushfires • Groundwater drawdown associated with construction dewatering potentially reducing the hydroperiod and health of Groundwater Dependent Vegetation (GDV).
Key Mitigation	Potential impacts to flora and vegetation have primarily been avoided or minimised through the design of the Proposal during the planning phase, including the avoidance of the following: • Native vegetation within conservation covenant areas • Native vegetation growing in association with wetland habitats, including any contiguous native vegetation within 50 m • Scott River Ironstone Threatened Ecological Community (TEC), and all Threatened and Priority flora individuals • Contiguous native vegetation within 50 m of the Scott River Ironstone TEC and within 50 m of known records of Threatened and P1 species and within 20 m of P2, P3 and P4 species, with the exception of one site. The following management plans will be implemented to minimise the impacts to flora and vegetation: • A CEMP will be implemented during construction to manage impacts associated with clearing, fragmentation, dust deposition, weeds and changes to hydrological regimes • A Dieback Management Plan will be developed and to minimise the risks related to the introduction and/or spread of dieback, where required, and informed by a Phytophthora dieback survey completed prior to construction. • Groundwater drawdown impacts to GDV will be minimised, managed and monitored in accordance with a detailed ASSDMP to be informed by the Preliminary ASSDMP. • A Bushfire Management Plan (BMP; Linfire 2025a) and Bushfire Risk Management Plan (BRMP; Linfire 2025b) will be implemented during construction and operation of the Proposal).

Environmental Factors	
Residual Impacts and Environmental Outcomes	No significant residual impacts to flora and vegetation associated with the Proposal are anticipated due to the following: • The Proposal will result in the clearing of up to 1.00 ha of native vegetation, including a maximum of 0.02 ha of vegetation in Very Good or better condition • Clearing is restricted to small areas required for the construction of internal access roads, particularly to facilitate ingress of turbine components, upgrades to the existing Beenup Mine to Manjimup 132 kV transmission line, and where an alternative layout was not possible due to the avoidance of other significant receptors. Approximately 0.36 ha of native vegetation clearing is considered unavoidable. The remainder of the 1.00 ha clearing will allow for flexibility in project design. • The avoidance of conservation significant flora (including contiguous native vegetation within 50 m of known Threatened and P1 species and within 20 m of P2, P3 and P4 species), TEC, native vegetation within conservation and covenant areas and locally restricted vegetation types that occur within the Development Envelope during clearing • Clearing of a maximum of 0.01 ha of contiguous native vegetation within the Scott River Ironstone TEC 50 m buffer • The Proposal has been designed to preferentially locate infrastructure within cleared agricultural land and is thus unlikely to cause significant fragmentation to native vegetation within the Development Envelope • There will be negligible impact to GDV as a result of the minor, localised and temporary construction dewatering, noting drawdown will be managed so as not to exceed the natural seasonal natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at any GDV • Impacts to vegetation due to altered hydrological regimes will be minimal • The indirect impacts likely to occur during construction and operation of the Proposal, namely increased dust deposition, the introduction and/or spread of weeds and dieback, dewatering impacts to GDEs, alterations to hydrological regimes and accidental bushfires will be minimised through the implementation of the mitigation measures outlined within the Proposal's CEMP, a Dieback Management Plan (as required), an ASSDMP, a BMP (Linfire 2025a) and BRMP (Linfire 2025b). The Proponent considers that the Proposal can be implemented to meet the EPA's objective for the Flora and Vegetation factor to "*protect flora and vegetation so that biological diversity and ecological integrity are maintained*".
Factor 4: Terrestrial Fauna	
Potential Impacts	• Loss and increased fragmentation of vertebrate fauna habitat • Loss or injury to fauna individuals through turbine strike, barotrauma or collision with transmission infrastructure, interactions with vehicle/machinery, and/or entrapment in excavations, dams, basins and borrow pits during construction. • Disturbance to fauna movement patterns and behaviour from wind turbine movement, light, noise and/or vibration • Increased competition or predation by feral fauna • Groundwater drawdown associated with construction dewatering potentially reducing the hydroperiod and health of GDEs (wetland habitats and aquatic fauna habitat) • Degradation of fauna habitat as a result of increased dust deposition, Introduction and/or spread of weeds and/or dieback, increased risk of bushfires and altered hydrological regimes.

Environmental Factors	
Key Mitigation	Potential impacts to Terrestrial Fauna have primarily been avoided or minimised through the design of the Proposal during the planning phase, including through the following: • Avoidance of wetland habitats and contiguous native vegetation within 50 m • Avoidance of suitable or potential breeding trees for black cockatoos and contiguous native vegetation within 10 m • No placement of wind turbines in proximity (minimum of 100 m from the centre point of the turbine) to remnant native vegetation/habitat to prevent blade overhang • Fragmentation will be minimised by limiting the clearing width for all internal access roads to 5-6 m where they pass through a Western Ringtail Possum habitat patch. The following management plans will be implemented to minimise the impacts to Terrestrial Fauna: • A CEMP will be implemented during construction to manage impacts associated with the loss of fauna habitat, fragmentation, loss or injury to fauna, disturbance to fauna movement patterns and behaviour, increased competition or predation by feral fauna and the degradation of fauna habitat from dust, weeds and changes to hydrological regimes • A Bird and Bat Adaptive Management Plan (BBAMP) has been prepared to monitor and manage potential environmental impacts to bird and bat species arising from the operation of the Proposal including loss or injury through turbine strike and barotrauma, disturbance to movement patterns and behaviour and increased competition or predation by feral fauna • A Dieback Management Plan will be developed and implemented to minimise the risks related to the introduction and/or spread of dieback, where required • Groundwater drawdown impacts to GDEs (wetlands and aquatic fauna habitat) will be minimised, managed and monitored in accordance with a detailed ASSDMP to be informed by the Preliminary ASSDMP • A BMP (Linfire 2025a) and BRMP; (Linfire 2025b) will be implemented during construction and operation of the Proposal.

Environmental Factors	
Residual Impacts and Environmental Outcomes	No significant residual impacts to Terrestrial Fauna associated with the Proposal are anticipated due to the following: • The Proposal will clear no more than 1.00 ha of habitat represented by native vegetation, including the following species-specific habitat values: - A maximum of 0.5 ha of native Moderate to Low quality Western Ringtail Habitat, including a maximum of 0.03 ha of native Moderate quality Western Ringtail Possum habitat - A maximum of 1.00 ha of native black cockatoo foraging habitat, including maximum of 0.5 ha of Moderate to High quality foraging habitat. • The Proposal will avoid clearing: - All wetland habitat and any contiguous native vegetation within 50 m. - All potential and suitable breeding trees for black cockatoos and any contiguous native vegetation within 10 m. - All High quality Western Ringtail Possum habitat. • The Proposal will clear approximately 100.72 ha of non-native Low quality foraging habitat (e.g. cleared paddocks/pasture) for Carnaby's Black Cockatoo. • The potential for fauna habitat fragmentation is minimal given the highly modified nature of the Development Envelope, the utilisation of existing cleared areas and tracks, and the commitment to limit the width of clearing for all internal access roads to 5-6 m, where they pass through a Western Ringtail Possum habitat patch. • The risk of loss or injury to fauna individuals and degradation of fauna habitat as a result of construction related activities is considered to be minor and will be minimised through the implementation of the Proposal's CEMP, a Dieback Management Plan (where required), an ASSDMP, a BMP (Linfire 2025a) and BRMP (Linfire 2025b). • While the risk of turbine strike and/or barotrauma on birds and bats was largely assessed as being Negligible to Low for all species, excepting Forest Red-tailed Black Cockatoo assessed as being at Moderate risk, the implementation of adaptive management approach as detailed in the preliminary BBAMP, will ensure that the Proposal does not have a significant impact on any bird and bat species. • Substantial disturbance to fauna movement patterns and behaviour from wind turbine movement, light, noise and/or vibration is not anticipated and will be minimised through the implementation of the CEMP and BBAMP. • There will be negligible impacts to wetland GDEs, and aquatic fauna that may inhabit them, as a result of the minor, localised and temporary construction dewatering, noting drawdown will be managed in accordance with an ASSDMP (Appendix B) so as not to exceed the natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at any GDE location. • Impacts to fauna habitat due to altered hydrological regimes will be minimal. The Proponent considers that the Proposal can be implemented to meet the EPA's objective for the Terrestrial Fauna factor to *"protect terrestrial fauna so that biological diversity and ecological integrity are maintained"*.
Factor 5: Social Surroundings	
Potential Impacts	• Impacts to Aboriginal heritage sites or cultural values through: - Ground disturbance associated with the construction of the Proposal which may cause the loss of or damage to Aboriginal heritage sites or cultural values - Changes to surface water flows, groundwater levels and water quality which may impact the Blackwood River / Goorbilyup Buerle or Scott River. • Impacts to landscape and visual amenity due to the placement of wind turbines and other proposal infrastructure • Altered socio-economic outcomes for the local community including impacts to tourism and employment, agricultural land use and impacts on infrastructure, services and roads. • Reduce local amenity as a result of light, noise and dust emissions and shadow flicker.

Environmental Factors	
Key Mitigation	Potential impacts to Social Surroundings have primarily been avoided or minimised through the design of the Proposal during the planning phase, including through the following: • Design of the Proposal to completely avoid direct impacts to the Blackwood River / Goorbilyup Buerle registered heritage site. • Any impact to tributaries of the Scott River lodged heritage place within the Development Envelope would require consultation with Karri Karrak Aboriginal Corporation (KKAC) and relevant authorisation under the *Aboriginal Heritage Act 1972* (AH Act). • No clearing of any native vegetation within 50 m of any lodged heritage place or registered heritage site. • Wind turbine blades will be coated in a non-reflective paint to avoid blade glint. • Wind turbines will be uniform in colour, design and size to minimise visual impacts. • Landowners and adjacent neighbours will be engaged to discuss screening and landscaping to mitigate any visual impacts. • Alternative turbine/tower/mast foundations will be utilised to avoid and otherwise minimise PASS disturbance and dewatering impacts on land use. • Detailed design will consider adjustment of turbine locations or the relocation, reconstruction or modification of communication infrastructure to ensure no Electromagnetic Interference (EMI) as a result of the Proposal. • Nighttime construction activities will be avoided where practicable to minimise light and noise emissions. • Lighting will be minimised to that necessary for safe construction and operation of the Proposal. • Assessments to date do not indicate that lighting on the wind turbines will be required. Aviation lighting will only be installed on wind turbines where required by Air Services Australia and Civil Aviation Safety Authority (CASA)/emergency services. In this instance, if lighting is required by the approving authorities, the Proponent will work with aviation and emergency services to assess lighting solutions. • The Indicative Disturbance Footprint has been designed to ensure compliance with noise regulations at all existing dwellings. • Dust management measures will be implemented in accordance with the CEMP. The following management plans will be implemented to minimise the impacts to Social Surroundings: • An ASSDMP will be prepared and implemented to manage the potential risks to land use associated with the exposure of PASS from excavation and dewatering during construction. The ASSDMP will be informed by the Preliminary ASSDMP. • A CEMP will be implemented during construction to manage impacts associated with dust and indirect impacts to the Blackwood River / Goorbilyup Buerle and Scott River. • A Traffic Management Plan will be implemented during construction of the Proposal to minimise traffic safety impacts and disruptions to local road users. • A BMP and BRMP will be implemented during construction and operation of the Proposal to minimise bushfire risk to surrounding land users. • An operational noise management plan will be developed and implemented for the wind farm and will include noise monitoring.

Environmental Factors	
Residual Impacts and Environmental Outcomes	No significant residual impacts to Social Surroundings associated with the Proposal are anticipated due to the following: • No direct impacts to the Blackwood River / Goorbilyup Buerle and no direct impact to the Scott River without the relevant consultation with KKAC and any necessary authorisations under the AH Act • Indirect Impacts to small tributaries of Blackwood River / Goorbilyup Buerle and Scott River because of altered surface hydrological regimes or water quality will be minor, temporary and localised • Moderate to high impact to Landscape Character Unit (LCU) and the visual amenity at 11 of the 12 sensitive receptors as a result of visible wind turbines • Creation of a tourism asset and opportunity for active community participation in the Proposal and the creation of local employment opportunities • No significant impact to productivity of agricultural land as a result of the Proposal • No significant impact from EMI • Minor and temporary impact of increased traffic to the local community and industries during construction • Minor increase in risk of accidental bushfires, however minor decrease in risk of lightning caused bushfire. • Minor increase in light emissions • Noise emissions will be compliant with the WA Noise Regulations at all non-involved noise sensitive receptors • Low impact of shadow flicker, compliant with Draft National Wind Farm Guidelines (EPHC 2010) • Minor, short term increase in dust emissions during construction. • Impacts will be managed through the implementation of management plans throughout construction and operation, including a CEMP, ASSDMP, Traffic Management Plan, Operational Noise Management Plan, BMP and BRMP. The Proponent considers that the Proposal can be implemented to meet the EPA's objective for the Social Surroundings environmental factor "*to protect social surroundings from significant harm*".

Environmental impacts from the Proposal have also been considered cumulatively and holistically and, where appropriate, synergies between management and mitigation measures are considered from a holistic perspective. When considered from a holistic perspective, the combined effects on the terrestrial environment as a whole are no greater than the effects on individual factors, and residual impacts of the overall Proposal are not considered significant.

The Proponent considers the avoidance and mitigation proposed in this RSD as well as the ability of other statutory decision-making processes to mitigate potential impacts to the environment are sufficient to meet both the principles contained in the *Environmental Protection Act 1986* (EP Act) and the EPA's environmental objectives.

Contents

List of Figures

List of Tables

List of Plates

List of Appendices

1. Introduction

1.1. Overview

Synergy Renewable Energy Developments Pty Ltd (SynergyRED; the Proponent) is proposing to develop an onshore wind farm generating up to 100 Megawatts (MW) in the Scott River region, approximately 15 km north-east of Augusta, in the South West of Western Australia (WA) (the Proposal) (Figure 1-1). The Proposal will include the construction and operation of up to 20 wind turbines and is part of an initiative by SynergyRED to explore, scope and develop a range of renewable energy assets across WA, to meet the State Government's 2030 decarbonisation targets.

1.2. Purpose and Scope

The purpose of this Referral Supporting Document (RSD) is to provide additional supporting information to that provided in the associated referral application form to guide the Environmental Protection Authority's (EPA's) determination of the validity of the referral and on its decision whether to assess the Proposal. The RSD describes the existing environmental values present within and immediately surrounding the Proposal and assesses the environmental impacts that have the potential to occur from its implementation.

In preparing this document, the following guidance has been considered:

- *Instructions on how to prepare an Environmental Review Document* (EPA 2024)
- *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual* (EPA 2024)
- *Instructions and template: How to identify the content of a proposal* (EPA 2024)
- *Instructions: Referral of a proposal under section 38 of the Environmental Protection Act 1986* (EPA 2024).

1.3. Proponent Details

SynergyRED is the Proponent for this Proposal. The Proponent's details are presented in Table 1-1.

Table 1-1: Proponent Details

Proponent Details	
Proponent	Synergy Renewable Energy Developments Pty Ltd (SynergyRED)
ABN	58 673 830 106
Address	Level 23 152-158 St Georges Terrace Perth, WA 6000
Primary Contact	Natassja Bell Senior Advisor – Environment and Heritage 08 6282 7000 synergyapprovals@synergy.net.au
Secondary Contact	Fabienne Hill Faskel Lead Environment Advisor Projects & Approvals 08 6282 7000 synergyapprovals@synergy.net.au

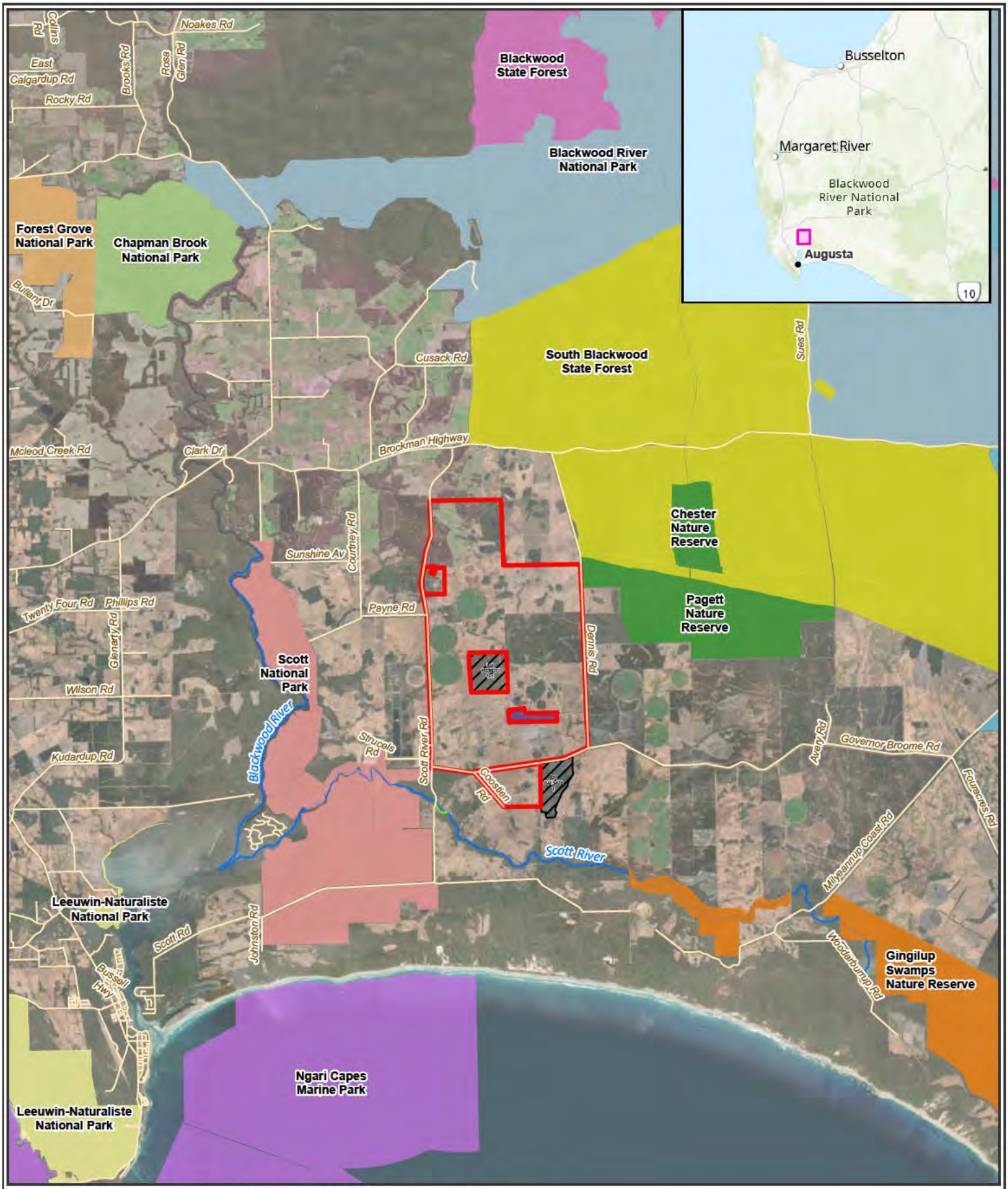


Figure 1-1: Regional Context of the Proposal

- Development Envelope
- DBCA Lands of Interest (Crown Freehold Land)
- Roads
- Watercourses

DBCA managed lands

- Blackwood State Forest
- Milyeannup State Forest
- Ngari Capes Marine Park
- South Blackwood State Forest
- Blackwood River National Park
- Chapman Brook National Park
- Chester Nature Reserve
- Forest Grove National Park
- Gingilup Swamps Nature Reserve
- Leeuwin-Naturaliste National Park
- Pagett Nature Reserve
- Scott National Park
- Wiltshire-Butler National Park
- Unnamed WA15185 Nature Reserve
- Unnamed WA42377 Nature Reserve
- Unnamed WA42942 Nature Reserve

0 1.5 3 6
Kilometers

Datum/Projection: GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

1.4. Key Proposal Terminology

The Proposal: Includes the construction and operation of up to 20 wind turbines and associated infrastructure and activities with the Development Envelope.

Development Envelope: Refers to the area where all Proposal activities will occur. This includes land parcels where consent has been granted for the development of the Proposal and is approximately 3,597 ha.

Indicative Disturbance Footprint: Refers to the maximum area of land that will be disturbed for the Proposal within the Development Envelope. It is based on the largest possible layout and has been used to calculate the maximum area of native vegetation clearing (1 ha). The impact assessment within this document is based on the entire Indicative Disturbance Footprint being disturbed (approximately 107 ha).

The above areas are illustrated in Figure 1-2.

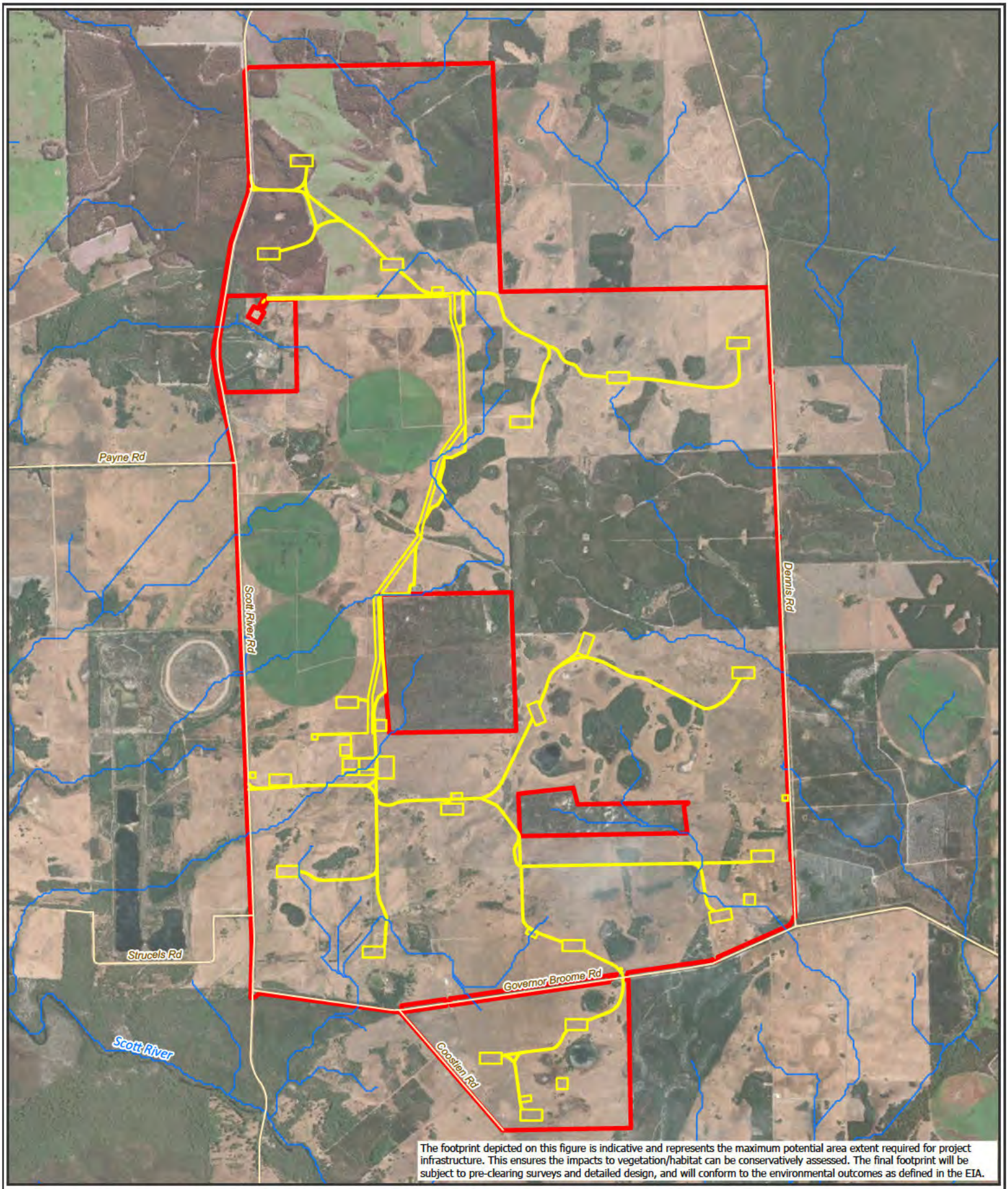


Figure 1-2: Development Envelope and Indicative Disturbance Footprint

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

0 0.5 1 2
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date:
9/10/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

2. Proposal

2.1. Proposal Content

Table 2-1 presents a general description of the Proposal, whilst Table 2-2 defines the Proposal's key elements.

Table 2-1: General Proposal Content Description

General Proposal Content Description	
Proposal Title	Wind Farm in Scott River
Proponent Name	Synergy Renewable Energy Developments Pty Ltd (SynergyRED)
Short Description	This proposal is for the development of an onshore wind farm in the Scott River region, approximately 15 km north-east of the town of Augusta, in the South West of Western Australia. The Proposal will involve the construction and operation of up to 20 wind turbines, generating up to 100 MW, with associated infrastructure including meteorological masts and communication towers, operation and maintenance building, substation and transmission infrastructure and other supporting infrastructure. It is located across numerous freehold properties primarily cleared for agricultural purposes and Blue Gum plantation. The wind farm substation will connect the Proposal to the South West Interconnected System (SWIS) via the existing 132 kV Beenup to Manjimup transmission line.

Table 2-2: Proposal Elements

Proposal Element	Location / Description	Maximum Extent, Capacity or Range
Physical elements		
Wind turbines including associated foundations and hardstands	Figure 2-1	107 ha of disturbance, including clearing of no more than 1 ha of remnant native vegetation, within a 3,597 ha Development Envelope.
Meteorological masts and communication towers		
Substation and transmission infrastructure		
Operations and maintenance area		
Site entrances, internal access roads and public viewing area		
Other supporting infrastructure and utilities (e.g. concrete batching plants, borrow pits, site office, water storage and construction laydown areas)		
Construction elements		
Construction water supply	Within the Development Envelope (Figure 2-1)	Water tanks and/or storage dams will be installed to support construction and operational water requirements. Water will be sourced elsewhere, purchased and ported in. There is a possibility that any dewater collected during construction, if treated appropriately to a suitable quality, may also be able to be used during construction.
Concrete batching plants	Within the Development Envelope (Figure 2-1)	Concrete for the foundations will be mixed at concrete batching plants. Concrete batching material may be sourced offsite.
Dewatering for construction of underground infrastructure including turbine, meteorological mast and communication tower foundations	Within the Development Envelope (Figure 2-1)	Groundwater drawdown will not exceed 2 mbgl, measured from the natural land surface at the perimeter of each foundation.
Operational elements		
Wind energy production	Within the Development Envelope (Figure 2-1)	A maximum of 20 turbines, with a maximum total energy production of 100 MW.
Proposal elements with greenhouse gas emissions^		
Construction elements:		
Scope 1	3,799 tCO_2-e	
Scope 2	149 tCO_2-e	
Scope 3	99,958 tCO_2-e	
Operation elements:		
Scope 1	156 tCO_2-e per year	
Scope 2	134 tCO_2-e per year	
Scope 3	40 tCO_2-e per year	

Proposal Element	Location / Description	Maximum Extent, Capacity or Range
Rehabilitation		
The Proposal utilises existing cleared areas (i.e. agricultural and tree plantation land devoid of native vegetation) wherever possible. Minor areas of native vegetation necessary for construction and operation of the Proposal will be cleared. Following construction, and where practicable, the Proponent will conduct progressive rehabilitation in areas no longer required, to meet the original land use or to an agreed post closure land use with the landowners. The rehabilitation of sites used for temporary infrastructure can inform the broader post-decommissioning rehabilitation strategy by identifying the most effective rehabilitation techniques.		
Commissioning		
The Proposal's commissioning stage has no additional effects on the environment.		
Decommissioning		
Once the initial operational life of the Proposal comes to an end, the wind farm can be repowered by replacing the wind turbines, or wind turbine components to extend Proposal life. If repowering the wind farm is not viable, the Proponent will decommission and rehabilitate the Proposal site to an agreed post-closure land use with landowners. This will involve the dismantling and removal of all turbines and above ground infrastructure, unless otherwise agreed with the relevant landowners, noting it's likely that the landowner may want to retain some infrastructure (e.g. access roads). Below ground infrastructure will also be removed if environmentally acceptable and agreed upon with landowners, in accordance with the Decommissioning Plan. The removal and disposal of materials and components will be conducted in a manner that minimises impacts to the environment and the infrastructure itself, to allow for the reuse of components, if viable.		
Other elements which affect extent of effects on the environment		
Proposal time	Maximum project life	64 years*
	Construction phase	18 to 24 months
	Operations phase	30 to 60 years
	Decommissioning and rehabilitation phase	24 months

^The greenhouse gas assessment is considered to be conservative due to the application of the mitigation hierarchy, which has changed since the Proposal design (e.g. reduced clearing)

*This accounts for potential repower after 30 years of operation.

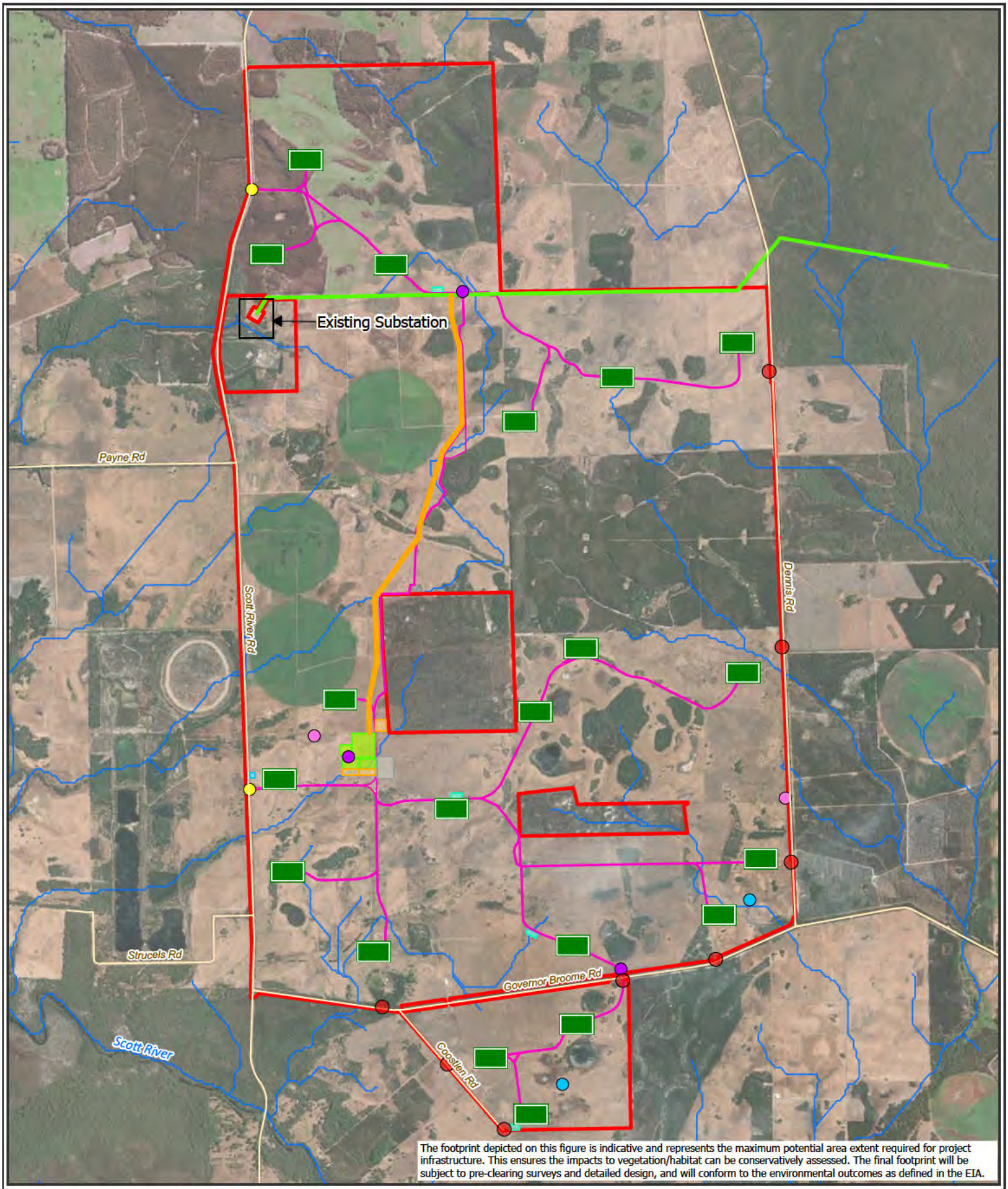


Figure 2-1: Proposal Physical Elements

- Existing Farm Entrance/Emergency Access
- Existing 132 kV Beenup to Manjimup
- Roads
- Rivers and Tributaries
- Development Envelope

Proposal Physical Elements

- Wind Turbine
- Communication Tower
- Main Site Entrance
- Water Tank
- Meteorological Mast
- Transmission Line
- Borrow Pit
- Public Viewing Area
- Internal Access Road
- Concrete Batching Plants
- Construction Laydown Areas
- O&M Area, Project Substation, Construction Site Offices

0 0.5 1 2
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/10/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

2.2. Proposal Element Description

2.2.1. Wind Turbines

The Proposal will have a maximum of 20 wind turbines, generating up to 100 MW. The Proposal commits to the following turbine parameters as depicted in Figure 2-2:

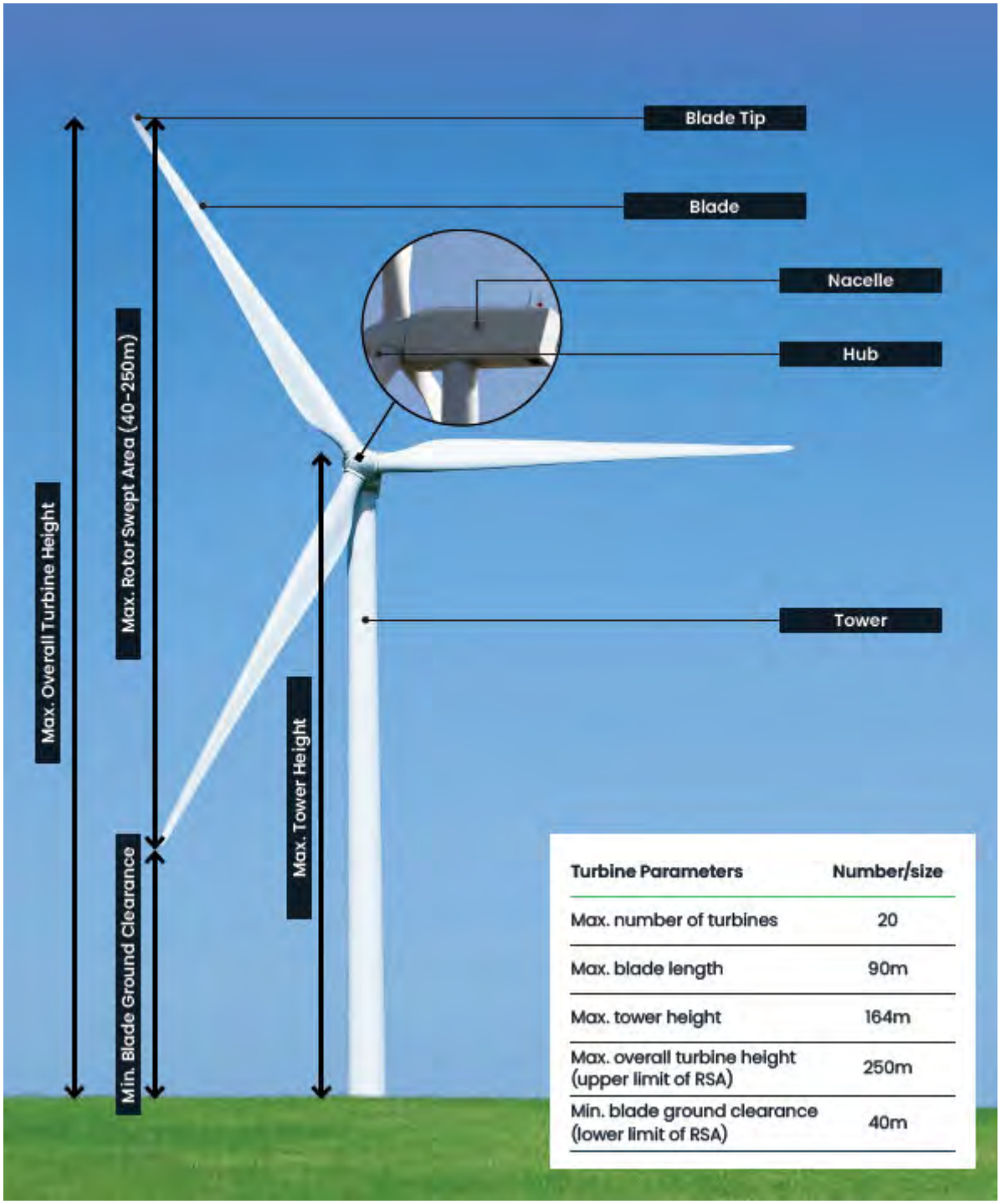
- Maximum blade length: 90 m
- Maximum tower height: 164 m
- Maximum overall turbine height: 250 m
- Minimum blade ground clearance: 40 m.

The parameters are considered to be an upper/lower limit and are intended to provide flexibility for any innovation in turbine design between now and the time of detailed design and construction.

The rotor swept area (RSA) refers to the physical area swept by the rotating blades during operation. For the purposes of this environmental impact assessment, a 'worst case' RSA of 40 m above ground level to 250 m above ground level was considered to account for varied turbine models (Figure 2-2).

The final number, design and placement of turbine infrastructure will be dependent on several factors including market conditions, cost of construction, infrastructure availability and the confirmed capacity of the existing 132 kV transmission line.

The indicative locations for each wind turbine are shown in Figure 2-1. These locations have been selected to maximise energy production whilst minimising impacts on the surrounding environment and land users.



Turbine Parameters	Number/size
Max. number of turbines	20
Max. blade length	90m
Max. tower height	164m
Max. overall turbine height (upper limit of RSA)	250m
Min. blade ground clearance (lower limit of RSA)	40m

Figure 2-2: Maximum Turbine Parameters

2.2.1.1. Turbine Foundations

The proposed wind farm site presents several challenges when it comes to installing turbine foundations, including the presence of significant environmental values, acid sulfate soils (ASS), a high-watertable, and areas with unstable, loose ground. Because of this, the turbine foundations will vary in size across the Development Envelope depending upon the imposed loading, ground conditions, construction methodology and drainage requirements.

To provide a practical and adaptable solution that achieves the necessary mass and stability, while minimising the volume of ASS disturbed, and dewatering volume and depth, three turbine foundations designs are proposed for the Proposal including:

- Primary foundation options
  - Typical gravitational foundation – above ground, with hillock formation (above ground foundation)
  - Typical gravitational foundation – partially above ground, with hillock formation. (partial above ground foundation)
- Secondary foundation option
  - Typical gravitational foundation – below ground (below ground foundation).

Specific design details of each foundation options are provided in Table 2-3 and Figure 2-3. The below ground foundation, typically requires dewatering of 5.5 metres below ground level (mbgl), however, will only be used where it is confirmed, prior to construction through detailed site investigation and revised modelling, that no dewatering would be required (see Section 6 and Section 7).

Table 2-3: Turbine foundation options

Turbine Foundation Design	Approximate Foundation Dimension (m)	Maximum Depth Below Ground Level (mbgl)	Approximate Volume Reinforced Concrete (m^3)	Approximate Volume Soil Excavated (m^3)	Maximum Depth of Dewatering Required at the perimeter of each foundation(mbgl)
Primary foundation options					
Typical gravitational foundation – above ground, with hillock formation	30x30	0	985	163	0
Typical gravitational foundation – partially above ground, with hillock formation	30x30	1.2	985	950	2
Secondary foundation option					
Typical gravitational foundation – below ground	25x25	5	600 – 850	3500	0*

* Typically requires dewatering to a depth of 5.5m

Ground improvement may also be required at each turbine foundation, dependent on the results of detailed geotechnical investigations. Ground modification can include soil stabilisation, compaction, the use of geosynthetics or series of concrete piles (as depicted in Figure 2-3). Concrete piles involve concrete being injected down augers to displace, rather than excavate soils and mitigates any further need for dewatering. They are anticipated to extend to a maximum of 15 mbgl, based on preliminary

geotechnical results. Concrete for the foundations will be mixed at concrete batching plants, which will be situated within the Development Envelope.

Figure 2-3: Indicative Cross-Section of Turbine Foundation Options

Any excavated material will be treated in accordance with an Acid Sulfate Soils and Dewatering Management Plan (ASSDMP) and utilised in construction (e.g. formation of hillock landforms around turbine foundations, development of internal roads or hardstand) and/or in rehabilitation of temporary construction areas, where appropriate. Any excavated material that is not able to be utilised in construction will be safely disposed of offsite in accordance with the ASSDMP.

Non-vegetation zones (NVZ) and/or asset protection zones (APZ) will also be established around the base of turbines to manage the bushfire risk to the Proposal in accordance with the Bushfire Management Plan (BMP; Linfire 2025a). The size of the NVZ and APZ will be dependent on the turbine location and its proximity to different vegetation types (Linfire 2025a).

The dewatering required for the construction of turbine foundations is discussed further in Section 2.2.7.

2.2.1.2. Hardstand

Each turbine requires a hardstand area adjacent to the actual turbine foundation area. These provide stable and suitable areas for the turbine components to be stored and lifted into position by the required cranes. These hardstand areas will remain in-situ for the lifetime of the wind farm to allow for maintenance and repairs.

2.2.2. Meteorological Masts and Communication Towers

Two permanent meteorological masts (met masts) will be erected to measure wind speed and direction. The met masts will be up to 164 m tall, depending on the height of the selected wind turbine, and will be a suitable distance from the nearest turbines to ensure that accurate and unimpeded wind measurements can be obtained throughout the life of the Proposal, in accordance with international standards. In addition, up to four temporary meteorological masts will be erected during construction to calibrate permanent wind monitoring towers from proposed turbine locations. Visual bird diverters will be installed on guy wires of permanent met masts.

Two microwave communications towers may also be required each up to 100 m tall.

Met masts and communication towers will utilise similar foundation solutions to turbines, as detailed in Section 2.2.1.1.

2.2.3. Substation and Transmission Infrastructure

A 132 kV substation is required for the Proposal adjacent to the Operations and Maintenance Area to connect the Proposal to the SWIS via the existing Beenup to Manjimup 132 kV transmission line. An indicative layout of a typical substation is provided in Figure 2-4. This Proposal will also involve upgrade of the existing Beenup substation, with minimal new ground disturbance required (0.02 ha).

The Proposal substation infrastructure will include the following:

- Cabling between the wind turbines and the substation
- Electrical protection infrastructure
- A transmission line connecting wind farm substation to the existing Beenup to Manjimup 132 kV (MJP-BNP 81) transmission line via a local tee connection
- Communication infrastructure such as supervisory control and data acquisition (SCADA)
- Metering
- Transformers
- Static Synchronous Compensators (STATCOMS)

The cabling between the wind turbines and the substation that connects the Proposal with the 132 kV transmission line will be underground and follow existing and proposed internal access roads where

possible to minimise disturbance. Visual bird diverters will also be installed during construction along the new connecting transmission line.

Figure 2-4: Typical Substation

2.2.4. Operations and Maintenance Area

The proposed Operations and Maintenance Area (O&M Area) will be located near the Proposal substation and is expected to include the following:

- Office
- Warehouse
- Workshop
- Kitchen/staff room
- Amenities
- Carpark and laydown.

Given the area within the Development Envelope is not connected to the sewerage network, the O&M Area is anticipated to utilise an onsite septic system, which will be installed in compliance with relevant Australian standards and requirements of the Shire of Augusta Margaret River and Department of Health.

2.2.5. Site Entrances, Internal Access Roads and Public Viewing Area

There will be two main access points to the Proposal situated along Scott River Road (Figure 2-1). These have been located to:

- Achieve safe access
- Utilise existing disturbance to minimise clearing impacts
- Ensure minimal community disruption by reducing the number of local roads required for transport of turbine components.

A new site entrance will also be installed across Governor Broome Road to facilitate transport of turbine components south of Governor Broome Road. This location was selected to minimise clearing and to avoid impacts to the Scott River Ironstone Threatened Ecological Community (TEC), conservation significant flora and lodged Aboriginal Heritage sites (Section 8.6.1 and 10.5.1).

As well as the proposed site entrances emergency services will also be able to utilise other existing farm entrances to access the site as required (Figure 2-1).

Internal access roads will generally have a construction footprint of 10 m and will be designed to utilise existing tracks and other cleared areas as much as practicable, with the aim of minimising disturbance to native vegetation and agricultural activities. The construction footprint for internal access roads in sensitive areas will be limited to maximum width of 5-6 m to avoid clearing impacts along existing tracks as necessary, supported by the provision of passing bays.

Roads will be unsealed and gravel-capped with locally sourced material where available and will be designed and constructed to minimise impacts to natural surface water flows.

A public viewing area will also be developed along Scott River Road to ensure a safe pull over area where tourists can stop and observe the wind farm. The viewing area will include informative signage about wind as a renewable energy source and be capable of accommodating four to six vehicles.

2.2.6. Supporting Plant and Equipment

Supporting plant and equipment to facilitate Proposal construction will include, but not limited to:

- Concrete batching plants
- Construction site offices
- Construction laydown areas
- Generator(s) for emergency and construction power supply
- Borrow pits, for local sourcing of gravel, including mobile crushing and screening plant if required
- Water storage infrastructure for construction and operational water requirements. Note: no water abstraction is proposed as part of this Proposal. This will include water tanks (retained through operations and available to emergency services) and temporary water storage dams.

Laydown areas will be required for the site office and concrete batching plants which will only be required during construction. The site offices will be modular transportable offices (dongas). A typical concrete batching plant is shown in Figure 2-5.

Figure 2-5: Typical Concrete Batching Plant

2.2.7. Construction Dewatering

Dewatering is likely to be required for the installation of below ground infrastructure, including turbine and met mast foundations as well as other supporting infrastructure (e.g. communication tower foundations and underground cabling). As detailed in Section 2.2.1.1, the turbine and other foundations will be designed to limit dewatering requirements, while achieving necessary mass and stability.

Based on a conservative drawdown model for the partial below ground foundation, dewatering is expected to occur over approximately 33 days at each foundation, allowing five days of initial pumping to attain target drawdown, followed by 28-day steady-state pumping to maintain the target drawdown during the concrete curing period (Stantec 2025b, Section 7, Appendix A).

Dewatering effluent will be managed in accordance with the ASSDMP, including lime dosing to neutralise potentially acidic water and then directed to a limestone lined settlement basin to settle prior to; infiltration or reuse in irrigation, concrete batching or dust suppression, subject to achievement of quality parameters (Section 6 and 7, Appendix B).

Dewatering recharge/infiltration basins will be maintained such that overflow does not occur to surrounding land and positioned to reduce the cone of depression by being as close as possible to the location under abstraction.

Due to the dewatering requirement and the presence of potential ASS (PASS) within the Development Envelope (see Section 6) an ASSDMP will be developed to manage the potential impacts to surface water and groundwater during construction. As the infrastructure design and layout has not yet been finalised, a Preliminary ASSDMP has been prepared which details the proposed management framework, controls and monitoring measures to be included in the detailed ASSDMP, which will be developed prior to construction of the Proposal (PTG 2025; Appendix B). The detailed ASSDMP will also be prepared based on detailed site investigations as well as revised drawdown modelling where required once final turbine locations are determined.

Further details on the potential dewatering requirements and impacts associated with the construction of the Proposal is provided in Section 7.

2.2.8. Maintenance and Operation

Ongoing maintenance and operation of the turbines and associated hardstands, access roads, O&M area, substation, and all other associated infrastructure will be required following construction throughout the life of the Proposal. The chosen turbine manufacturer will be responsible for maintaining the turbines for a defined period following commissioning. Once the manufacturer's obligation expires, a suitably qualified contractor will visit the site and undertake regular inspection and maintenance activities. Ongoing maintenance of internal access tracks and drainage infrastructure will be undertaken to ensure safe access to all components requiring maintenance throughout the year.

2.2.9. Workforce and Accommodation

The Proposal construction period is estimated to be between 18 – 24 months. The workforce is expected to vary in size throughout this period, with an estimated peak construction workforce of 150 personnel. It is anticipated that workers throughout the construction period will be accommodated in local accommodation in surrounding towns and localities, with no construction camp or temporary onsite accommodation proposed. Once operational, it is anticipated that approximately five full time operations staff will be required and will reside locally throughout its 30 – 60 year operational life.

2.2.10. Decommissioning

The Proposal has an operational life of 30 years; however, can be repowered by replacing the wind turbines and/or components to extend Proposal life another 30 years. If repowering the wind farm is not viable, the Proposal site will be decommissioned and returned to its original condition, or to an agreed post-closure land use with landowners, in accordance with the Draft Decommissioning Plan (Appendix C).

2.3. Proposal Exclusion - Transport Route

A preliminary transport route assessment was undertaken (Ares 2024; Appendix D) to identify whether a feasible route for the transport of large infrastructure via road from the Port of Bunbury to the Proposal exists. The study considered the discharge berth, transfer to port storage area, road transport from port to site, and an assessment of potential site entrances for the maximum turbine blade specifications (i.e. 90 m long turbine blades). The assessment determined that some minor upgrades may be required for sections of the road, mostly involving minor widening of the pavement at some turning points and temporary removal of some roadside signage during transport; however, no clearing of native vegetation would be required along the route outside of the Development Envelope. Based on the above the transport route is not considered a component of the Proposal.

2.4. Proposal Alternatives and Proposal Justification

2.4.1. Proposal Need

The Climate Change Act 2022 set Australia's greenhouse gas emissions reduction targets of a 43% reduction from 2005 levels by 2030 and net zero by 2050. In WA, the Government has committed to a whole-of-government 2030 greenhouse gas emissions reduction target of 80% below 2020 levels.

To fulfil this commitment the State Government has embarked on a significant transition to greater use of renewable energy. Renewable energy is produced using natural resources that are constantly replenished and never run out. As part of this transition, State-owned coal power stations are to be phased out and retired by 2030 and replaced by renewable options.

SynergyRED is assisting the State Government with this transition by investigating and developing future renewable energy assets with the potential to connect to the SWIS, which covers the area from Kalbarri in the north, east to Kalgoorlie and south to Albany. In developing wind farms and other forms of renewable energy, SynergyRED is committed to supporting this target, whilst maintaining affordable and reliable electricity supply for customers across the SWIS. The Proposal will also create local employment and economic opportunities and support the regional development and diversification of the local area.

This Proposal is consistent with the Australian and State Government's commitments to limit greenhouse gas emissions and achieve renewable energy targets.

2.4.2. Proposal Alternatives

In 2010 Verve Energy, which merged with Synergy in 2014, obtained development approval from the Shire of Nannup, a Clearing Permit (CPS 3401/1) under the *Environmental Protection Act 1986* (EP Act) and Federal environmental approval (EPBC 2009/4911) under the *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) for Milyeannup Wind Farm, which comprised 30 wind turbines generating 55 MW of electricity, and was located on relatively pristine coastal dune habitat on the south coast, approximately 20 km east of Augusta. The key environmental impact of this proposal was the clearing of up to 42 ha of native vegetation, approximately 98% of which is habitat for the Western Ringtail Possum, which was listed as Vulnerable at the time of assessment (now listed as Critically Endangered), and foraging habitat for both the Baudin's Black Cockatoo and Carnaby's Black Cockatoo (Biota 2009b).

In progressing feasibility assessments for wind farm development in the South West, it was determined that while the Milyeannup Wind Farm had excellent wind, it was less practical to develop due to the distance to transmission lines and the high environmental impact and associated offsets required. Synergy decided to investigate alternative sites before proceeding any further with this development and specifically sought out cleared agricultural land close to transmission lines.

The current Proposal, is located approximately 8 km northwest of the Milyeannup Wind Farm site, and provides an alternative renewable energy development, with significantly lower impact to the environment (i.e. a maximum of 1 ha of native vegetation clearing), being located predominantly on cleared farmland and closer to the existing Beenup substation and transmission line, as well as providing for greater separation distance from Gingilup Swamps Nature Reserve, a nationally important wetland. The Development Envelope is 3.3 km from the nature reserve compared to the Milyeannup Wind Farm site which is approximately 500 m away.

In selecting an appropriate wind farm site, a number of key factors are considered:

- Wind speeds are required to be high and consistent to enable the wind farm to generate the most electricity from wind energy as possible. The wind resource, where the Proposal is located, is strong, with the highest wind speeds in the afternoon and through the nighttime. This aligns with times when there is higher energy demand on the SWIS and complements daytime solar generation. The site also offers diversity of wind resource compared to other existing wind farms north and east of Perth.
- Low vegetation cover is preferred. The Proposal is located within a highly disturbed landscape with much of the native vegetation having been cleared for agricultural use. Consequently, the Proposal has been designed to largely avoid areas of remnant vegetation (clearing no more than 1 ha of native vegetation, including no more than 0.5 ha of Western Ringtail Possum habitat and 1 ha of black cockatoo habitat represented by native vegetation) by preferentially locating the Development Envelope and Indicative Disturbance Footprint within existing cleared areas, with most of the vegetation classified as Completely Degraded.
- A location with sparse housing is preferred. The Proposal is in an area that has some of the largest predominantly cleared landholdings in the South West.
- Reasonable road access is required. Access to the Development Envelope can be achieved through the existing road network.
- Suitable network connections are required in the vicinity. The Proposal is in an area that has access to an existing and underutilised substation and transmission line, associated with the old Beenup Mine. By choosing this location the disturbance footprint can be reduced limiting the impact on the environment.

In addition to the above, climate change is a key threat for many Australian ecosystems and species, particularly the listed fauna species considered as part of this assessment (DPaW 2017; DSEWPaC 2013). Alterations in rainfall patterns, temperature extremes, and increased frequency and intensity of bushfires may accelerate the decline of these species. Renewable energy projects such as this Proposal are critical in addressing these challenges by directly reducing greenhouse gas emissions from energy production.

2.4.3. Design and Evolution of the Proposal

Evaluation and optimisation of the Development Envelope was completed through iterative reviews of environmental, heritage, social, economic and engineering aspects, as well as land access negotiations, which have all been informed by technical studies, and stakeholder and community engagement. Key design changes implemented include:

- Reduction of the Development Envelope from approximately 5,600 ha to 3,597 ha. These changes had the benefit of removing areas of conservation estate (50.2 ha), Department of Biodiversity, Conservation and Attractions (DBCA) lands of interest (284.6 ha), vegetation classified as TECs and conservation significant flora, and increased separation distance of the Proposal from the Scott River and South Blackwood State Forest
- Reduction in the number of wind turbines from a maximum of 30 to maximum of 20 (reducing energy generation from 150 MW to 100 MW), reducing visual impact, noise emissions and the overall footprint and associated clearing impacts
- Increase in the minimum blade ground clearance from 25 m to 40 m to mitigate risk of bird strike

- Relocation of infrastructure to avoid TEC, conservation significant flora, wetlands and associated vegetation, heritage sites, potential habitat trees for black cockatoos, locally restricted vegetation types, and clearing within restrictive covenant areas
- Relocation of infrastructure to minimise native vegetation clearing (i.e. maximum of 1 ha), particularly minimising clearing within vegetation that is in very good to excellent condition
- Relocation of turbines to ensure compliance with the WA *Environmental Protection (Noise) Regulations 1997* at all existing non-involved sensitive receptors
- Selection of site entrance locations for transport of turbine components that avoided and otherwise minimised requirement for clearing of native vegetation and avoided sensitive values (e.g. TEC)
- Removal of the requirement for a water supply pipeline that would have had to traverse the Blackwood River and 5 km of Scott National Park
- Investigation and commitment to the use of alternative foundation design that minimises the depth of excavation and thus the volume of ASS to be excavated and dewatering required
- Addition of a public viewing area to ensure a safe pull over area for people to view the wind farm and learn about wind energy, supporting increased tourism in the area
- Additional water storage to support bushfire emergency response in and around the Development Envelope.

2.5. Local and Regional Context

The Proposal is in the Scott River region of WA, within the Warren bioregion, approximately 250 km south of Perth. The Proposal is located within the Shire of Augusta Margaret River and the South West Boojarah Indigenous Land Use Agreement (ILUA) Area. Karri Karrak Aboriginal Corporation (KKAC) is the regional corporation for the South West Boojarah region that was established under the ILUA.

The land surrounding the Proposal is zoned as general agricultural, with the Proposal intersecting eleven privately owned agricultural properties, used primarily for dairy and beef farming as well as Blue Gum plantation. A total of 2,476.41 ha within the Development Envelope has been cleared of vegetation, primarily for these agricultural operations.

The Proposal is located adjacent to the historic BHP Beenup mineral sands mine, closed since 1999.

The Proposal occurs in proximity to several DBCA managed lands (Figure 1-1) including (approximate distances from the Development Envelope shown in brackets):

- Forest Grove National Park (11 km)
- Blackwood River National Park (5 km)
- Leeuwin Naturaliste National Park (14 km)
- Scott National Park (adjacent)
- Chapman Brook National Park (10 km)
- South Blackwood State Forest (300 m)
- Milyeannup State Forest (12 km)
- Blackwood State Forest (11 km)
- Pagett Nature Reserve (30 m)
- Chester Nature Reserve (14 km)
- Gingilup Swamp Nature Reserve (3.3 km)
- Un-named Nature Reserve (WA42377) (excised from the Development Envelope)
- Un-named Nature Reserve (WA42942; 1 km)
- Ngari Capes Marine Park (5 km)
- Lot P038071 101 (DBCA Land of interest, excised from the Development Envelope)
- Lot P413478 1 (DBCA Land of interest, excised from the Development Envelope).

The closest regional centre is the town of Augusta, approximately 15 km south-west of the Development Envelope. The main economic industries within the Shire of Augusta Margaret River are the natural environment, tourism, viticulture and agriculture, with the Shire relying heavily on the integrity of its natural ecosystems to drive its economy (Shire of Augusta Margaret River 2024).

The Scott River is located approximately 1 km south of, and the Blackwood River is located approximately 4 km west of, the Development Envelope, respectively (Figure 2-1; Stantec 2025b). The Scott River is a tributary of the Blackwood River with their confluence approximately 5.4 km south-west of the Development Envelope. From that convergence, the Blackwood River flows through the Hardy Inlet, before discharging into the Indian Ocean.

2.5.1. Climate

The Warren bioregion is characterised by a moderate Mediterranean climate, with annual rainfall ranging between 600 to 1500 mm (Lyons et al. 2000).

Climate data was taken from the Bureau of Meteorology (BoM) Cape Leeuwin weather station (station number 9518, rainfall and temperature data 1897 – 2025), located approximately 17 km south-west of the Development Envelope (BoM 2025a). Based on this data, the region receives an annual average rainfall of 948.6 mm, with most of the rainfall occurring during the winter months of June, July and August (BoM 2025a; Figure 2-6). Mean maximum air temperatures range from 16.5°C in July and August to 23.4°C in February, and mean minimum air temperatures range from 11.3°C in August to 17.3°C in February. Recent rainfall is generally lower than the long-term average for the area. A total of 19.4 mm was recorded from December 2024 to February 2025, which is significantly less than the long-term average for the same period (51.8 mm).

Mean morning and evening wind speeds are generally similar throughout the entire year (Figure 2-7; BoM 2025a). The highest long term average wind speeds were recorded during winter; however, strong winds are recorded throughout the entire year (Figure 2-7).

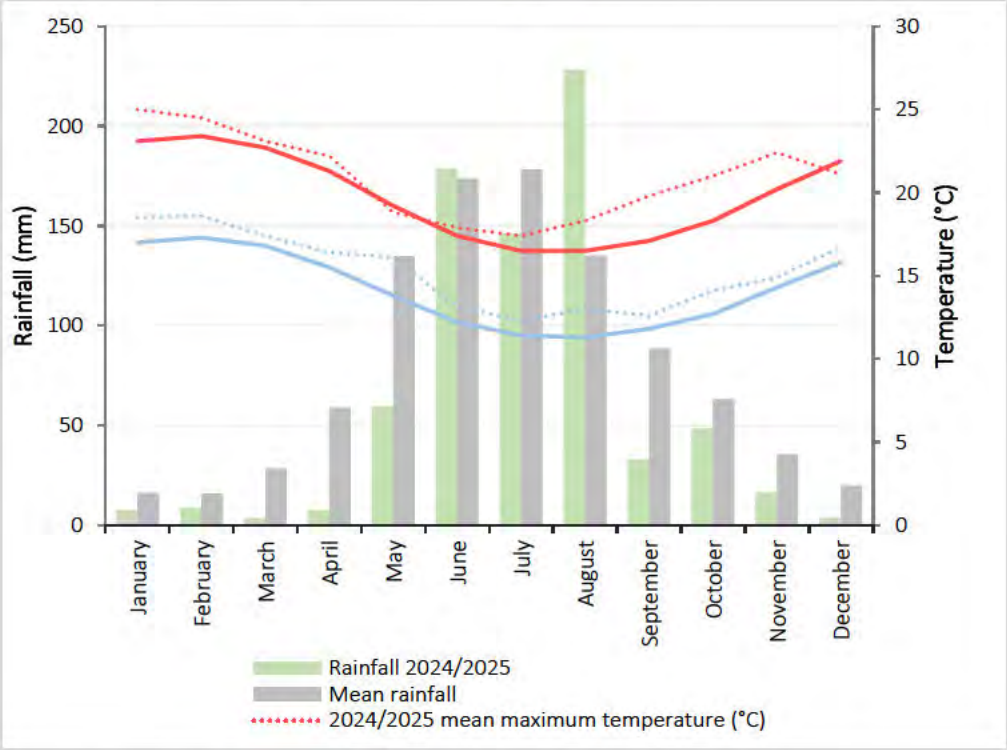


Figure 2-6: Rainfall and Temperature Data for the Development Envelope

*Short term (2024 – 2025) and long term (1897 – 2025) average rainfall and temperature data from Cape Leeuwin weather station (station number 9518). Rainfall and temperature data 2024/2025 is from March 2024 to February 2025.

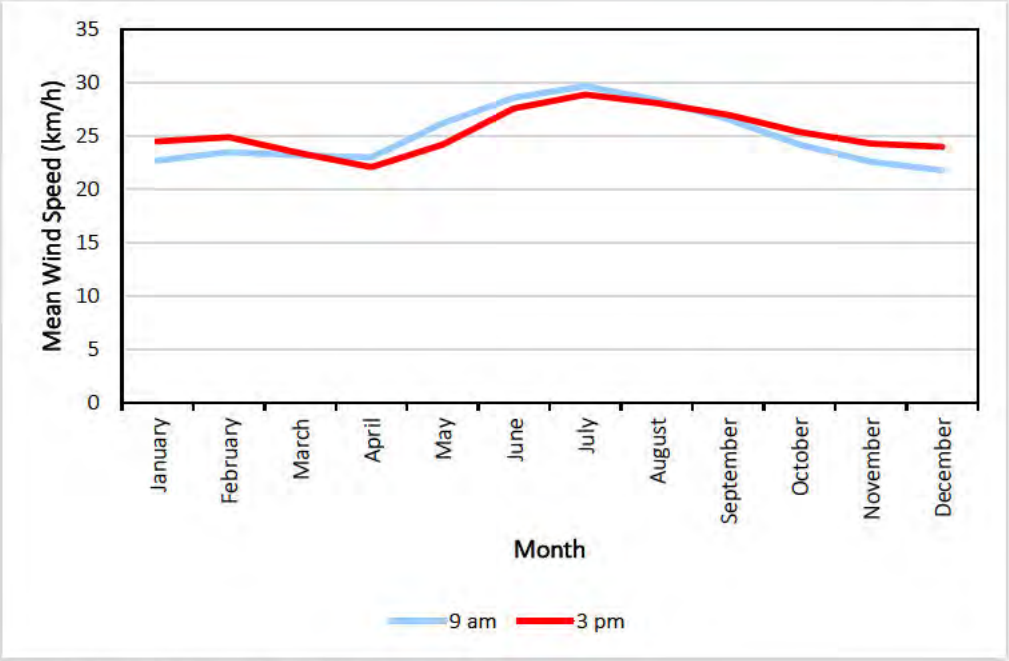


Figure 2-7: Mean 9 am and 3 pm Wind Speeds

*Long term (1907-2010) average wind speed data from Cape Leeuwin weather station (station number 9518).

3. Legislative Context

3.1. Environmental Protection Act 1986

The EP Act is the primary environmental legislation governing environmental protection and impact assessment within WA.

Part IV of the EP Act provides for the referral and assessment of proposals that may, or will, have a significant impact on the environment. The impact assessment process under the act is administered by the EPA, with assistance from the Department of Water and Environmental Regulation (DWER).

This document and the associated referral application form have been developed to meet the legislative requirements outlined in s 38 of the EP Act for the 'referral of proposals' to the EPA.

3.2. Environment Protection and Biodiversity Conservation Act 1999

The EPBC Act provides a legal framework for the protection of Matters of National Environmental Significance (MNES). As such it requires all actions that will or may have a significant impact on a protected matter to be referred to the Minister for the Environment. The EPBC Act is administrated by the Department of Climate Change, Energy, the Environment and Water (DCCEEW).

As part of the Proposal planning process, SynergyRED has considered its requirements, and propose to refer the Proposal, under the EPBC Act. Should the Proposal be determined to be a controlled action and require assessment under the EPBC Act, SynergyRED will pursue that approval separately to the EP Act and other State approvals.

3.3. Other Environmental Approvals and Regulations

The other environmental approvals and regulations relevant to the Proposal are outlined in Table 3-1. This table also presents how these other environmental approvals and regulations will mitigate the potential impacts associated with the Proposal to ensure that the Proposal will be implemented in such a way to be in accordance with the EPA's objectives.

Table 3-1: Decision-making Authorities and Processes

Decision-making Authority	Legislation or Agreement Regulating the Activity	Approval Mechanism	Ability to Mitigate Environmental Impact
Department of Biodiversity, Conservation and Attractions (DBCA)	*Biodiversity Conservation Act 2016* (BC Act)	• Section 45 authorisation. • Section 40 authorisation.	Yes, this process can mitigate environmental impacts Requirements for Section 40 and 45 Authorisation and appropriate mitigations will be discussed with DBCA in the context of potential indirect impacts to the TEC, Threatened and Priority flora and fauna, and potential bird collisions with turbines and vehicle movements. By adhering to the overarching objectives of the Act, the outcomes of the Section 40 and 45 licencing are likely to align with the EPA's Environmental Factor Objectives for Flora and Vegetation and Terrestrial Fauna.
DWER	EP Act Part V Environmental Protection (Clearing of Native Vegetation) Regulations 2004	• Native Vegetation Clearing Permit.	Yes, this decision-making process can mitigate environmental impacts Part V of the EP Act regulates the clearing of native vegetation. Any native vegetation clearing that is not exempt under the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 will be the subject of an NVCP application prior to construction. The NVCP process is governed by the guiding principles for the clearing of native vegetation, as stipulated in Schedule 5(1) of the EP Act. Through this, DWER assesses significant flora and vegetation, wetlands, areas of high biological diversity, significant fauna habitat and conservation areas. A NVCP application will be lodged with DWER, and conditions related to management and mitigation of environmental impacts will be applied. By applying these conditions, the outcomes of the NVCP are likely to align with the EPA Environmental Factor Objectives for Flora and Vegetation, Terrestrial Fauna, Terrestrial Environmental Quality and Inland Waters.
	Rights in Water and Irrigation Act 1914 (RiWI Act)	• 26D licence to construct a well. • 5C licence to take groundwater. • Bed and banks permit.	Yes, this decision-making process can mitigate environmental impacts All provisions, including the issuing of s 5C, s 26D licences and bed and bank permits, are guided by the overarching objectives of the RiWI Act (s 4). The most relevant of these to the Proposal and the EPA's objective for Inland Waters is objective a(ii) which is: *"To provide for the management of water resources, and (ii) in particular for the protection of their ecosystems and the environment in which water resources are situated, including the regulation of activities detrimental to them."* Temporary dewatering will be required during the construction phase of the Proposal to support excavations and installation of below ground infrastructure (e.g. concrete foundations and electrical cables). And road construction may interfere with bed and banks. By adhering to the overarching objectives of the RiWI Act, the outcomes of the 5C and 26D licences, and bed and bank permits, are likely to align with the EPA's Inland Water factor objective.

Decision-making Authority	Legislation or Agreement Regulating the Activity	Approval Mechanism	Ability to Mitigate Environmental Impact
	EP Act Part V Environmental Protection Regulations 1987	• Works Approval. • Operating Licence. • Registration for prescribed activities.	Yes, this decision-making process can mitigate environmental impacts A temporary/mobile crushing and screening plant may be required during construction. A Works Approval and Operating Licence/Registration will be required if the proposed temporary/mobile crushing and screening plant triggers the prescribed activities outlined within Schedule 1 of the Environmental Protection Regulation. The mechanisms for Works Approvals and Operating Licences/Registrations are guided by the overarching objective of the EP Act to 'Protect the environment of the State'. By adhering to this overarching objective and its guiding principles, the outcomes of the Works Approvals and Operating Licences are likely to align with the EPA's Inland Waters, Terrestrial Environmental Quality and Social Surroundings factor objectives.
Department of Planning, Lands and Heritage (DPLH)	*Aboriginal Heritage Act 1972* (AH Act)	• Section 16 authorisation to enter, excavate, examine, or remove anything on an Aboriginal site. • Section 18 consent for impact on an Aboriginal site. • Regulation 10 authorisation for minor activities and impacts. • Regulation 7 authorisation to bring plant and equipment to an Aboriginal Site.	Yes, this decision-making process can mitigate environmental impacts One registered Aboriginal site (Blackwood River [Registered site ID: 20434]) and one lodged Aboriginal place (Scott River [Lodged place ID: 22928]) intersect the Development Envelope, as identified through a search of the DPLH Aboriginal Cultural Heritage Information System database. The AH Act provides for the registration, management and control of Aboriginal heritage by the Minister for Aboriginal Affairs and the DPLH. The AH Act protects and manages Aboriginal heritage by requiring approvals for activities that may impact on heritage sites or cause harm. Where implementation of AH Act processes is likely to result in the avoidance or minimisation of harm to Aboriginal cultural heritage sites, these processes are likely to align with the EPA's objectives for the Social Surroundings factor and the Inland Waters factor, given both Aboriginal cultural heritage sites relevant to the Proposal are surface water features.
Department of Health	*Health Act 1911* Health (Treatment of sewage and disposal of effluent and liquid waste) Regulations 1974	• Application to Construct or Install an Apparatus for the Treatment of Sewage.	Yes, this decision-making process can mitigate environmental impacts As the operations and maintenance building will not be connected to the sewerage network an onsite septic system will be required. An application must be lodged to install the proposed wastewater treatment system. Details of the system will be assessed by the Local Shire and/or Department of Health, depending on the amount of wastewater to be handled by the apparatus each day. By adhering to the licence, the outcomes are likely to align with the EPA's objectives for Inland Waters and Terrestrial Environmental Quality.

Decision-making Authority	Legislation or Agreement Regulating the Activity	Approval Mechanism	Ability to Mitigate Environmental Impact
Regional Development Assessment Panel (RDAP), Shire of Augusta Margaret River	*Planning and Development Act 2005* (PD Act) Planning and Development (Development Assessment Panels) Regulations 2011 Planning and Development (Local Planning Schemes) Regulations 2015 Shire of Augusta – Margaret River Local Planning Scheme No. 1	• Development Application.	Yes, this decision-making process can mitigate environmental impacts The Development Application (DA) process considers aspects related to Social Surroundings and other environmental factors such as Flora and Vegetation, Terrestrial Fauna, Inland Waters and Terrestrial Environmental Quality. Conditions applied to the Development Approval will include requirements to avoid, mitigate and manage environmental impacts. Planning decisions must have due regard for statutory State Planning Policies (SPPs) pursuant to the PD Act, as well as local planning schemes (the *Shire of Augusta-Margaret River Local Planning Scheme No.1).* A DA will be lodged with the Shire of Augusta Margaret River and assessed through the RDAP. Conditions related to management and mitigation of environmental impacts will be applied, ensuring the outcomes of the Proposal align with all the relevant key factor EPA objectives.

3.4. Land Tenure

The Development Envelope is situated almost entirely on Freehold land within the Shire of Augusta-Margaret River, with some extents on public land comprised of reserves managed by state and local government. These lots are currently zoned “General Agriculture” and “Local Roads” within the Shire of Augusta-Margaret River Local Planning Scheme No.1 (DPLH 2024).

The Proponent has access to freehold land through agreements with the landowners and consent from crown reserve land managers to submit this application. The appropriate approvals will be sought for access to reserves managed by state and local government once approval is obtained.

4. Stakeholder Engagement

4.1. Stakeholder Identification

Comprehensive and ongoing stakeholder engagement has formed an important part of the Proposal planning process. The Proponent commenced engagement with key stakeholders in September 2022 and engagement is ongoing. A stakeholder identification process was delivered at the outset of the feasibility assessment, and the identified stakeholders and their level of interest have been summarised in the Table 4-1.

Table 4-1: Key Stakeholders for the Proposal

Stakeholder Group	Stakeholder	Area of Interest
Federal Government	Air Services Australia and Civil Aviation Safety Authority (CASA)	• Proposal details. • Planning approval.
	BoM	• Meteorological radar.
	DCCEEW	• Impact upon MNES. • EPBC Act referral.
	Geoscience Australia	• Trigonometrical stations.
State Government	Premier of WA	• Alignment with Net Zero 2030 target.
	Minister for Energy	
	Member for the South West	
	Member for Warren-Blackwood	
	DBCA	• Biodiversity aspects. • Land use.
	DWER	• Environmental impact assessment. • Referral under EP Act. • Groundwater licensing.
	DPLH	• Planning approval. • Heritage.
	Department of Fire and Emergency Services (DFES)	• Bushfire risk management.
	Main Roads WA	• Road usage.
	Port of Bunbury	• Potential use of port for future delivery of turbines.
	Water Corporation	• Availability and capacity of water for construction activities. • Understanding seasonal constraints for water supply.
	WA Police	• Land use. • Electromagnetic interference.
	Western Power	• Connection to existing infrastructure.
Local Government	Shire of Augusta-Margaret River	• Planning approval. • Social impact and considerations such as set-back distances, employment and accommodation. • Bushfire risk management. • Community Benefit Fund.
	South West Development Commission	• Proposal details. • Employment opportunities. • Local road usage and maintenance
	City of Busselton	• Aviation and airspace.
Traditional Owners	KKAC	• Aboriginal cultural heritage engagement and protection. • Employment opportunities.
	South West Aboriginal Land and Sea Council (SWALSC)*	
Landowners and Neighbours	Various including private and industry such as BHP	• Social values assessment, including noise. • Land use. • Management of PASS and dewatering. • Landowner and neighbour benefits.

Stakeholder Group	Stakeholder	Area of Interest
Local community	Community members	• Community Benefit Fund. • Proposal details. • Potential impacts. • Social values assessment. • Employment opportunities.
Non-Government Organisations	Telstra/Optus/NBN	• Impacts to service provision.
	Wildflower Society of WA	• Environmental impact assessment.
	Augusta Margaret River Clean Community Energy	• Proposal details. • Community Benefit Fund. • Employment opportunities. • Social values assessment, including noise. • Land use. • Environmental impact assessment.
	Augusta Chamber of Commerce & Industry	
	Augusta Community Resource Centre	
	Molloy Island Homeowners Association	
	Augusta Community Development Association	
	Augusta Historical Society	
	Augusta Wildlife Care WA Inc	
	Beenup Consultation Group	
	Cape to Cape Bird Group (linked to Birdlife Australia)	
	Country Women's Association (Augusta)	
	East Augusta Housing/Residents Association	
	Environmental Research Group Augusta (ERGA)	
	Friends of Augusta Land and Coast Care Group	
	Leeuwin Lions	
	Lower Blackwood Land Conservation District Committee (Scott River local farmers)	
	Lower South West Growers Group (formally the Scott River Growers Group Margaret River Region)	
	Margaret River Busselton Tourism Association	
	Urban Bushland Council (UBC)	

*Initial engagement only, all continuing engagement is through KKAC

4.2. Stakeholder Engagement Process

Community engagement has formed an important aspect of the feasibility assessment process. SynergyRED engaged with the community through a variety of methods to reach a wider audience and provide information in an accessible and timely manner. SynergyRED's key community engagement activities are detailed in this Section, and all engagement activities undertaken are summarised in Table 4-2.

4.2.1. Community Drop-In Sessions

SynergyRED has held 14 community drop-in sessions in the Augusta-Margaret River area in March 2024, December 2024 and September 2025, including at Alexander Bridge, East Augusta, Augusta and Margaret River. The purpose of the engagement was to introduce the Proposal, present findings of completed studies, gather community feedback and dispel misconceptions. Representatives from SynergyRED's Environment, Engineering, Community Engagement, Construction, Land Access and Senior Leadership teams were present and available to answer community questions.

The key concerns raised by the community during the drop-in sessions are detailed in Section 10. Images of the community drop-in sessions are provided in Figure 4-1.

Figure 4-1: Images of Community Drop-in Sessions

4.2.2. Augusta Office

To enable community members to drop-in at a time convenient for them, SynergyRED opened an office in Augusta in February 2025. The office is open monthly and available for community members to visit and speak to a SynergyRED team member about the Proposal.

The key concerns raised by the community at the Augusta office are detailed in Section 10.

Table 4-2: Stakeholder Engagement Methods Employed

Method	Targeted Stakeholder	Description
Community drop-in sessions	Local community	14 community drop-in sessions held to provide information on the feasibility assessment, seek feedback and offer the opportunity to ask questions.
SynergyRED office in Augusta	Local community	SynergyRED office in Augusta has been open monthly from February 2025 to provide the opportunity for community members to drop-in, provide feedback or ask questions.
Briefings / meetings / interviews	Landowners and neighbours Local organisations Local government State government DCCEEW	Meetings held with interested stakeholders to share Proposal information, seek feedback and answer questions.
Proposal website	All	Proposal website established to provide updates on feasibility assessment and provide an opportunity for interested stakeholders to ask questions through the Question and Answer feature. Website updated with key Proposal information, including newspaper articles and advertising of upcoming engagement sessions.
Email updates	Interested stakeholders	Regular Proposal updates emailed to stakeholders who signed up for updates via the website or during a community drop-in session.
Information booklets	Local community	Two information booklets published which included Proposal information, results of feasibility studies, answers to frequently asked questions and contact details for Proposal team.
Library display	Local community	Information display created at Augusta Library to share Proposal information, provide information booklets and seek community feedback through questions.
Newspaper articles	Local community	Monthly newspaper articles published in the local newspaper, from August 2024 onwards, to share Proposal information, provide answers to frequently asked questions, and seek feedback.
Survey	Local community	Survey delivered as part of Social Values Assessment to understand what is important to the community, and what benefits and impacts the proposed wind farm could have on surrounding communities.
Social media posts	Local community	Social media posts published to promote upcoming community drop-in sessions.
Letters	Neighbours / local community	Letters sent to all local community members to promote upcoming community drop-in sessions. Letters sent to all neighbours within 5 km radius of the proposed Development Envelope to provide information and seek feedback.
'Stayz' messenger	Local holiday homeowners	Messages sent through the Stayz app to all holiday homeowners with a view of the wind farm to provide information and seek feedback.
Local radio	Local community	Regular radio promotion of SynergyRED office and drop-in sessions in Augusta.
Drop-in engagement	Local businesses	Ad-hoc drop-ins to local businesses to provide information and the opportunity to provide feedback to SynergyRED.

4.3. Stakeholder Engagement Outcomes

Stakeholder engagement outcomes have been summarised in Table 4-3 and the key concerns raised are detailed in Section 10.3.1.

Table 4-3: Stakeholder Consultation

Stakeholder	Date(s)	Topic Discussed	Response/ Outcome
State and Federal Government & Agencies			
CASA	August 2023	• SynergyRED discussed the Proposal. • CASA recommended night-time aviation lighting, but did not consider it a requirement.	• No objection based on recommendation in Aviation Project Report. • SynergyRED is working through considerations regarding aviation lighting, with regard for other impacts this may have.
DCCEEW	August 2025	• SynergyRED introduced the Proposal. • SynergyRED discussed the Matters of National Environmental Significance (MNES) with the potential to be impacted, including summarising key study findings, mitigations and predicted outcomes. • Discussion on the following uncertainties/concerns relating to bird strike: - Adequate detail of survey methodology, including survey effort, timing, site selection, including any limitations/uncertainties relating to the collection of flight height data - Sufficient justification for consequence of impacts - Sufficient local and regional context relating to MNES, including their use/movement through habitats within and around the Proposal - Provision and consideration for local/regional population where available - Give consideration to any known migratory paths - Consider all MNES and justify why those considered unlikely to occur are not assessed.	• DCCEEW appreciated SynergyRED's comprehensive presentation, the conservation nature of the impact assessment and work undertaken to avoid direct impacts and to address risks associated with ASS/dewatering. • Approach to impact assessment and referral was discussed and agreed.
DFES	April 2024 to November 2024	• SynergyRED provided an overview of the Proposal. • SynergyRED sought clarification on bushfire assessment and application of Country Fire Authority (CFA) guidelines, as well as how to interpret SPP 3.7 and the CFA guidelines for windfarms. • Discussion on clearing requirements, road requirements, firewater tank requirements and separation distances. • Discussion on conceptual layout, firewater, access tracks and aerial firefighting. • SynergyRED presented conceptual layout and sought feedback.	• SynergyRED to draft plans showing firewater, access points and separation to vegetation, then send draft to DFES for comment prior to DA. • SynergyRED to engage DFES Regional Operations, and local fire brigades regarding local considerations. • SynergyRED to revise conceptual layout, clearly show proposed and alternative options for site entrances, show tracks and firewater tank locations. • SynergyRED to incorporate feedback provided by DFES into the Bushfire Management Plan and Risk Assessment. • SynergyRED to contact DBCA and the Shire of Augusta Margaret River to set up a meeting at / near the proposed wind farm to consult with them on the wind farm and proposed conceptual site plan. • SynergyRED to engage with DFES and DBCA regarding aerial firefighting. • SynergyRED to seek details from turbine suppliers regarding their fire management systems, whether they have fire suppression, and if there would be any warranty issues if we used a third-party fire suppression system. • SynergyRED to provide information and spatial data on the wind farm and wind turbine locations to support aerial firefighting prior to construction.
DWER (Green Energy Team)	February 2024 to July 2025	• Introduction to DWER Green Energy Team. • SynergyRED provided an introduction to the Proposal, studies completed and planned, and the community engagement strategy. • Discussion and confirmation of hydrology scope of work. • Discussion on noise assessment requirements and results. • Discussion on ASS and associated preliminary management plan. • Discussion on management plan requirements at referral. • Discussion on potential requirement for two years of bird and bat monitoring data to support Environmental Impact Assessment (EIA). • Discussion on proposed transport route and its exclusion from the Proposal given no clearing anticipated outside the Development Envelope.	• Approach to impact assessment and referral was discussed and agreed and managed with DWER input throughout. • A second year of bird and bat monitoring was undertaken to address DWER's request.
DWER (Water Branch)	March 2024	• Discussion and confirmation of hydrology/hydrogeology scope of work. • DWER gave advice on licensing requirements for bores and restrictions on production bores. • DWER recognised that management of dewatering to minimise drawdown will be key but acknowledged likely low risk given temporary nature of activity. • DWER offered to supply existing monitoring bore and surface water data from the area.	• Approach to hydrology/hydrogeology scope confirmed. • DWER subsequently supplied background information. • SynergyRED progressed with RiWI Act 26D application for the installation of groundwater monitoring bores. • SynergyRED had developed the Proposal to minimise dewatering requirements (e.g., through use of alternative foundations).
DWER (Noise Branch)	March 2024 to March 2025	• DWER provided contemporary noise guidance for wind farms, which evolved with the Proposal. • DWER confirmed compliance should be measured against the WA *Environmental Protection (Noise) Regulations 1997.* • SynergyRED presented initial noise modelling results for the Proposal and discussed noise criteria. • DWER informally reviewed noise assessment ahead of referral.	• SynergyRED provided noise assessment to DWER for informal review. • SynergyRED undertook Noise Assessment to align with the WA *Environmental Protection (Noise) Regulations 1997* (DWER expectation), as well as the South Australian (SA) Wind Farms Environmental Noise Guidelines (SA EPA 2021) (to align with the Position Statement: Renewable energy facilities (WAPC 2020) and to fulfill commitment made during community consultation). • SynergyRED demonstrated compliance with WA *Environmental Protection (Noise) Regulations 1997.*

Stakeholder	Date(s)	Topic Discussed	Response/ Outcome
Jackie Jarvis MP Electoral Office (Minister for Agriculture and Food, Forestry and Small Business)	March 2024	• SynergyRED presented studies completed and planned, the community engagement strategy and answered questions. • Future engagement opportunities.	• SynergyRED provided further information regarding community consultation dates and locations. • SynergyRED to continue to update on progress of the Proposal.
(previous) Member for Warren-Blackwood (Ms. J Kelsbie MLA)	February 2024 to November 2024	• SynergyRED presented studies completed and planned, the community engagement strategy and answered questions.	• Pleased with community engagement approach. • Generally supportive of the Proposal.
South West Development Commission	December 2024	• Briefing on Phase One Feasibility results.	• No concerns raised. • Appreciative of the in-depth briefing.
Local Government			
Shire of Augusta Margaret River	February 2023 to ongoing	• Several meetings have been conducted to provide updates on the Proposal, including overview of community engagement plan, consulting on aviation lighting, metrological mast and the approval pathway. • SynergyRED provided Energy Education presentations to the Council and Officers on energy and renewables. • SynergyRED presented to Shire before community engagement sessions with preliminary results of studies. • Site visit to discuss bushfire risk and management.	• SynergyRED will continue to engage with the Shire and provide ongoing updates on the Proposal, including Community Benefit Fund.
Traditional Owners			
South West Aboriginal Land and Sea Council (SWALSC) on behalf of Karri Karrak Aboriginal Corporation (KKAC)	March 2023 to January 2024	• SynergyRED's earlier engagements on the Proposal were SWALSC as at the time KKAC was in the process of being established. • Introduction of Proposal pipeline across the South West, seek guidance on how best to engage and establish relationship. • Seek progress on Noongar Standard Heritage Agreement (NSHA) for Scott River. • SWALSC advised regional corporations still getting established. • Access agreements ought to be sufficient for NSHA • Noongar naming of assets- Elders (Noongar People) are eager to have input into naming of asset.	• Provided Statutory Declaration and map for NSHA. • Executed a Noongar Standard Heritage Agreement with KKAC. • Commenced arrangement of Aboriginal Heritage survey (completed with KKAC below).
KKAC	January 2024 to August 2024	• Meeting with KKAC to discuss heritage processes associated with the Proposal. • Elders who participated in the survey requested that they have a say in the naming of the Proposal.	• Completion in January 2024 of Aboriginal Heritage survey in accordance with the NSHA with Elders nominated by the KKAC. • Draft Aboriginal Heritage Survey Report provided to KKAC. • SynergyRED has committed to providing opportunities for Proposal naming, with input from KKAC.
KKAC	May 2025 to September 2025	• Engagement with KKAC on Aboriginal cultural heritage.	• Arrangements made for KKAC to review draft heritage report and provide its comments to SynergyRED.
Landowners and Neighbours			
Various Landowners and Neighbours	September 2022 to October 2025	• Across a number of meetings, phone calls and emails, the following items were discussed: - Provided overview of the Proposal - Explored interest in hosting wind turbine(s) or consenting to early feasibility studies - Advance discussions for option to lease and ongoing development activities - Some landowners interested in participating in Social Values Assessment survey or interviews - Noise of wind turbines, visual impact, and property prices - Request permission to access properties for the purpose of surveys: - Noise monitoring survey, including installation of noise loggers - Visual Impact Assessment – photos to be taken from some properties - Biological Surveys (flora and fauna) - Aboriginal heritage surveys - Monitoring wells - Fire assessment - Geotechnical assessment. - Discussions on met mast location, height, size, timing and access for installation - Discussion on location of wind turbines, roads and fencing infrastructure - Discussions on bore exploration locations.	• Multiple landowners have executed an option to lease, with a sufficient number required to support development of the Proposal. • Access granted to certain properties for feasibility studies. • SynergyRED commitment to ongoing engagement regarding the Development Approval Application Process.

Stakeholder	Date(s)	Topic Discussed	Response/ Outcome
Community			
Alexandra Bridge Volunteer Bushfire Brigade	March 2025	• SynergyRED contacted the Alexandra Bridge Bushfire Brigade and left a message to provide overview of Proposal and seek feedback.	N/A
East Augusta Volunteer Bushfire Brigade	March 2025	• SynergyRED contacted the East Augusta Volunteer Bushfire Brigade to: - Provide an overview of Proposal - Seek feedback and questions from Brigade members.	• No concerns or questions at this stage.
Holiday homeowners	March 2025	• SynergyRED contacted holiday homeowners who would have a view of the proposed wind farm, discussing the following information: - Overview of Proposal and potential to see the turbines from the holiday home - Offer to meet with SynergyRED to discuss the Proposal - Queries regarding lighting requirements on turbines - Concerned about the change of view.	• SynergyRED undertook a Landscape and Visual Impact Assessment and socialised these outcomes with the community. These also inform the impact assessment. • SynergyRED continues to work through the proposed requirement for lighting installation on turbines.
Karridale Volunteer Bushfire Brigade	March 2025	• SynergyRED contacted the Karridale Volunteer Bushfire Brigade and left a message to provide overview of Proposal and seek feedback.	N/A
Kudardup Volunteer Bushfire Brigade	March 2025	• SynergyRED contacted the Kudardup Volunteer Bushfire Brigade to: - Provide an overview of Proposal - Seek feedback and questions from Brigade members.	• No concerns or questions at this stage.
Local community	February 2024 to ongoing	• SynergyRED held community engagement sessions to: - Provide an overview of Proposal - Seek feedback and questions from community members.	• The local community raised the following concerns about the Proposal: - Visual impacts - Noise impacts - Infrasound generation - Impacts to property prices - Impacts to birds - Impacts to tourism - Management of ASS - Recyclability of wind turbines SynergyRED's response to these concerns are addressed in Table 10-2.
Molloy Island Volunteer Bushfire Brigade	March 2025	• SynergyRED contacted the Molloy Island Bushfire Brigade to: - Provide an overview of Proposal - Seek feedback and questions from Brigade members.	• No concerns or questions at this stage.
Local Community and Industry Groups			
Augusta Community Development Association	March 2024 to November 2024	• Progress updates on the Proposal. • Invitation to community drop-in sessions. • Generally supportive of the feasibility study and suggested community concern likely to be around the site suitability/selection and impacts on migratory birds.	• SynergyRED commitment to community engagement as studies and impact assessment are completed.
Augusta - Margaret River Clean Community Energy (AMRCCE)	November 2022 to ongoing	• Discussion of work by AMRCCE to date on assessing feasibility of 10 MW wind farm in Scott River and opportunity to collaborate. • Confirmation of partnership for Proposal. • Ongoing feasibility study updates to AMRCCE members.	• Development of a participant agreement into the ongoing feasibility assessment now led by SynergyRED has now been established. • AMRCCE continue to provide advice and support the Proposal.
BHP - Beenup Rehab Project	February 2024 to February 2025	• Meetings and phone calls discussing: - Overview of the Proposal - Opportunities to record bird utilisation within the Beenup rehabilitation area - History of Beenup mine, presence of PASS and lessons learned for PASS management - All tenure confirmed as currently BHP freehold - Site being managed for long-term conservation - BHP provided map of bore locations, Annual Environmental Report, and Surface and Groundwater Baseline Summaries.	• A comprehensive ASS investigation was undertaken for the Proposal, with SynergyRED drawing on BHP experience in ASS Management Measures. • SynergyRED provided link to website for further information and contact details should any member of the BCG have any queries regarding the Proposal.
Lower Blackwood Land Conservation District Committee (LCDC)	March 2024 to May 2024	• Introduction to the Proposal and ongoing engagement regarding Proposal milestones and grant opportunities.	• Three members agreed to be interviewed as part of the Social Values Assessment.

Stakeholder	Date(s)	Topic Discussed	Response/ Outcome
Lower South West Growers Group	March 2024	• Introduction to the Proposal. • Offer to host briefing to group.	N/A
Molloy Island Homeowners Association	April 2024, June 2024 and September 2024	• Phone calls with representatives of the Homeowners Association. Key items discussed included: - SynergyRED provided an overview of the Proposal and the social values assessment and community survey being conducted seeking their interest in participating - Proximity of wind turbines to Molloy Island - Noise levels - Visual impact - Impacts to bats.	• Interviews were conducted with members of Molloy Island Homeowners Association for Social Values Assessment.
UBC Wildflower Society of Western Australia (WSWA)	March 2024 – February 2025	• Discussion of WSWA and UBC purpose, views on renewable energy projects and discussion on WSWA renewable energy position statement. • SynergyRED provided an overview of the Proposal and studies being conducted as part of the feasibility study • WSWA and UBC appreciated the early engagement. • WSWA are supportive of renewable energy projects as long as they are located in the right place (i.e. avoid clearing and located close to where the power is required). • WSWA would like to see biological studies done correctly (multi-season, right time of year, etc. although noted that second season may not be required if clearing is avoided). • UBC and WSWA queried opportunities for rehabilitation, sire improvement and recyclability of infrastructure at end of life.	• Biological surveys follow EPA and DCCEEW guidelines and no change to the scope was required. • SynergyRED issued SIA questionnaire to WSWA and UBC. • SynergyRED to consider adding UBC to the procurement list for rehabilitation works. • SynergyRED to provide an update on completion of studies. • SynergyRED to notify WSWA once applications are submitted.

5. Objectives and Principles of the EP Act

The Proposal is believed to meet the EPA's principles, factors and objectives (EPA 2023b), having given them due consideration in its design and mitigation decisions, to avoid and otherwise reduce residual environmental impacts. This in turn demonstrates that the Proposal will meet the overarching object of the EP Act to 'Protect the environment of the State'.

5.1. Principles

The object of the EP Act is to 'Protect the environment of the State', having regard for the five environmental protection principles, listed under s 4A of the EP Act. Consideration against each of these principles is provided in (Table 5-1).

Table 5-1: Principles of the Environmental Protection Act 1986

Principle	Considerations
1. The Precautionary Principle Where there are threats of serious or irreversible damage, a lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In application of this precautionary principle, decisions should be guided by: • Careful evaluation to avoid, where practicable, serious or irreversible damage to the environment • An assessment of the risk-weighted consequences of various options.	The Proposal has been developed through a detailed process of review to ensure that any impacts to the environment, where possible, have been avoided or otherwise have been minimised as far as practicable. To ensure that mitigation decisions are suitably informed of the local environmental values and the potential impacts of the Proposal, SynergyRED has undertaken extensive environmental studies and surveys within the Development Envelope and the surrounding local area. The comprehensive understanding of these values and potential impacts are reflected in the information presented within this document.
2. The Principle of Intergenerational Equity The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.	The Proposal has been designed to address the principle of intergenerational equity by complying with the EPA's objectives for each environmental factor. This has been achieved through the implementation of mitigation measures to avoid and reduce the significance of any residual environmental impacts. A maximum of 1 ha of native vegetation will be cleared to support the Proposal. The Proposal also only uses a small proportion of agricultural land and will enable the remainder of the Development Envelope to continue to be used for productive purposes. The Proposal will contribute to economic growth and employment in the South West region, and the increased supply of clean energy will contribute to the affordability of electricity throughout the State. The Proposal contributes to the State Government's aspiration of net zero emissions by 2050 (GoWA 2020) and 2030 interim greenhouse gas emissions reduction target, through the procurement of renewable energy. The assessment contained within this document demonstrates that the Proposal can be implemented to avoid significant impacts to the health, diversity and productivity of the environment for the benefit of future generations.

Principle	Considerations
3. The Principle of the Conservation of Biological Diversity and Ecological Integrity Conservation of biological diversity and ecological integrity should be a fundamental consideration.	Comprehensive baseline environmental studies and surveys have been undertaken to understand the existing biological diversity within the Development Envelope and the local area. This has included flora, vegetation, fauna, wetland, geotechnical and hydrological assessments. The results of these studies and surveys have been used to inform a robust assessment of the potential impacts that the Proposal may have on the biological diversity and ecological integrity within these areas. The clearing of native vegetation and fauna habitat, particularly that of conservation significance has been avoided as far as practicable or minimised in all other circumstances. The Proponent commits to clearing no more than 1 ha of native vegetation, and will avoid impacts to all TECs, conservation significant flora, wetlands, including groundwater dependent values, and black cockatoo potential nesting trees. The minimum RSA has also been increased from 25 m to 40 m to mitigate the risk of strike to low flying bird species such as black cockatoos. To ensure all unavoidable impacts are minimised as far as practicable mitigation measures will be implemented throughout the construction, operation, and decommissioning phases of the Proposal. These mitigation measures are discussed in detail throughout this document.
4. Principles Relating to Improved Valuation, Pricing and Incentive Mechanisms Environmental factors should be included in the valuation of assets and services. The polluter pays principle – those who generate pollution and waste should bear the cost of containment, avoidance or abatement. 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. 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 costs of environmental constraints through avoidance and management have been considered in the planning and design of the Proposal. The location of the Proposal has been selected to maximise energy production whilst minimising impacts on the surrounding environment. The Proponent will be responsible for funding the cost of the environmental avoidance and management measures and ongoing monitoring, decommissioning and rehabilitation activities.
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.	The Proponent is committed to minimising waste as far as practicable during construction, operation, and decommissioning by adopting the hierarchy of waste controls: avoid, reduce, reuse, recycle and safe disposal. In accordance with the decommissioning plan (Appendix C), infrastructure materials and components such as steel, conductors, switches and transformers will be reused, sold as scrap, recycled or repurposed, where possible. The Proponent has observed recent success in the decommissioning of the Ten Mile Lagoon and Nine Mile Beach wind farms in Esperance, where 465 t (97% by weight) of the windfarm was recycled or reused.

5.2. Environmental Factors

Environmental factors are those parts of the environment that may be impacted by an aspect of a Proposal. The EPA has 14 environmental factors, organised into five themes: sea, land, water, air, and people. The 14 environmental factors and how they relate to the Proposal are presented in Table 5-2.

Based on an assessment of potential impacts associated with the Proposal, the key environmental factors considered relevant to the Proposal are:

- Terrestrial Environmental Quality (Section 6)
- Inland Waters (Section 7)
- Flora and Vegetation (Section 8)
- Terrestrial Fauna (Section 9)
- Social Surroundings (Section 10).

Table 5-2: Environmental Factors

Theme	Factor	Objective	Consideration
Sea	Benthic Communities and Habitats	To protect benthic communities and habitats so that biological diversity and ecological integrity are maintained.	**This factor is not considered relevant to the Proposal.** The Proposal is located approximately 4 km inshore with no anticipated environmental impact pathways or potential for interaction with benthic communities or habitats.
	Coastal Processes	To maintain the geophysical processes that shape coastal morphology so that the environmental values of the coast are protected.	**This factor is not considered relevant to the Proposal.** The Proposal is located approximately 4 km inshore with no anticipated environmental impact pathways or potential for interaction with coastal processes.
	Marine Environmental Quality	To maintain the quality of water, sediment, and biota so that environmental values are protected.	**This factor is not considered relevant to the Proposal.** The Proposal is located approximately 4 km inshore with no anticipated environmental impact pathways or potential for interaction with the marine environment.
	Marine Fauna	To protect marine fauna so that biological diversity and ecological integrity are maintained.	**This factor is not considered relevant to the Proposal.** The Proposal is located approximately 4 km inshore with no anticipated environmental impact pathways or potential for significant interaction with marine fauna.
Land	Flora and Vegetation	To protect flora and vegetation so that biological diversity and ecological integrity are maintained.	**This factor is considered relevant to the Proposal.** SynergyRED has made a concerted effort to avoid areas of native vegetation wherever possible during the planning and design phase of the Proposal, and as such no more than 1 ha of native vegetation will be cleared as part of the Proposal, with the majority of the Development Envelope being previously cleared agricultural land.
	Landforms	To maintain the variety and integrity of distinctive physical landforms so that environmental values are protected.	**This factor is not considered relevant to the Proposal.** No distinctive landforms occur within the Development Envelope.
	Subterranean Fauna	To protect subterranean fauna so that biological diversity and ecological integrity are maintained.	**This factor is not considered relevant to the Proposal.** A desktop assessment determined that subterranean fauna are unlikely to be present within the Development Envelope, given the lack of suitable habitat (Invertebrate Solutions 2024b;

Theme	Factor	Objective	Consideration
			Appendix E). Furthermore, the Proposal presents limited potential for impact, associated with construction dewatering and management of PASS (see Section 6 and 7).
	Terrestrial Environmental Quality	To maintain the quality of land and soils so that environmental values are protected.	**This factor is considered relevant to the Proposal.** The Proposal may result in localised impacts to land and soils, particularly associated with the excavation of PASS for the construction of turbine foundation. An ASSDMP will be developed and implemented, of which a Preliminary version has been prepared (PTG 2025; Appendix B).
	Terrestrial Fauna	To protect terrestrial fauna so that biological diversity and ecological integrity are maintained.	**This factor is considered relevant to the Proposal.** SynergyRED has made a concerted effort to avoid areas of native vegetation wherever possible during the planning and design phase of the Proposal and as such minimal fauna habitat will be cleared as a result of the Proposal, with the majority of the Development Envelope being previously cleared agricultural land. However, up to 1 ha of native vegetation/habitat may be cleared as part of the Proposal and there is also risk of avifauna collision with wind turbines when operational. A preliminary Bird and Bat Adaptive Management Plan (BBAMP) has been developed and will be implemented to manage potential impacts associated with avifauna collision (ELA 2025a Appendix N).
Water	Inland Waters	To maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected.	**This factor is considered relevant to the Proposal.** The site contains several predominantly ephemeral wetlands and high water table. SynergyRED has made a concerted effort to avoid all wetlands, will implement an ASSDMP, of which a Preliminary version has been prepared (PTG 2025; Appendix B) and operate in accordance with RiWI Act licence and permits, as well as ensure appropriate drainage management to ensure hydrological regimes and water quality are maintained and wetlands and other potentially groundwater dependent values are protected.
Air	Air Quality	To maintain air quality and minimise emissions so that environmental values are protected.	**This factor is not considered relevant to the Proposal.** While the Proposal is likely to generate temporary dust emissions during construction, these emissions can be readily mitigated through standard dust suppression mechanisms and are not anticipated to have significant impact on any environmental values.
	Greenhouse Gas (GHG) Emissions	To minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable.	**This factor is not considered relevant to the Proposal.** The Proposal will produce emissions associated with wind turbine materials production, transportation, and turbine construction. However, the predicted GHG emissions from the Proposal are well below the EPA's significance threshold of 100,000 tCO2-e emissions released per year, for each Scope 1 and Scope 2 sources (Appendix F). It is noted that the Greenhouse Gas Assessment is considered to be conservative due to the application of the mitigation hierarchy, which has changed since the Proposal design (e.g. reduced clearing).

Theme	Factor	Objective	Consideration
			Inherently, the Proposal will result in a net benefit in comparison to fossil fuel alternatives for energy production in WA.
People	Social Surroundings	To protect social surroundings from significant harm.	**This factor is considered relevant to the Proposal.** While the Proposal will be compliant with noise regulations, is not anticipated to cause shadow flicker impacts on any sensitive dwellings and can be developed to mitigate any electromagnetic interference, the Proposal will be visible from sensitive receptors in the local community. SynergyRED has undertaken extensive community and stakeholder consultation and several community concerns from the Proposal have been raised in relation to this factor. Two Aboriginal cultural heritage sites also intersect the Development Envelope.
	Human Health	To protect human health from significant harm.	**This factor is not considered relevant to the Proposal.** Considerations as they relate to the EP Act are concerned with emission of radiation to the environment. Other considerations are detailed in the Social Surroundings assessment. The Australian National Health Medical Research Council (NHMRC 2015) concludes there is no consistent evidence that wind farms cause adverse health effects in humans. The evidence that does exist suggests that the level of extremely low-frequency electromagnetic radiation close to wind farms is less than average levels measured inside and outside of suburban homes (NHMRC 2015). As such the Proposal does not present an exposure risk to harmful radiation.

6. Terrestrial Environmental Quality

6.1. EPA Environmental Factor Objective

The EPA's objective for the Terrestrial Environmental Quality environmental factor is to "*maintain the quality of land and soils so that environmental values are protected*" (EPA 2016b).

For the purposes of EIA, the EPA defines the terrestrial environment as "the chemical, physical and aesthetic characteristics of soils" (EPA 2016b).

6.2. Relevant Policy and Guidance

Relevant policy and guidance documents for Terrestrial Environmental Quality and how they have been considered for this Proposal are summarised in Table 6-1.

Table 6-1: Policy and Guidance for Terrestrial Environmental Quality

Policy / Guidance	Consideration
Environmental Factor Guideline: Terrestrial Environmental Quality (EPA 2016b)	The information provided in this section addresses the 'considerations for environmental impact assessment' outlined within the guideline.
Contaminated Sites Act 2003	This Act has been considered in the determination of the need for assessment and management of potential existing contamination relevant to the Proposal.
Assessment and Management of Contaminated Sites (DWER 2021)	This document has been considered in the determination of the need for assessment and management of potential existing contamination relevant to the Proposal.
Guideline: Identification and Investigation of Acid Sulfate Soils and Acidic Landscapes (DER 2015a)	These documents have been considered in the determination of the need for assessment and management of potential ASS relevant to the Proposal.
Guideline: Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes (DER 2015b)	

6.3. Receiving Environment

6.3.1. Studies and Survey Effort

Publicly available datasets and a Preliminary Geotechnical and Baseline Contamination Assessment (Stantec 2024; Appendix G) have been utilised to inform an understanding of the soil landscape, composition and geology within the Development Envelope.

The Preliminary Geotechnical and Baseline Contamination Assessment was undertaken for the Development Envelope and comprised testing via geotechnical boreholes and test pits between February and March 2024 (Stantec 2024). The assessment provided preliminary information on the geology of the site, including soil profile, contamination and presence of ASS.

6.3.2. Topography

The Development Envelope is within a low relief landscape with elevation gradually increasing from the south-west (approximately 9 m AHD) to the north-east (approximately 38 m AHD) (Stantec 2024). There is an average regional slope from north to south of approximately 2.5 m/km and less than 1 m/km from

east to west, and a poorly defined drainage divide that runs approximately through the centre of the Development Envelope, segregating the Blackwood and Scott River headwater catchments. The Blackwood River is located approximately 4 km from the Development Envelope western boundary, at an elevation of approximately 0 m AHD, with the landscape gently increasing in elevation from the river to approximately 20 m AHD at that boundary.

6.3.3. Geology

The Geological Survey of Western Australia (1967 as cited in PTG 2025) mapping undertaken at a 1:250,000 scale for Busselton and Augusta indicates that the Development Envelope is primarily underlain by Quaternary alluvium, comprising quartz-rich sand dunes and Cainozoic laterite. Nearby mapping for Karridale-Tooker undertaken at a 1:50,000 scale indicates that the Leederville Formation, comprising interbedded sedimentary rock and associated units derived via weathering, may be underlying the dune deposits and laterite (ferricrete) across the Development Envelope (Geological Survey of Western Australia 2002 as cited in PTG 2025). Of the three formations that comprise the Lower Cretaceous Warnbro Group, the Leederville Formation is the only one to occur beneath the Scott Coastal Plain (Chan 2011 as cited in PTG 2025). The Warnbro Group is a series of distinct lithological units comprising the Strucel Beds and Beenup Beds, which likely form the Leederville Formation (BHP 1998, 2015 as cited in PTG 2025).

Within the Development Envelope, the main geological stratigraphic units are the Quaternary alluvium, lake and swamp deposits, the Early Cretaceous Leederville Formation and Triassic Lesueur Sandstone (Stantec 2024). Geology within the Development Envelope comprises siliceous dune sands deposited unconformably on the Leederville Formation. Within the dune sands, localised diagenetic features comprise organic stained siliceous sands, bleached siliceous sands and shallow sands, overlying ferricrete (PTG 2025).

The hydrogeology of the Development Envelope is detailed in Section 7.

6.3.4. Soil-Landscape Zones and Systems

The Development Envelope occurs across two soil-landscape zones defined by regional soil mapping (DPIRD 2020), namely:

- Donnybrook Sunkland Zone
- Scott Coastal Zone.

Each soil-landscape zone is divided further into soil-landscape systems. The soils within the Development Envelope fall mostly within the Scott River Plain Land System, with a small northern portion of the Development Envelope intersecting the Nillup Plain System (Table 6-2; Figure 6-1). Both systems are described as “Poorly drained coastal plains in the southern Donnybrook Sunkland” (DPIRD 2022).

Table 6-2: Soil-Landscape Systems within the Development Envelope

Soil-Landscape System	Description	Area within Development Envelope	
		ha	%
Nillup Plain System	Poorly drained plain, in the southern Donnybrook Sunkland. Sandy gravel, non-saline wet soil, grey deep sandy duplex, loamy gravel and pale deep sands. Jarrah-marri-paperbark woodland.	15.66	0.44
Scott River Plain System	Poorly drained coastal plain, in the southern Donnybrook Sunkland. Non-saline wet soil and pale deep sand. Heaths, sedgelands and jarrah-marri-paperbark woodland.	3,581.19	99.56

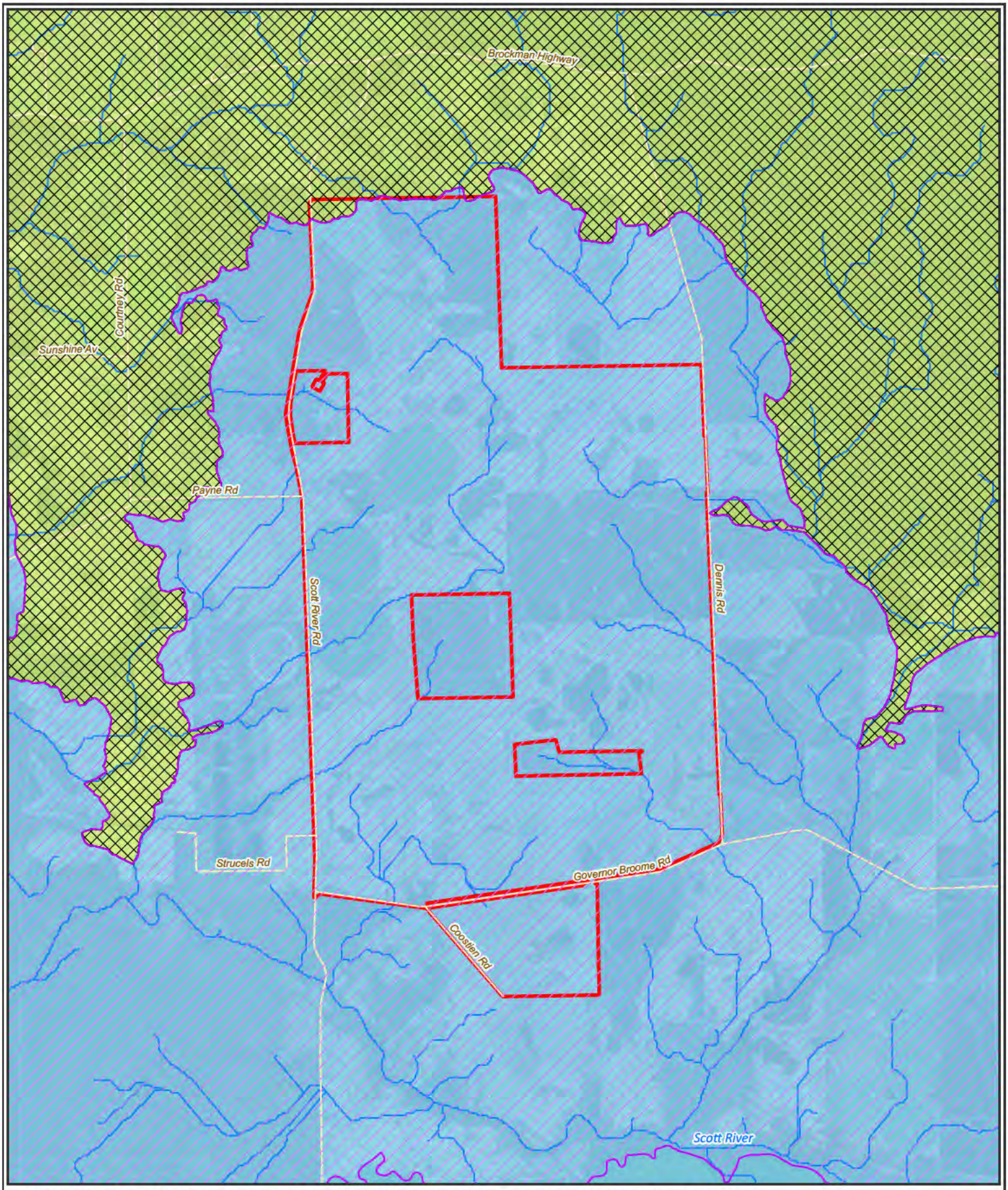


Figure 6-1: Soil-Landscape Mapping Across the Development Envelope

Development Envelope
Roads
Rivers and Tributaries

Soil Landscape Mapping Units (DPIRD 2022)
Nillup Plain System
Scott River Plain System

Soil Landscape Mapping Zones (DPIRD 2020)
Donnybrook Sunkland Zone
Scott Coastal Zone

0 0.5 1 2
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date:
9/15/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

6.3.5. Soil Profile

The shallow soil profile (<3 m) within the Development Envelope was generally found to comprise a thin layer of topsoil and dune sand overlying ferricrete, or alternating bands of clayey and sandy soils with pockets of organic and peaty material (Stantec 2024). These units are generally underlain by clayey and sandy soils to a depth of approximately 25 m. Outcrops of ferricrete also occur throughout the Development Envelope (Stantec 2024). The Development Envelope can be segregated, based on different soil profile properties, into northern, southern and central portions (Table 6-3).

Table 6-3: Soil Profile Across the Development Envelope

Area of Development Envelope	Soil Profile Description
North	A thin layer of dune sands (< 1.6 m) immediately overlying saturated grey and dark grey, interbedded/alternating bands of clayey and sandy soils and frequent pockets of organic and peaty material.
South	A thin layer of dune sands (< 1.0 m) overlying iron-cemented sands (ferricrete). The encountered ferricrete was a 1.7 m thick, massive rock unit directly overlying weakly cemented organic rich sands. Residual sands and clays likely derived from the Leederville Formation were present underlying this unit.
Centre	Similar to the southern area of the Development Envelope, though ferricrete was present only 0.35 m below surface, underlying topsoil and dune sands and encountered as a 2 m thick, massive rock unit. Weakly cemented organic rich sands were present directly beneath ferricrete, extending to 6.2 m before intersecting clayey and sandy soils likely residuals of the Leederville Formation.

Source: Stantec 2024; PTG 2025

6.3.6. Acid Sulfate Soils

ASS are soils, sediments and peats which occur naturally and contain iron sulfides, typically in the form of pyrite materials (DER 2015a). This soil material remains benign when in a natural, anoxic state. However, ASS that are exposed to oxidation through disturbance (e.g. from dewatering, drainage works and earthmoving activities) have the potential to cause significant environmental effects, including contamination of waterways, groundwater and impacts to soil quality.

ASS includes PASS and actual acid sulfate soils (AASS). PASS are soils or sediments which contain iron sulfides that have not been oxidised, while AASS are soils or sediments containing iron sulfides which have undergone some oxidation (DER 2015a).

ASS Risk Mapping identifies the top 3 m of soils within the Development Envelope as having high to moderate risk of ASS occurring (DWER 2017; Figure 6-2). The geotechnical and baseline contamination assessment undertaken for the Proposal included a preliminary ASS investigation of the Development Envelope, including field screening and laboratory testing (Stantec 2024). Results of a pH field oxidation (pH_{FOX}) assessment indicated the possible presence of PASS within all samples; however, no AASS was identified. The results of the suspension peroxide oxidation combined acidity and sulfate (SPOCAS) assessment indicated that 50 of the 70 samples tested exceeded the National Acid Sulfate Soils Guidance's net acidity action criteria (0.03%S), triggering the requirement for an ASS management plan to be developed and implemented (Stantec 2024; Sullivan et al. 2018).

The results indicate that PASS is present within all soil types of the Development Envelope except for shallow pale grey/white sands that occur less than 1 mbgl (PTG 2025). The dark grey/brown sands and sandy clay which occur more than 2 mbgl are considered the highest risk soils within the Development Envelope due to the presence of elevated concentrations of inorganic sulfur.

6.3.7. Contaminated Sites

The DWER Contaminated Sites Database (DWER 2025 as cited in PTG 2025) has mapped two contaminated sites adjacent to the western boundary of the Development Envelope (site 886 and 4254), both of which are associated with the historic mining of heavy mineral sands at the BHP Beenup Mineral Sands Mine (Figure 6-2). These sites have been classified as “remediated for restricted use” due to the elevated levels of acidity, sulfate and aluminium present in the groundwater.

Works at the historic mine included the excavation of heavy mineral sands via dredging and subsequent wet mineral separation and concentration, which resulted in the disturbance of PASS material (PTG 2025). Remedial works were completed from 2000 to 2001, including treatment with lime sand. Metal and acidity-impacted groundwater has been identified at the mine, caused by the disturbance of ASS. Groundwater modelling and risk assessments have indicated that this impacted groundwater does not pose an unacceptable risk to human health or to the environment, including the Scott River and Blackwood River as downstream receptors (PTG 2025). The groundwater levels within the Development Envelope are higher than, and up gradient of, the adjacent historic mine, with no suspected interaction with the acid mine plume (Stantec 2025b).

6.3.8. Contaminants of Potential Concern

The geotechnical and baseline contamination assessed the presence of asbestos, nutrients and contaminants of potential concern within the Development Envelope (Stantec 2024). Contaminant presence was analysed against the following adopted assessment criteria, where relevant, to assess potential ecological and human health risks:

- CRC Care 2011 Soil HSL Intrusive Maintenance Worker (shallow trench)
- CRC Care 2011 Soil HSL Direct Contact (Intrusive Maintenance Worker)
- NEPM 2013 HSL Screening levels (HSL) for vapour intrusion Commercial/Industrial
- NEPM 2013 Health Investigation Levels (HILs) Commercial/Industrial
- NEPM 2013 Ecological Screening levels (ESL) Commercial/Industrial
- NEPM 2013 Ecological Investigation Levels (EIL) Commercial/Industrial.

Asbestos was not identified in the soil within the Development Envelope (Stantec 2024).

All other contaminants of potential concern were recorded below the laboratory limit of reporting or adopted assessment criteria, where relevant, including; Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene, Total Recoverable Hydrocarbons, metals (arsenic, beryllium, boron, cadmium, cobalt, copper, lead, manganese, mercury, nickel, selenium and zinc), Organochlorine, Organophosphate, pesticides, and Per- and polyfluoroalkyl substances (PFAS) (Stantec 2024).

Concentrations of nutrients, including potassium, nitrogen and total kjeldahl nitrogen (TKN), nitrate, nitrite, nitrogen and phosphorus were recorded above the laboratory limit of reporting; noting that there are no assessment criteria for nutrients in soil (Stantec 2024).

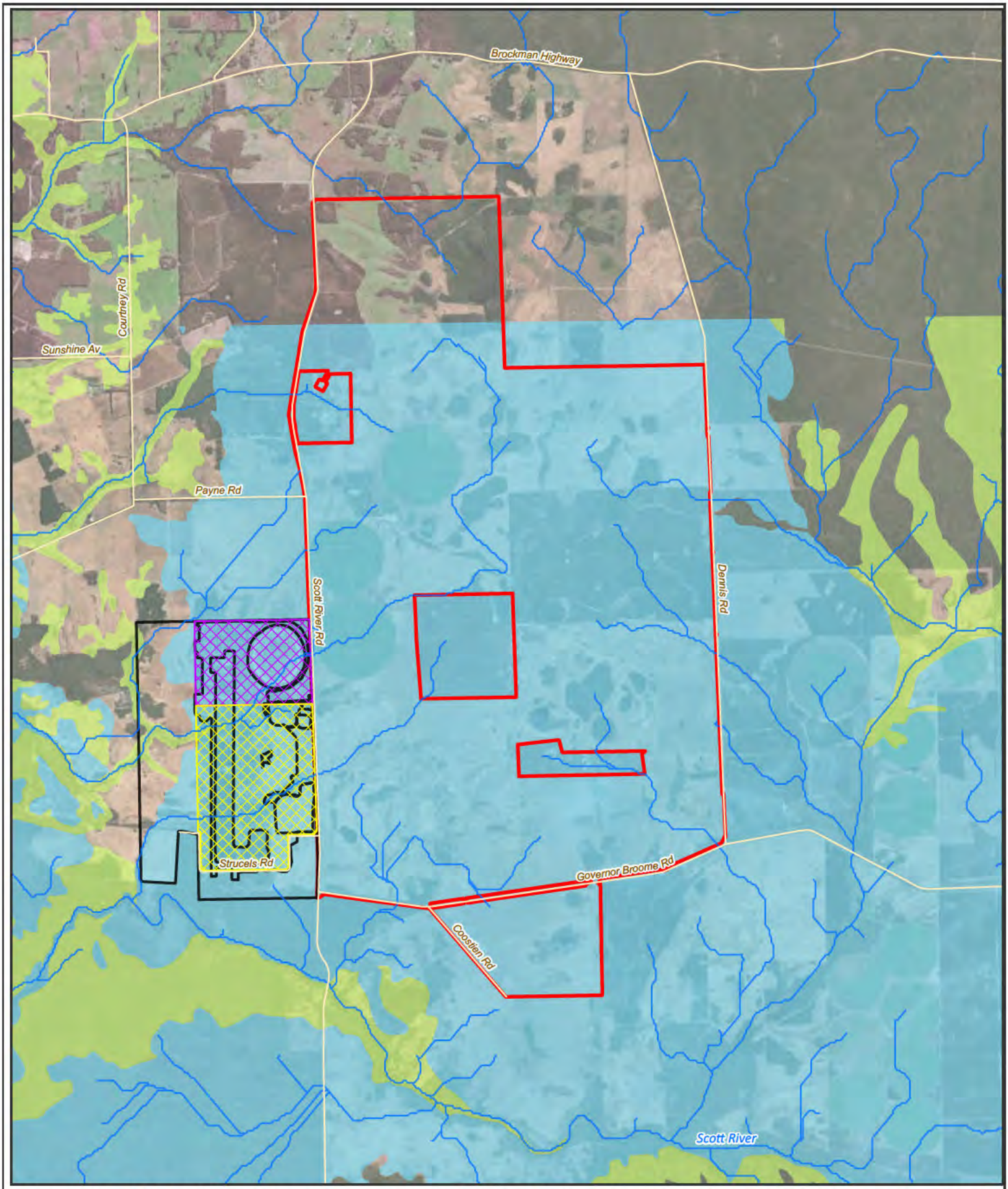


Figure 6-2: ASS Risk Mapping and Contaminated Sites within and Surrounding the Development Envelope

- Roads
- Rivers and Tributaries
- Development Envelope
- Beenup Mine

Acid Sulfate Soil Risk Mapping (DWER 2017)

- High to moderate risk of ASS occurring within 3m of natural soil surface
- Moderate to low risk of ASS occurring within 3m of natural soil surface but high to moderate risk of ASS beyond 3m of natural soil surface

Contaminated Sites (DWER 2025c)

- Site 886: Remediated for Restricted Use
- Site 4254: Remediated for Restricted Use

0 0.5 1 2
Kilometers

Datum/Projection: GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

6.4. Potential Environmental Impacts

The potential direct and indirect impacts of the Proposal on terrestrial environmental quality prior to mitigation being applied have been identified as:

- Soil acidification and/or toxicity due to disturbance of PASS during construction
- Soil erosion due to ground disturbing activities
- Soil contamination from accidental loss or spills of hydrocarbons and other hazardous materials.

Related potential impacts to groundwater and surface water are assessed in Inland Waters (Section 7).

6.5. Mitigation

The Proponent has applied the mitigation hierarchy during the design of the Proposal to reduce the potential impacts to the quality of the terrestrial environment within and surrounding the Development Envelope as far as practicable.

Specific mitigation and management measures proposed to be implemented by the Proponent have been detailed in Table 6-4. Key management measures are discussed below.

Due to the presence of PASS within the Development Envelope, the Proponent commits to the preparation and implementation of an ASSDMP in accordance with relevant guidance to manage the potential risks to terrestrial environmental quality during construction of the Proposal. A Preliminary ASSDMP has been prepared which details the proposed management framework, controls and monitoring measures to be included in the detailed ASSDMP to be developed following the completion of detailed site investigations and detailed design prior to construction of the Proposal (PTG 2025; Appendix B). The ASSDMP is expected to be a condition of DA approval.

Turbine and other mast/tower foundations will be designed to limit the excavation of PASS and dewatering requirements, while achieving the necessary mass and stability. Three foundation options are being considered (Section 2.2.1; Figure 2-3). The specific foundation option chosen for each turbine/mast/tower location will be determined based on detailed site investigation and revised modelling to ensure that any proposed dewatering or excavation would not result in significant impacts to terrestrial environmental quality as a result of PASS exposure. Below ground foundations will only be used where it is confirmed that the proposed turbine/mast/tower location would not require dewatering.

Borrow material will be assessed for the presence of PASS prior to disturbance. Borrow pits will be excavated above the groundwater level, and so will not require dewatering, and will be backfilled to a level that prevents groundwater seepage and ponding during high rainfall periods.

Any dewatering required will not exceed 2 mbgl at the perimeter of each foundation and will be managed to ensure drawdown does not exceed 0.1 m beyond 100 m from any dewatering location. Management of potentially acidic dewatering effluent is addressed in Section 7, in accordance with the Preliminary ASSDMP (Appendix B).

A Construction Environmental Management Plan (CEMP; SynergyRED 2025; Appendix H) has been prepared to manage potential environmental impacts during the construction phase. The CEMP details the management measures used to minimise potential impacts to the quality of the terrestrial environment during construction of the Proposal, including key management targets and actions, contingency actions, monitoring and reporting requirements.

Table 6-4: Proposed Terrestrial Environmental Quality Mitigation Measures

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Soil acidification and/or toxicity due to disturbance of PASS during construction	N/A	• Disturbance of PASS will be avoided wherever practicable. • Turbine/mast/tower foundations have been designed to limit the excavation of PASS and exposure of in-situ PASS as a result of dewatering (as detailed in Section 2.2.1.1 and illustrated in Figure 2-3). • Drawdown will be limited to a maximum of 2 mbgl at the perimeter of each foundation and will not exceed 0.1 m beyond 100 m from any dewatering location, to ensure exposure of in-situ PASS is minimised. • Borrow pits will be excavated above the groundwater level, and so will not require dewatering, and will be backfilled to a level that prevents groundwater seepage and ponding during higher rainfall periods. • Borrow material will be assessed for the presence of PASS prior to disturbance. • A detailed geotechnical and ASS investigation will be undertaken prior to construction. This will include additional soil sampling and analysis to at least 1 m below the base of any proposed excavations to ascertain the extent of PASS. • A detailed ASSDMP will be prepared and implemented following completion of detailed site investigations and revised modelling, to be informed by the Preliminary ASSDMP (Appendix B). The ASSDMP will include the following key management measures: - Soils requiring management will be treated with aglime upon excavation and reinterred, reused on-site and or taken off site for disposal, with limestone pads constructed where needed to manage treated soil stockpiles. - All stockpiled material will be stored an adequate distance away from waterways and wetlands to minimise the potential for leachate/runoff entering waterbodies. - ASS material that cannot be reused (i.e. geotechnically unsuitable and cannot be used as non-structural fill) will be disposed of offsite at a licensed facility. - In areas requiring soil management and treatment, soils at the base of excavations will be covered with a thin layer of aglime as a precautionary measure to provide buffering capacity against minor releases of acidity. - Treated soil will be assessed to validate the adequacy of the lime treatment. Where soils do not meet the validation criteria, soils will be retreated and retested until the criteria are met. - Appropriate groundwater level triggers will be developed to manage the depth of groundwater extraction, limiting the dewatering exposure of PASS (Section 7).	N/A	Potential for minor impacts to soil quality within the Development Envelope as a result of PASS disturbance during construction. The assessment and significance of this residual impact is detailed in Section 6.6.1.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Soil erosion due to ground disturbing activities	N/A	• Clearing of remnant native vegetation within the Development Envelope will be limited to a maximum of 1 ha. • The Indicative Disturbance Footprint has been designed to utilise existing cleared areas and tracks as much as practicable. • The CEMP (Appendix H) will include the following key management measures for erosion: - Runoff from infrastructure (such as the substation, O&M and concrete batching areas) will be captured and directed to an on-site retention basin for settlement and infiltration and/or controlled discharge through a stormwater overflow designed to manage sediment removal and reduce stormwater velocity. - Drainage control structures (e.g. drains and culverts) will be appropriately located, designed and constructed to maintain surface water flow regimes and minimise erosion. - Topsoil stockpiles will be constructed by paddock-dumping to a maximum height of 2 m. - Topsoil stockpiles will be sited to avoid areas likely to experience substantial surface water flows, where practicable. - Windrows of sufficient height will be installed around topsoil stockpiles to prevent surface water erosion. - Topsoil stockpiles and exposed soils are to be regularly inspected and maintained. - All access tracks will be stabilised and watered to minimise the generation of airborne dust and soil during construction. - Erosion protection will be installed in line with relevant guidelines.	• Land temporarily disturbed during construction (e.g. for laydown areas and concrete batching plant) will be rehabilitated to the original land use or to a post closure land use agreed with the landowners.	Potential for minor impacts to soil quality as a result of wind and surface water erosion, limited to the Development Envelope. The assessment and significance of this residual impact is detailed in Section 6.6.2.
Soil contamination from accidental loss or spills of hydrocarbons and other hazardous materials	N/A	• Potentially contaminating substances such as solid and liquid wastes and bulk hydrocarbons will be stored and handled as per the requirements of the *Dangerous Goods Safety Act 2004*. • The CEMP (Appendix H) will include the following key management relevant to hydrocarbons and hazardous materials: - All liquid chemicals will be bunded. Bunds will be impermeable, have a capacity of 110% of the largest container stored or 25% the total volume stored and be covered/protected from rainfall and stormwater ingress. - Bunds will be inspected regularly and kept free of residue, litter and stormwater. - All chemical and fuel containing facilities will be regularly inspected for leaks and spills. - Storage containers will be labelled as per the relevant Safety Data Sheet (SDS). - Appropriate spill equipment is to be available during the transportation and handling of hazardous materials. - Potentially contaminated water will be treated on site before being discharged into stormwater drainage or contained and removed as contaminated waste.	N/A	Potential for accidental loss or spill of hazardous materials resulting in soil contamination, to be remediated and limited to the Development Envelope. The assessment and significance of this residual impact is detailed in Section 6.6.3.

6.6. Assessment and Significance of Residual Impacts

6.6.1. Soil Acidification and/or Toxicity due to Disturbance of PASS during Construction

PASS material remains benign when in a natural, undisturbed and anoxic state. Construction of the Proposal, including excavation and dewatering, has the potential to expose PASS to oxidation, which has the potential to result in impacts to soil quality through acidification, mobilisation of metals and reduction in soil fertility and stability.

The Proposal has the potential to expose PASS, due to the excavation for borrow pits, as well as excavation and associated dewatering required for the construction of turbine foundations and other supporting below ground infrastructure (e.g. communication tower foundations, met mast foundations and underground cabling). Material from borrow pits will be excavated above groundwater (i.e. will not require dewatering) and will be managed in accordance with the ASSDMP. Borrow pits will also be backfilled to the maximum seasonal groundwater level prior to any seasonal fluctuations to ensure no groundwater seepage and ponding occurs.

Three potential foundation designs have been included as part of the Proposal (Section 2.2.1.1), with the two primary foundations options (above ground and partially above ground foundations) minimising the amount of PASS proposed to be excavated. The maximum depth of the primary foundation options is 1.2 mbgl, noting that the dark grey/brown sands and sandy clay which occur more than 2 mbgl are considered the highest risk soils within the Development Envelope (Section 6.3.6). Any PASS soils excavated during construction will be treated with aglime where required, in accordance with the Preliminary ASSDMP, and reused on site where possible. Treated soil will be assessed to validate the adequacy of the lime treatment and retreated and tested where required. The final foundation for each location will be specific to the local soil and groundwater conditions as defined by detailed geotechnical and ASS investigations and revised modelling completed prior to construction (Section 2.2.1.1) and will also ensure that the depth of dewatering does not exceed 2 mbgl at the perimeter of each foundation, and that drawdown does not exceed 0.1 m beyond 100 m from any dewatering location, to ensure any potential exposure of in-situ PASS is localised. In accordance with the Preliminary ASSDMP (Appendix B), appropriate groundwater level triggers will be developed to manage the depth of groundwater extraction within the Development Envelope, thereby limiting the dewatering exposure of PASS.

The Proponent considers that potential impacts of PASS disturbance during construction can be appropriately managed through the implementation of an ASSDMP which will be prepared and implemented in accordance with the Preliminary ASSDMP (Appendix B). On this basis, construction of the Proposal is not expected to result in significant impacts to soil quality as a result of PASS disturbance.

6.6.2. Soil Erosion due to Ground Disturbing Activities

Soil erosion may result in the deterioration of soil condition by removing topsoil and soil structure. This has the potential to impact the health of overlying vegetation, effecting ecosystem function. The clearing of native vegetation and excavation of soils for construction of the Proposal has the potential to increase erosion through exposure of soils to wind and water.

The occurrence of soil erosion within the Development Envelope during construction is unavoidable. Erosion will be limited to ground disturbance areas within the Indicative Disturbance Footprint, of which the majority (94.92%) is within existing cleared areas. The Proposal has been designed to minimise clearing of native vegetation as much as possible, with a maximum clearing extent of 1 ha.

A CEMP (Appendix H) will be implemented during construction of the Proposal to minimise the potential for erosion. Key management measures include the appropriate siting, design and maintenance of

drainage controls and topsoil stockpiles to prevent surface water erosion. All access tracks will be stabilised and watered to minimise the generation of airborne dust and soil.

Through the implementation of mitigation measures within the CEMP, it is expected that any soil erosion as a result of the Proposal will be limited and localised to the disturbed areas during construction. On this basis, the Proposal is not expected to result in significant impacts to soil quality or associated environmental values as a result of erosion.

6.6.3. Soil Contamination from Accidental Loss or Spills of Hydrocarbons and Other Hazardous Materials

Hydrocarbons and other chemicals will be used and stored within the Development Envelope during construction and operation of the Proposal (e.g. fuels, lubricants, cement, admixtures and other chemicals required for concrete batching). There is potential for accidental spills to occur, which may result in contamination of soil and subsequent impacts to environmental values, such as vegetation, fauna habitat, surface water and groundwater systems.

All potentially hazardous substances will be stored and handled in accordance with the *Dangerous Goods Safety Act 2004.* A CEMP (Appendix H) will be implemented during construction of the Proposal to minimise the potential for soil contamination. All liquid chemicals will be bunded and covered/protected from rainfall and stormwater ingress and bunds will be regularly inspected and maintained. Spill response equipment will be readily available and accessible at the site of hazardous materials storage and use to ensure a prompt response to any accidental spills.

Given the provision for appropriate containment and clean-up in the unlikely event of a large spill, the accidental loss or spill of hydrocarbons or other hazardous materials are not expected to result in significant residual impacts to soil quality.

6.7. Environmental Outcomes

No significant impacts to terrestrial environmental quality are expected as a result of the Proposal. In consideration of the proposed avoidance and mitigation measures, the environmental outcomes of the Proposal for the Terrestrial Environmental Quality environmental factor are:

- Impacts to soil quality as a result of the disturbance of PASS will be minor and short-term, and limited to the Development Envelope
- Impacts to soil quality as a result of erosion will be minor and short-term, and limited to the Development Envelope
- Impacts to soil quality as a result of any accidental loss or spill of hazardous materials will be minor and remediated, and limited to the Development Envelope.

Impacts will be managed through the implementation of management plans throughout construction and operation of the Proposal, including a CEMP (Appendix H), and a detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix B) prior to construction.

The Proponent considers that the Proposal can be implemented to meet the EPA's objective for the Terrestrial Environmental Quality environmental factor "*to maintain the quality of land and soils so that environmental values are protected*".

7. Inland Waters

7.1. EPA Environmental Factor Objective

The EPA's objective for the Inland Waters factor is to *"maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected"* (EPA 2018).

For the purposes of EIA, the EPA defines Inland Waters as "the occurrence, distribution, connectivity, movement, and quantity (hydrological regimes) of inland water including its chemical, physical, biological and aesthetic characteristics (quality)" (EPA 2018).

7.2. Relevant Policy and Guidance

Relevant policy and guidance documents for Inland Waters and how they have been considered for the Proposal are summarised in Table 7-1.

Table 7-1: Policy and Guidance for Inland Waters

Policy / Guidance	Consideration
Environmental Factor Guideline: Inland Waters (EPA 2018).	The information provided in this section of the document has been tailored to address the 'considerations for environmental impact assessment' outlined within this guideline.
Rights in Water and Irrigation Act 1914 (RiWI Act)	This Act has been used to inform the description of values of the receiving environment.
Water Quality Guidelines (ANZECC and ARMCANZ 2000)	This document has been used to define potential beneficial uses and ecosystem health of existing inland waters.
Guideline: Identification and Investigation of Acid Sulfate Soils and Acidic Landscapes (DER 2015a)	These documents have been used to guide the identification, assessment and management of water with regard to the presence of PASS.
Guideline: Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes (DER 2015b)	
Operational Policy No. 5.12 – Hydrogeological Reporting Associated with a Groundwater Well Licence (DoW 2009)	This document has been used to guide the assessment of hydrogeological values.

7.3. Receiving Environment

7.3.1. Studies

A Surface Water and Hydrogeological Assessment (Stantec 2025b; Appendix A) was undertaken to investigate the hydrological and hydrogeological regimes within the Development Envelope and to assess potential impacts to inland waters associated with the construction and implementation of the Proposal. The assessment included the following key components:

- Surface water – flood characterisation assessment and modelling to identify inundation areas to inform the future placement of infrastructure and mitigate impacts on surface flow post-construction
- Hydrogeological assessment – characterisation of hydrogeology supported by modelling to predict potential changes in groundwater levels and drawdown extent associated with temporary dewatering during construction
- Preliminary risk assessment – to provide an understanding of key hydrogeological and hydrological risks associated with the Proposal and indicate preliminary mitigation measures to prevent impacts to sensitive environmental receptors.

The assessment was informed by additional hydrological and hydrogeological studies within the region, providing greater context of local processes and sensitive receptors within and surrounding the Development Envelope. Additional studies include a Groundwater and Surface Water Monitoring Program (Stantec 2025a), undertaken over 12 months, to understand the seasonal variability of the groundwater and surface water systems within the Development Envelope, as well as the Preliminary Geotechnical and Baseline Contamination Assessment which assessed the presence of PASS within the Development Envelope (Stantec 2024; Section 6.3.1).

7.3.2. Climate

The Development Envelope is subject to the Mediterranean climate of the Warren bioregion, characterised by hot summers and mild, wet winters (Section 2.5.1). Based on data from the Scott River weather station (station ID: 509199), considered the most representative of climate condition within the Development Envelope, the average annual rainfall is 953.2 mm (Stantec 2025b). The annual average pan evaporation within the Development Envelope has been estimated to be 1,452 mm, indicating a deficit between annual average rainfall and pan evaporation (Stantec 2025b).

7.3.3. Geology and Soils

Within the Development Envelope, the main geological stratigraphic units are the Quaternary alluvium, lake and swamp deposits, the Early Cretaceous Leederville Formation and Triassic Lesueur Sandstone (Stantec 2024). Geology comprises siliceous dune sands deposited unconformably on the Leederville Formation. Within the dune sands, localised diagenetic features comprise organic stained siliceous sands, bleached siliceous sands and shallow sands, overlying ferricrete (‘coffee rock’) (PTG 2025).

The generalised soil profile within the Development Envelope was found to comprise a thin layer of topsoil and dune sand overlying ferricrete, or alternating bands of clayey and sandy soils with pockets of organic and peaty material (Stantec 2024). These units are generally underlain by clayey and sandy soils to a depth of approximately 25 m. Outcrops of ferricrete also occur throughout the Development Envelope (Stantec 2024).

ASS Risk Mapping identifies the soils within the Development Envelope as being of moderate to high risk of ASS occurring within 3 m of the soil surface (DWER 2017). Results of a pH field oxidation assessment (pH_{FOX}) indicated the possible presence of PASS within all samples; however, no AASS were identified. This field, and further laboratory, analysis indicate that PASS is present in all soil types of the Development Envelope that occur more than 1 mbgl (PTG 2025). The dark grey/brown sands and sandy clay which occur more than 2 mbgl are considered the highest risk soils within the Development Envelope due to the presence of elevated concentrations of inorganic sulfur.

Further detail on the geology, soils and PASS within the Development Envelope is described in Section 6 (Terrestrial Environmental Quality).

7.3.4. Surface Water

7.3.4.1. Surface Water Catchments and Waterways

The Development Envelope intersects the Blackwood River catchment and Scott River catchment and several ephemeral waterways, with approximately 14.0 km^2 (39%) of the Development Envelope draining into the Blackwood River and 22.0 km^2 (61%) draining into the Scott River (Figure 7-1; Stantec 2025b). A poorly defined ridgeline occurs through the middle of the Development Envelope, which segregates the eleven Blackwood River and Scott River sub catchments which discharge from the Development Envelope (Figure 7-1; Stantec 2025b).

The minor ephemeral waterways within the Development Envelope typically flow from north-east to south-west towards the Blackwood River, which is located approximately 4 km west of the Development Envelope, and south-east towards the Scott River, approximately 1 km to the south (Figure 7-1).

The Scott River acts as a tributary to the Blackwood River and the confluence of the rivers is located approximately 5.4 km south-west of the Development Envelope. From the convergence onwards, the Blackwood River flows through the Hardy Inlet, before discharging into the Indian Ocean.

During summer, the Blackwood River is recharged by groundwater from the Yarragadee and Leederville Aquifers which contribute 30% to 100% of the rivers water supply. Concurrently, the tributaries of the Blackwood River contract or become dry (Beatty et al. 2009 as cited in Stantec 2025b).

7.3.4.1. Drainage and Flow

There is existing drainage infrastructure within the Development Envelope to facilitate plantation and agricultural activities. This drainage has not been established to coordinate with roads and natural drainage lines, which has resulted in catchment modification and several areas of localised ponding (Stantec 2025b).

There is no available flood extent data or downstream tailwater condition information for Scott River (Stantec 2025b). Surface water modelling indicated that the frequent flow regimes (such as the 50% Annual Exceedance Probability [AEP]) demonstrate a minor inundation extent and a small number of defined flow paths which discharge from the Development Envelope (Stantec 2025b). During frequent flow events, the average flow depth is less than 100 mm across the Development Envelope with defined flow paths conveying depths of approximately 100 mm.

During frequent (50% AEP) and rare flow regimes (1% AEP), peak flow rates vary from 0.5 m^3/s to approximately 20 m^3/s, respectively, with that maximum discharge rate occurring south to the Scott River (Stantec 2025b; Figure 7-2). The modelled maximum velocity of flows during these rare events over the majority of the Development Envelope is less than 0.5 m/s, with localised sections of some waterways near the western and southern boundaries experiencing flows above 0.5 m/s. A few even

more localised sections subject to flow velocities above 2 m/s are too small to be visible at the mapping scale shown (Figure 7-2). The maximum ponding depth during a 50% AEP is approximately 1.2 m, occurring at the south-west of the Development Envelope. In both frequent (approximately 50% AEP) and rare events (1% and 2% AEP), inundated areas with depths greater than 0.5 m typically occur upstream of roads that act as hydraulic barriers, with some ponding occurring in areas of wetlands and perched ponds (Stantec 2025b). Inundation is widespread during rare flow regimes (1% and 2% AEP), with a maximum ponding depth of approximately 2.8 m occurring towards the north of the Development Envelope (Figure 7-3).

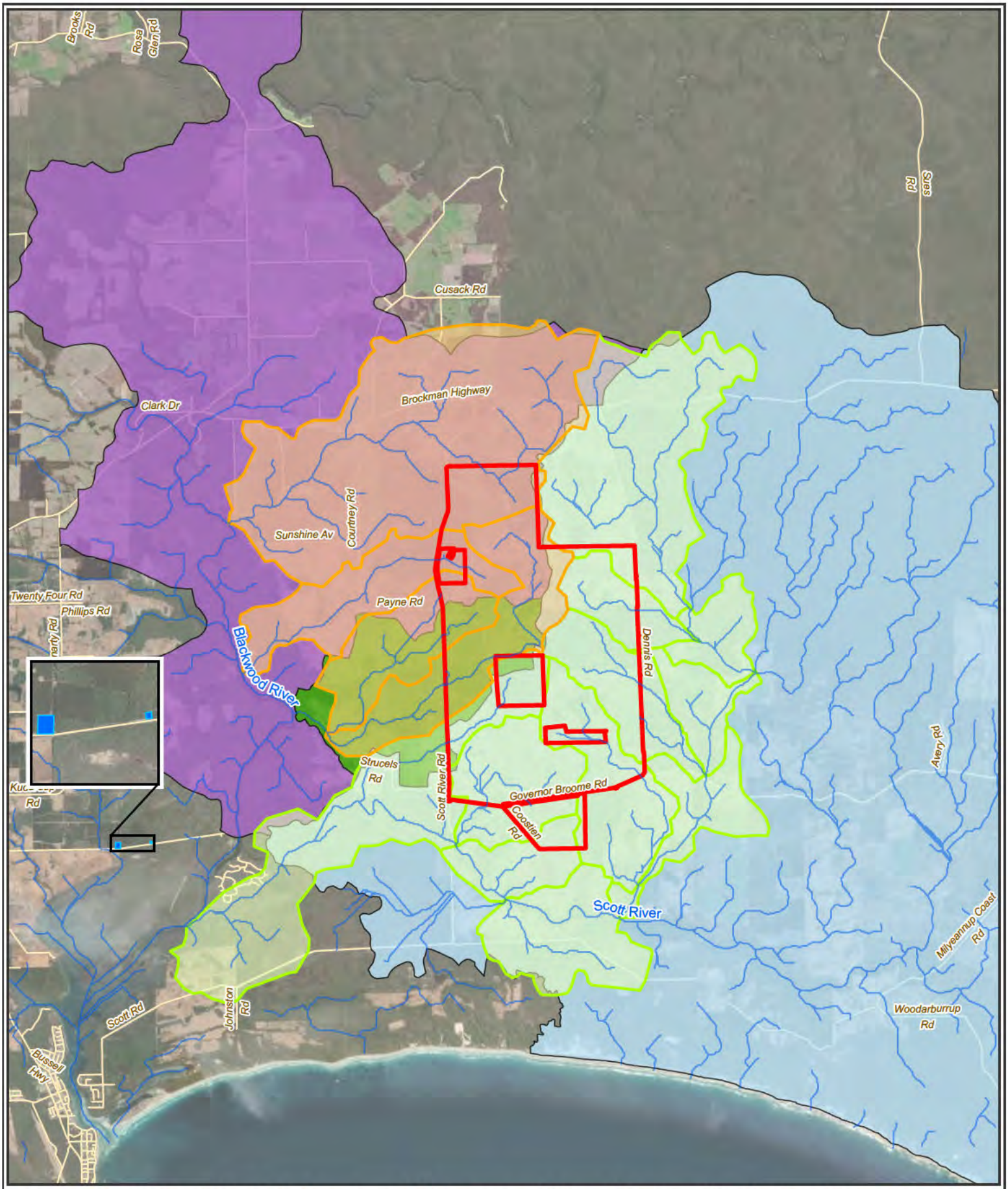


Figure 7-1: Surface Water Catchments and Waterways within and Surrounding the Development Envelope

- Roads
- Rivers and Tributaries
- Development Envelope

Catchment Plan

- Scott River
- Blackwood River

Surface Water Management Subareas (DWER 2018b)

- Beenup
- Scott
- Lower Blackwood

Public Drinking Water Source Areas (DWER 2025d)

- Fisher Road Wellfield Water Reserve

0 1 2 4
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/16/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

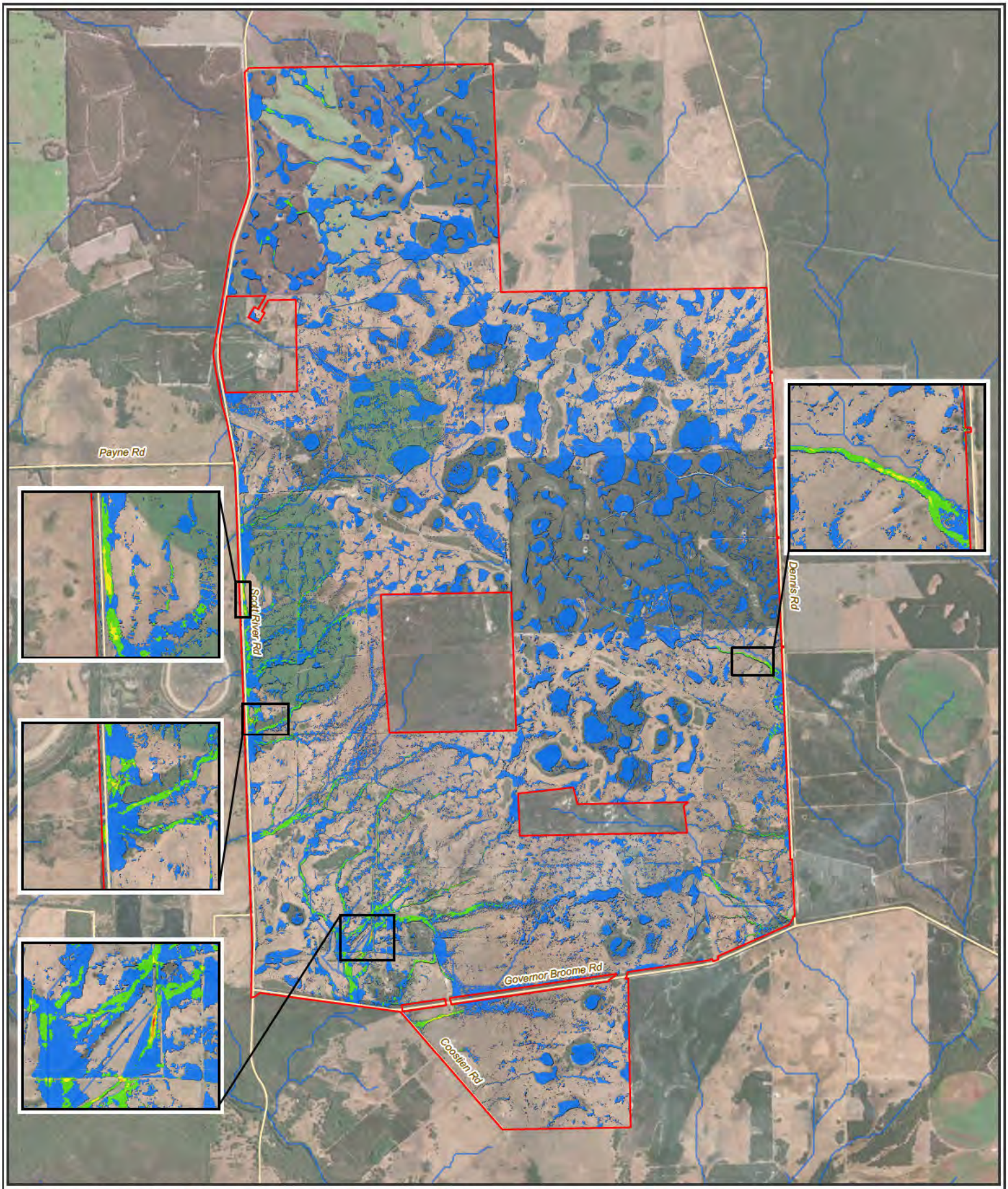


Figure 7-2: 1% AEP Peak Flood Velocity within the Development Envelope

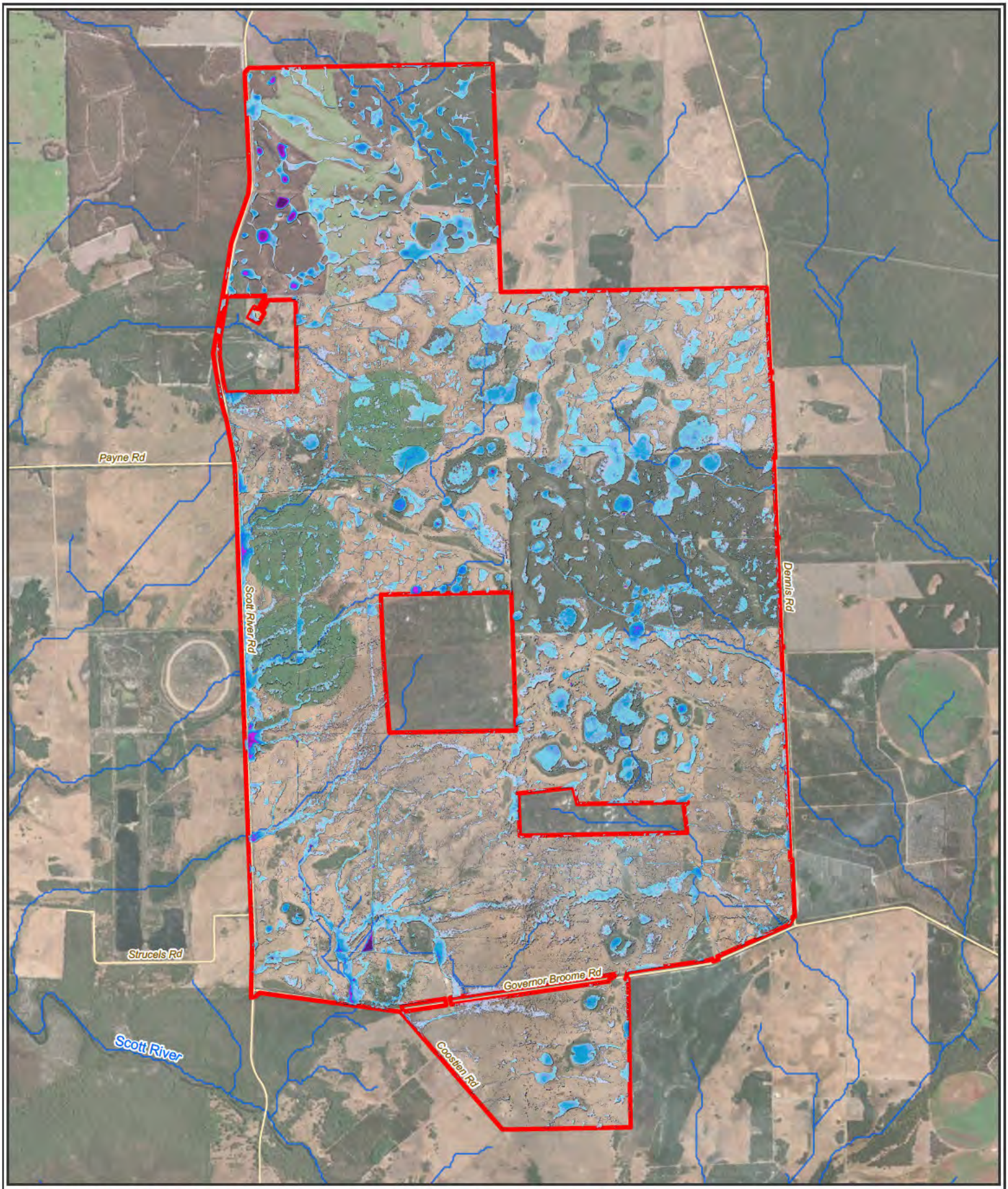


Figure 7-3: 1% AEP Peak Flood Depths within the Development Envelope

7.3.4.2. Wetlands

Within Western Australia, a wetland is defined under the EP Act (Schedule 5) as:

"An area of seasonally, intermittently, or permanently waterlogged or inundated land, whether natural or otherwise and includes lakes, swamps, marsh, spring, damplands, tidal flats or estuary".

According to Geomorphic Wetland mapping, approximately 83% of the Development Envelope is classified as a wetland (WRC 2017 as cited in Phoenix 2025a). While the geomorphic wetland mapping does not include management categories, the following geomorphic wetland types have been identified within the Development Envelope (Semeniuk 1995 and 1997, as cited by Stantec 2025b):

- Sumpland: located within a basin landform and defined as seasonally inundated
- Dampland: located within a basin landform and defined as seasonally waterlogged
- Palusplain: located on a flat landform and defined as seasonally waterlogged.

Field surveys conducted within the Development Envelope have concluded that the mapped Geomorphic Wetland boundaries are inaccurate (Phoenix 2025a). As such, wetland values within the Development Envelope have been assessed based on the three wetland habitat types mapped within its boundaries (Phoenix 2025b); discussed further in Section 9 (Terrestrial Fauna). While a large wetland to the south Governor Broome Road, and a cluster of wetlands in the north, were observed to persist into summer and are considered to have the potential to be permanently inundated (perennial) the wetlands are mostly ephemeral and shallow, with water levels of typically less than 1 m (Phoenix 2025b).

There may be seasonal connection between the Superficial Aquifer where there is locally perched and seasonally present groundwater in proximity to wetlands (Stantec 2025b; Section 7.3.5.1).

Refer to Section 7.3.5.2 for related discussion on groundwater dependent ecosystems [GDEs]) and Section 9.3.6.2 for related discussion on and mapping of wetland habitats, including potentially groundwater dependent wetlands.

7.3.4.3. Surface Water Quality

Surface water quality assessments have been undertaken in the vicinity of the Development Envelope as part of DWER's Healthy Rivers Program. Findings suggest that tributaries have elevated salinity and nutrient concentrations compared to the Scott River, attributable to the clearing within the catchment and agricultural runoff (Stantec 2025b). The waterways experience increased salinity during summer and increased nutrient and salt levels following periods of heavy rainfall. High temperatures, algal blooms and low flow conditions in the summer are known to have contributed to lower dissolved oxygen levels in this catchment (DWER 2024 as cited in Stantec 2025b).

Overall, surface water quality within the Development Envelope is characterised by elevated nutrients, salinity, turbidity, and metals, influenced mainly by agricultural land use and associated runoff, with some tested parameters exceeding health and ecological guideline thresholds (Stantec 2025a). Seasonal effects were not clearly identified due to limited data. Water quality monitoring was undertaken at five surface water creekline discharge sites and three wetlands in April 2024, July 2024, September 2024 and January 2025. Results are summarised as follows:

- pH: Ranged from neutral to alkaline (6.7–7.8). Most values were within regional reference ranges, though two wetland sites exceeded lower guideline triggers in September 2024. Some pH increases were noted but data was insufficient to confirm seasonal effects.
- Salinity: All sites were classified as freshwater, with total dissolved solids (TDS) ranging from 214 to 2,240 mg/L. Some sites exceeded non-potable use salinity triggers. Average salinity during the program (650 mg/L) was higher than past regional data (500 mg/L). Electrical conductivity and turbidity often exceeded guideline triggers, attributed to disturbed agricultural land influences. No clear seasonal trends were observed.
- Ionic composition: generally, Na>Ca>K>Mg (cations), and Cl>HCO_3>SO_4 (anions). Sodium and chloride concentrations exceeded non-potable water triggers at several sites, reflecting salinity trends. Limited data prevented seasonal analysis.
- Nutrients: Total nitrogen and phosphorous levels were variable but mostly exceeded guideline triggers, consistent with regional data. Concentrations are linked to agricultural fertiliser use and soil conditions leading to runoff. An increase in total nitrogen from September 2024 to January 2025 was considered to relate to lower water volumes and increased algae in warmer months.
- Dissolved metals: Most metal concentrations were below detection limits except for iron and aluminium. Iron exceeded non-potable and irrigation guideline triggers widely across creekline and wetland sites. Aluminium exceeded triggers at some wetland sites. Metal elevations likely result from natural mineralisation, land disturbance, runoff, and groundwater irrigation. No clear seasonal patterns were evident.

7.3.4.4. Surface Water Management and Public Drinking Water Areas

The Development Envelope intersects three Surface Water Management Areas: Lower Blackwood, Beenup and Scott Surface (Stantec 2025b). The nearest Public Drinking Water Source Area to the Development Envelope is the Fisher Road Wellfield Water Reserve, located approximately 10 km south-west (Figure 7-1).

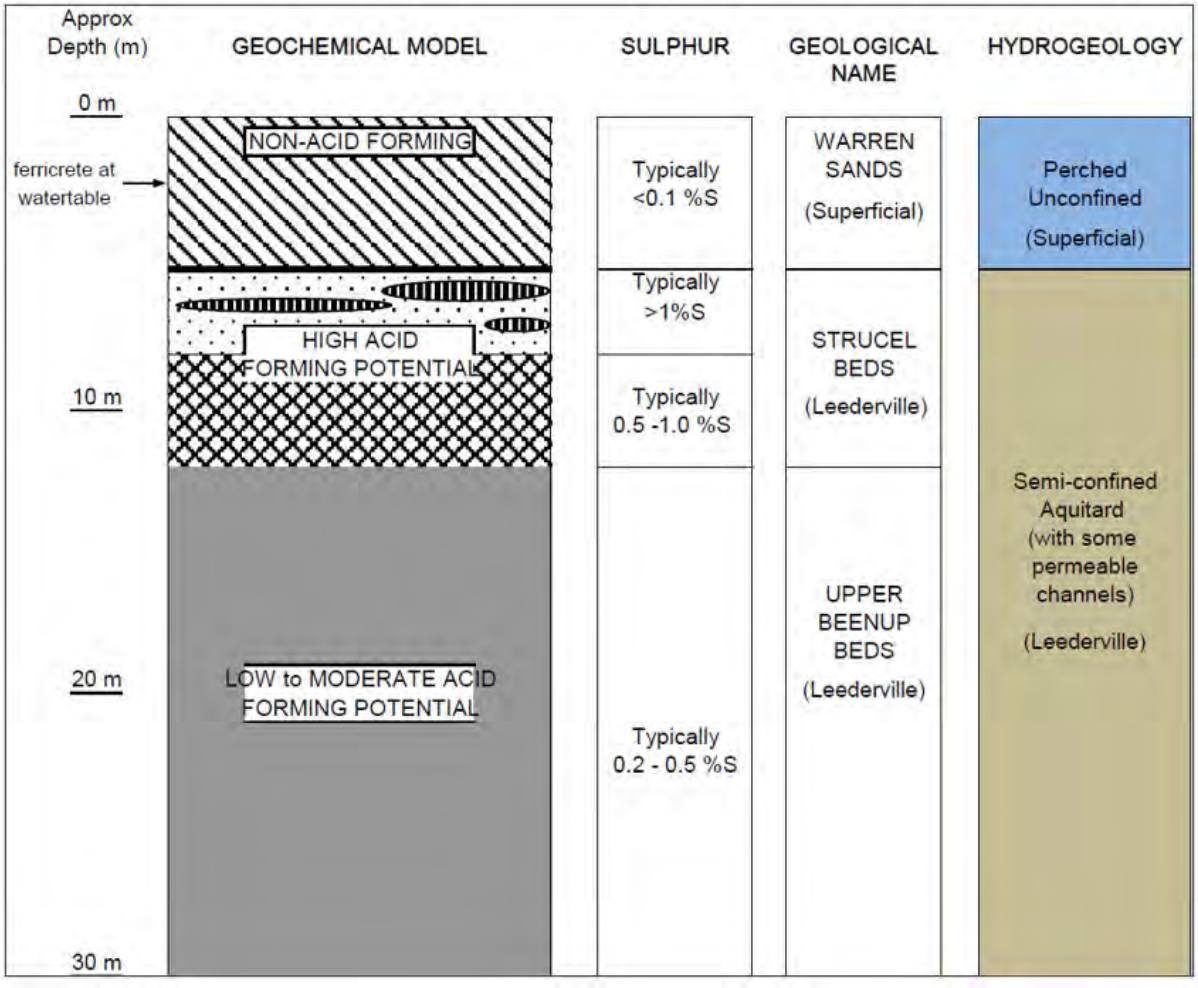
7.3.5. Groundwater

7.3.5.1. Hydrostratigraphy

The groundwater system within the Development Envelope comprises two main aquifers (Figure 7-4; Stantec 2025b):

- Superficial Aquifer
- Leederville Aquifer.

The Lesueur Aquifer is a deeper confined formation that is also known to occur regionally. However, this unit was not encountered during recent hydrogeological investigations and is not expected to be encountered during construction of the Proposal (Stantec 2025b), and as such it is not discussed further in this assessment.



Adapted from BHP 2015, cited in Stantec 2025b

Figure 7-4: Conceptual Hydrological and Geochemical Schematic Model of the Historic Beenup Titanium Mine (adjacent to the Development Envelope)

7.3.5.1.1. Superficial Aquifer

The Superficial Aquifer is separated from the underlying Leederville Aquifer by the Mowen aquitard. Regionally, the Superficial Formation has a saturated thickness of less than 10 m, excluding the coastal dunes and western sections of the coastal plains where it is only a few metres thick (Mohsenzadeh and Diamond 2000, as cited by Stantec 2025b). The Superficial Aquifer occurs in localised areas, comprising

perched groundwater bodies situated above the impermeable beds of the Leederville Formation, along with discrete confinement zones characterised by low permeability within the lateritic (ferricrete) profile (DoW 2009b).

Within the Development Envelope, the Superficial Aquifer is generally less than 3 m deep. This discontinuous, perched aquifer is present across the Development Envelope and likely to be seasonal (Stantec 2025b). The formation is comprised of sand and ferricrete of variable thickness, with the presence of ferricrete potentially representing the accumulation and precipitation of dissolved iron in the watertable. The perched aquifer was identified through groundwater seepage recorded in several shallow test pits across the Development Envelope, with measurements ranging from 1.1 mbgl to 2.0 mbgl (Stantec 2025b). Groundwater standing levels in the Superficial Aquifer across the Development Envelope ranged from 0.11 mbgl to 3.15 mbgl.

The Superficial Aquifer is recharged by direct diffuse rainfall infiltration and downward leakage from creeks, wetlands and irrigation through alluvial soils (Stantec 2025b). Upward leakage from the underlying Leederville Formation may also occur. Lateral flow may serve as an alternate source of recharge, infiltrating from adjacent areas with higher groundwater levels, such as nearby wetlands and dune peaks. During the winter (wet season), the watertable is shallow, with potential for some groundwater expression occurring at the surface and in wetlands. The depth to watertable increases during the drier summer months, with some areas becoming dry. Discharge from the Superficial Aquifer occurs through evapotranspiration, lateral flow and downward leakage into underlying formations.

7.3.5.1.2. Leederville Aquifer (Warnbro Group)

The Leederville Aquifer is a confined aquifer that lies beneath the superficial formations of the coastal plains (Stantec 2025b). In some areas of the Blackwood River the aquifer has been weathered and lateritised and can be found at the surface. The Mowen aquitard consists of two main layers, the Quindalup and Mowen members, which are largely comprised of clay and silty clay. In areas where the Quindalup member contains more sand and the Mowen member is thinner, the overall sand content increases. Together, these two members form a complex unit that merges with the Leederville Aquifer, creating a multi-layered groundwater system composed of alternating sand and clay layers. This system is typically up to 100 m thick but may reach thicknesses of 200 m in some locations (DoW 2009 as cited in Stantec 2025b). These features are defined as the Beenup Beds (sand) and Strucel Beds (clay) (Stantec 2025b).

The Leederville Aquifer is recharged via lateral flow, downward leakage from the Superficial Aquifer and potential upward leakage from the Lesueur Aquifer. The aquifer discharges to rivers, creeks, the coast and other aquifers through vertical leakage.

The Leederville Aquifer was identified in groundwater monitoring bores across the Development Envelope at depths ranging from 0.07 mbgl to 2.25 mbgl (Stantec 2025b).

7.3.5.1. Existing Groundwater Use and Management

A total of 24 registered groundwater bores occur within 500 m of the Development Envelope (Figure 7-5; Stantec 2025b). One of these bores is registered for water supply, one is registered for stock and domestic use, 11 are registered as subject to monitoring and 11 are registered as ‘unknown’ and are expected to be associated with groundwater monitoring for the historic Beenup Mineral Sands Mine.

The Development Envelope occurs within the Beenup Groundwater Management Subarea and Beenup Subarea of the South-West Groundwater Allocation Plan (Figure 7-5; Stantec 2025b). The Development Envelope also intersects Groundwater Management Zone 7, which is classified as ‘a buffer zone area defined by acid sulfate soil plume from Beenup mine site’ (DoW 2009a). The implementation of

Groundwater Management Zone 7 has restricted water use from the Superficial and Leederville aquifers, with no new water allocation, bores or excavations permitted to be constructed within those aquifers within the management zone boundary other than exempt uses, monitoring, replacement of existing bores or remediation (Stantec 2025b).

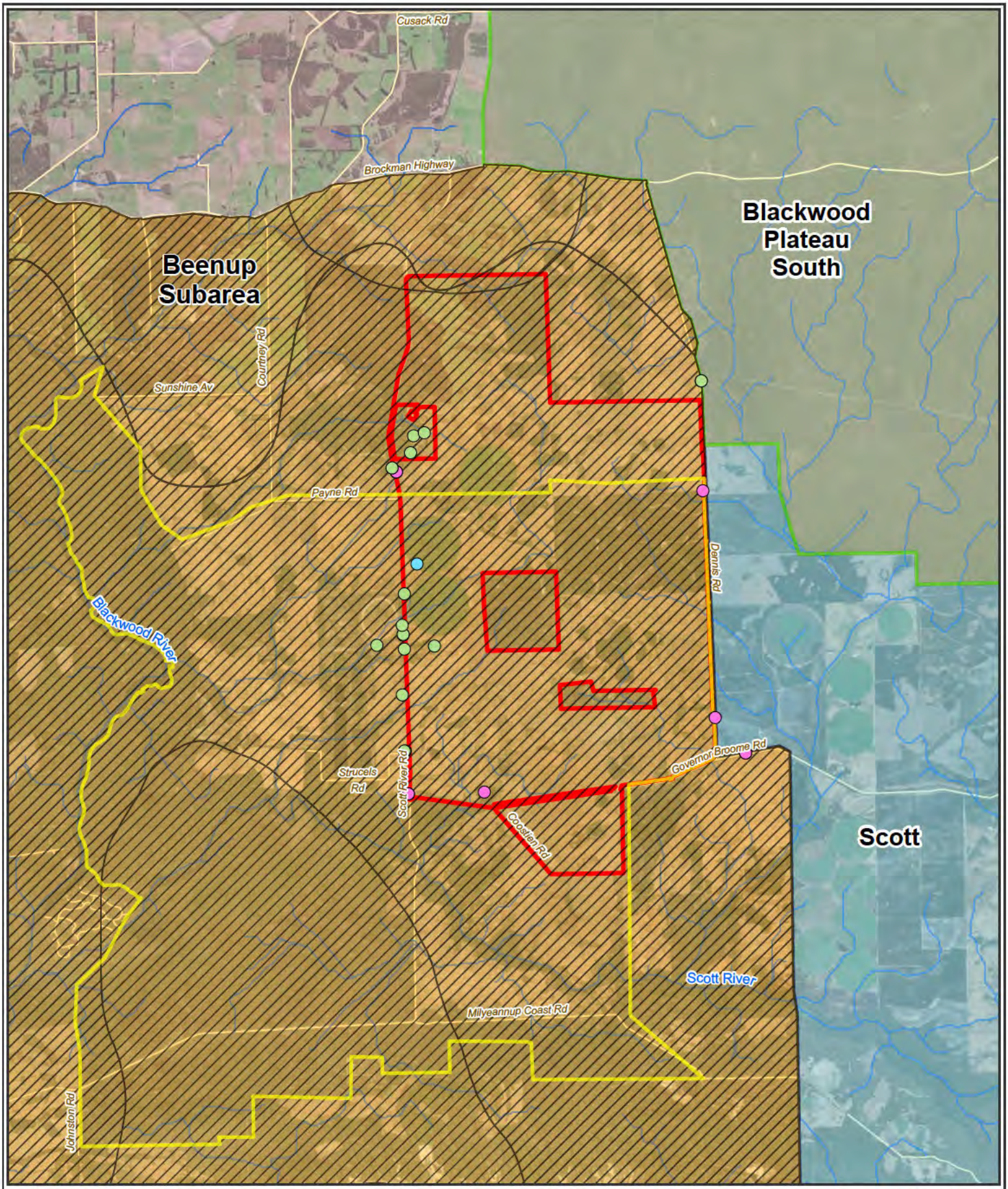


Figure 7-5: Groundwater Management Areas and Registered Bores within and Surrounding the Development Envelope

- Roads
- Rivers and Tributaries
- Development Envelope
- Groundwater Management Zone 7

Groundwater Management Subareas (DWER 2025e)

- Beenup
- Blackwood Plateau South
- Scott

South-west Groundwater Allocation Area (DWER 2025f)

- Beenup Subarea

Registered Bores (BoM 2025c)

- Monitoring
- Stock and Domestic
- Unknown

0 0.5 1 2
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/12/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

7.3.5.2. Groundwater Levels and Flow

Groundwater levels vary slightly across the Development Envelope, based on monitoring undertaken between April 2024 and January 2025 (Stantec 2025b; Stantec 2025a). Watertable levels recorded were:

- -0.11[1] mbgl to 3.15 mbgl in the Superficial Aquifer
- 0.07 mbgl to 2.25 mbgl in the Leederville Aquifer.

Groundwater flow across the Development Envelope within the Superficial Aquifer is likely to be discontinuous, with flow pathways influenced by recharge, evapotranspiration and seasonal rainfall (Stantec 2025b). Groundwater is expected to generally follow the topographic gradient, flowing towards the south or south-west, or south-east within the eastern portion of the Development Envelope.

Within the Leederville Aquifer, higher groundwater levels towards the north of the Development Envelope indicate a southward groundwater flow.

Both the Superficial and Leederville aquifers experience seasonal groundwater level variation, strongly correlated to rainfall, with peak groundwater levels occurring in the winter months and beginning of spring and declining by up to 2 m during dry periods (Stantec 2025b). The shallow bores of the Superficial Aquifer indicate a stronger response to rainfall than the deeper bores of the Leederville Aquifer; however, both aquifers were observed to experience seasonal fluctuation in water levels of between 1-2 m (Stantec 2025b). This is consistent with long-term monitoring undertaken by BHP which demonstrates fluctuations between 1 and 2 m over summer in both the Superficial and Leederville aquifers (BHP 2015 as cited in Stantec 2025b). Groundwater levels are also influenced by seasonal irrigation pumping schemes.

7.3.5.1. Groundwater Quality

The Superficial and Leederville aquifers are generally fresh at a regional level, with TDS of less than 500 mg/L (DoW 2009b). Within the Development Envelope, groundwater was classified as acidic to neutral, and fresh (Stantec 2025a).

Groundwater quality within the aquifers exceeded relevant guideline trigger values, derived from ANZECC & ARMCANZ (2000) and related guidelines on environmental and potable water quality, for multiple water quality parameters (Table 7-2). Generally, there were no clear seasonal trends apparent for most analytes, other than a spike in turbidity and nutrient concentrations in July 2024, a spike in nutrient concentrations in September 2024 and spike in aluminium concentrations in September 2024 (Stantec 2025a). A total of 11 metals were not detected at concentrations above the level of analytical detection across both the Superficial Aquifer and the Leederville Aquifer. A further four metals were recorded at concentrations below guideline triggers, or did not have an available guideline trigger (barium, boron, silicon, sulphur). The remaining four metals (aluminium, copper, iron and manganese) occurred in concentrations exceeding relevant trigger values across the Superficial Aquifer and the Leederville Aquifer.

[1] A negative value indicates watertable levels above the surface

Table 7-2: Groundwater Quality within the Development Envelope

Groundwater Quality Characteristic	Superficial Aquifer	Leederville Aquifer
pH **Trigger value:** 6.8	Classified as acidic to neutral with all pH values exceeding the lower ANZECC & ARMCANZ (2000) trigger value.	Classified as acidic to neutral with all pH values exceeding the lower ANZECC & ARMCANZ (2000) trigger value.
Salinity (TDS) **Trigger value:** 600 mg/L	Classified as freshwater although the Department of Health (DoH; 2014, cited in Stantec 2025a) non-potable use trigger (600 mg/L) was exceeded at three monitoring bores across multiple monitoring events (maximum value 822 mg/L). The exceedances were likely attributable to surrounding agricultural land use.	Classified as freshwater. Dominated by sodium and chloride, with concentrations of Cl exceeding the DoH (2014; cited in Stantec 2025a) non-potable use trigger (250 mg/L) within the Superficial Aquifer at WM03-W-S04 during July 2024 (287 mg/L), September 2024 (320 mg/L), and January 2025 (307 mg/L).
Salinity (Electrical conductivity) **Trigger value:** 300 µS/cm	Exceeded the ANZECC & ARMCANZ (2000) trigger value in the majority of bores across all monitoring events. Exceedances attributed to surrounding land use.	Exceeded the ANZECC & ARMCANZ (2000) trigger value in the majority of bores across all monitoring events. Exceedances attributed to surrounding land use.
Turbidity **Trigger value:** 20 NTU	Exceeded the ANZECC & ARMCANZ (2000) trigger value in the majority of bores across most monitoring events. Exceedances attributed to surrounding land use.	Exceeded the ANZECC & ARMCANZ (2000) trigger value in the majority of bores across most monitoring events. Exceedances attributed to surrounding land use.
Total nitrogen **Trigger value:** 1.2 mg/L	Results ranged between 0.1 mg/L and 42 mg/L. Exceeded the ANZECC & ARMCANZ (2000) trigger value in the majority of bores across most monitoring events.	Below the relevant guideline triggers across all bores and monitoring events (range between 0.2 mg/L and 0.6 mg/L).
Ammonia **Trigger value:** 0.4 mg/L	Exceeded the DoH (2014) non-potable use trigger in three bores across three monitoring events (exceedance ranging from across all bores 0.04 mg/L to 1.2 mg/L with a spike of 35.1 mg/L in September 204 at one bore).	Below the relevant guideline triggers across all bores and monitoring events.
Aluminium **Trigger value:** 0.15 mg/L and 0.2 mg/L	Exceeded the Water Quality Australia (2021) default guideline value (DGV) and the DoH (2014, cited in Stantec 2025a) non-potable use trigger in two bores across four monitoring events.	Below the relevant guideline triggers across all bores and monitoring events.
Copper **Trigger value:** 0.0025 mg/L	Exceeded the Water Quality Australia (2021) DGV in all bores. With exceedances ranging from 0.003 mg/L to 0.006 mg/L.	Exceeded the Water Quality Australia (2021) DGV in all bores, with exceedances ranging between 0.003 mg/L to 0.005 mg/L, excluding a January 2025 spike (0.189 mg/L) in one bore.
Iron **Trigger value:** 0.2 mg/L and 0.3 mg/L	Exceeded the DoH (2014, cited in Stantec 2025a) non-potable use trigger and the ANZECC & ARMCANZ (2000) agricultural long-term trigger value (LTV) in all bores across the majority of monitoring events. Exceedances ranged from 0.2 mg/L to 30.2 mg/L.	Exceeded the DoH (2014 as cited in Stantec 2025b) non-potable use trigger and the ANZECC & ARMCANZ (2000) agricultural LTV in all bores across all but one monitoring event. Exceedances ranged from 2.6 mg/L to 14.9 mg/L.
Manganese **Trigger value:** 0.2 mg/L	Exceeded the ANZECC & ARMCANZ (2000) agricultural LTV in three bores across multiple monitoring events. Exceedances ranged from 0.06 mg/L to 0.61 mg/L.	Exceeded the ANZECC & ARMCANZ (2000) agricultural LTV in two bores across three monitoring events. Exceedances ranged from 0.21 mg/L to 0.61 mg/L.

Source: Stantec 2025b; Stantec 2025a

7.3.5.2. Groundwater Dependent Ecosystems

GDEs require access to groundwater to meet their ecological water requirements (Phoenix 2025c). GDEs can be classified as either obligate or facultative depending upon their degree of groundwater dependency (Eamus et al. 2006). Obligate GDEs are reliant on groundwater for the maintenance of all or part of their ecosystem function. Facultative GDEs use groundwater when it is available; however, its absence does not impact the ecological functioning of the ecosystem.

GDEs include aquatic (wetlands), terrestrial (groundwater dependent vegetation [GDV]) and subterranean ecosystems (BoM 2025b). Subterranean fauna have been assessed as unlikely to be present within the Development Envelope, given the lack of suitable habitat present (Invertebrate Solutions 2024a; Section 5.2). As such, subterranean GDEs are not considered relevant to the Proposal.

Locally perched and seasonally present groundwater within the Superficial Aquifer in proximity to wetlands within the Development Envelope may be seasonally connected (Stantec 2025b). The Leederville Aquifer is not expected to be directly connected to wetlands present within the Development Envelope, with the exception of areas of potential outcropping near the northern boundary.

Known and potential GDV and other potential GDEs (wetland habitats) are described in Section 8.3.2.7 and 9.3.6.2 respectively.

7.4. Potential Environmental Impacts

The potential direct and indirect impacts of the Proposal on inland waters prior to mitigation being applied have been identified as:

- Groundwater drawdown associated with construction dewatering leading to temporary reduction in groundwater levels (quantity) and reduced interaction with surface water
- Excavation penetrating an aquitard causing excessive leakage from the Superficial Aquifer
- Changes to surface hydrological regimes due to Proposal infrastructure
- Changes to groundwater flow due to Proposal infrastructure
- Acidification and/or toxicity of surface water and/or groundwater during construction due to:
    - Disturbance and/or inappropriate handling of PASS
    - Inappropriate management of dewater.
- Reduced quality of surface water and/or groundwater due to erosion, sedimentation or mobilisation of nutrients from ground disturbing activities
- Contamination of surface water and/or groundwater from accidental loss or spills of hydrocarbons and other hazardous materials
- Acidification of groundwater through the draw in of the adjacent Beenup Mineral Sands acid mine plume during construction dewatering
- Groundwater drawdown associated with construction dewatering reducing water security for surrounding bore users.

Associated impacts to GDEs are largely addressed in Section 8 (Flora and Vegetation) and Section 9 (Terrestrial Fauna).

7.5. Mitigation

The Proponent has applied the mitigation hierarchy during the design of the Proposal to reduce the potential impacts to inland waters within and surrounding the Development Envelope as far as practicable.

Specific mitigation and management measures proposed to be implemented by the Proponent have been detailed in Table 7-3. Key management measures are discussed below.

Turbine and other mast/tower foundations have been designed to limit dewatering requirements, while achieving the necessary mass and stability. Three foundation options are being considered (Section 2.2.1.1; Figure 2-3). The specific foundation option chosen for each turbine/mast/tower location will be determined based on detailed site investigation and revised modelling to ensure that any proposed dewatering would not result in significant impacts to groundwater or surface water quality. Dewatering will be managed to ensure drawdown does not exceed 2 mbgl at the perimeter of each foundation nor exceed 0.1 m beyond 100 m from any dewatering location. Below ground foundations will only be used where it is confirmed that the proposed turbine/mast/tower location would not require dewatering.

Borrow pits will be excavated above the groundwater level, and so will not require dewatering, and will be backfilled to a level that prevents groundwater seepage and ponding during high rainfall periods.

Due to the presence of PASS within the Development Envelope (Section 6), the Proponent commits to the preparation and implementation of an ASSDMP prepared in accordance with relevant guidance to manage potential impacts to surface water and groundwater during construction of the Proposal. A Preliminary ASSDMP (PTG 2025; Appendix B) has been prepared which details the proposed management framework, controls and monitoring measures to be included in the detailed ASSDMP, which will be developed following completion of detailed site investigations and detailed design prior to construction of the Proposal. The ASSDMP is expected to be a condition of DA approval.

A CEMP (SynergyRED 2025; Appendix H) has been prepared to manage potential environmental impacts during the construction phase of the Proposal. The CEMP details the management measures used to minimise potential impacts to surface water and groundwater during construction of the Proposal, including key management targets and actions, contingency actions, monitoring and reporting requirements.

Table 7-3: Proposed Inland Waters Mitigation Measures

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Dewatering leading to temporary reduction in groundwater levels and reduced interaction with surface water	• Borrow pits will be constructed above watertable. • Transmission poles and towers will utilise concrete caisson (bored concrete) foundations.	• Civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable • Dewatering will be managed and monitored in accordance with a detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix B), to ensure that drawdown does not present an unacceptable impact on the environment. This will be achieved through: - Application of the following drawdown limits: - Maximum drawdown of 2.0 mbgl at the perimeter of each foundation - Drawdown will not exceed 0.1 m beyond 100 m from any dewatering location - Drawdown will not exceed natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at GDEs (see Section 8 and Section 9). - Use of alternative turbine foundations (Section 2.2.1.1) - Strategic disposal of dewater to, and location of, infiltration basins/trenches around the point of extraction to minimise the cone of depression - Application of other management strategies as required (e.g. sheet piling).	N/A	Potential for minor temporary and localised drawdown during construction. The assessment and significance of this residual impact is detailed in Section 7.6.1.
Penetration of an aquitard causing excessive leakage from the Superficial Aquifer	N/A	• Use of alternative turbine foundations (Section 2.2.1.1) to minimise the requirement to excavate beyond the ferricrete or clay layers of the aquitard.	N/A	Penetration of an aquitard that would lead to excessive leakage for the Superficial Aquifer is unlikely. The assessment and significance of this residual impact is detailed in Section 7.6.2.
Changes to surface hydrological regimes due to Proposal infrastructure	• No clearing of native vegetation growing in association with wetland values, including any	• Civil infrastructure will be located and designed to ensure specific risk-based flood vulnerability requirements have been addressed and will be located outside of the 1% AEP flood extent, where practicable.	N/A	Potential for minor and localised changes to surface water flow and surface water depth.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
	contiguous native vegetation within 50 m.	• Modification of existing drainage infrastructure will be avoided, where possible, unless the proposed modification will improve drainage and not lead to any detrimental impacts to downstream receptors. • Drainage controls (e.g. drains and culverts) will be appropriately located, designed, constructed and maintained to maintain surface water flow regimes and minimise erosion. • Flow velocities will be maintained below 2 m/s upstream and downstream of disturbance areas, including at culvert inlet and outlets. • Design and construction works will ensure that local grading and excavation areas do not create areas of pooled water. • Exposed soils will be vegetated or covered (e.g. with rock or synthetic liners) in disturbed areas where surface water flow velocities exceed 1 m/s and remain below 2 m/s.		The assessment and significance of this residual impact is detailed in Section 7.6.3.
Changes to groundwater flow due to Proposal infrastructure	N/A	• Use of alternative turbine foundations (Section 2.2.1.1).	N/A	Potential for minor and localised upstream mounding and downstream shadowing of groundwater at locations of underground foundations. The assessment and significance of this residual impact is detailed in Section 7.6.4.
Acidification and/or toxicity of surface water and/or groundwater during construction due to: • Disturbance and/or inappropriate handling of PASS • Inappropriate management of dewater.	• Dewater will not be discharged to waterways/wetlands (directly or indirectly). • Borrow pits will be constructed above watertable. • Transmission poles and towers will utilise concrete caisson (bored concrete) foundations.	• PASS disturbance and dewatering will be minimised, managed and monitored in accordance with a detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix B). This will include: - Application of the following drawdown limits: - Maximum drawdown of 2.0 mbgl at the perimeter of each foundation - Drawdown will not exceed 0.1 m beyond 100 m from any dewatering location. - Use of alternative turbine foundations (Section 2.2.1.1) - Strategic disposal of dewater to, and location of, infiltration basins / trenches around the point of extraction to minimise the cone of depression	N/A	Potential for minor and localised impacts to surface water or groundwater quality as a result of PASS disturbance during construction. The assessment and significance of this residual impact is detailed in Section 7.6.5.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
		- Treatment of dewater with lime to ensure the pH is neutral to alkaline (7-8.5) to increase the buffering potential of any dewater being returned to the aquifer - Dewater will be transferred to a limestone lined settlement pond prior to transfer to an infiltration basin/trench and/or reused. - Infiltration basins will be designed and maintained to ensure no overflow/release of treated dewater to surrounding areas, including waterways or wetlands. - Soil treatment, as detailed in Section 6.		
Reduced water quality due to erosion, sedimentation and/or mobilisation of nutrients from ground disturbing activities	N/A	• Ground disturbance adjacent to waterbodies, including wetlands and waterways, will be delayed as long as possible to minimise potential for sedimentation. • The CEMP (Appendix H) will include the following key management in support of minimising erosion: - Runoff from infrastructure (such as the substation, O&M and concrete batching areas) will be captured and directed to an on-site retention basin for settlement and infiltration and/or controlled discharge through a stormwater overflow designed to manage sediment removal and reduce stormwater velocity - Erosion protection will be installed in line with relevant guidelines - Drainage control structures (e.g. drains and culverts) will be appropriately located, designed and constructed to maintain surface water flow regimes and minimise erosion • Civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable. - Flow velocities will be maintained below 2 m/s upstream and downstream of disturbance areas, including at culvert inlet and outlets - Exposed soils will be vegetated or covered (e.g. with rock or synthetic liners) in disturbed areas where velocities exceed 1 m/s and remain below 2 m/s - Implementation of sediment barriers to prevent runoff into wetlands and waterways during construction, where required.	N/A	Potential for minor and localised impacts to surface water or groundwater quality as a result of erosion, sedimentation or mobilisation of nutrients during construction. The assessment and significance of this residual impact is detailed in Section 7.6.6.
Contamination of surface water and/or groundwater from accidental loss or spills of	N/A	• Potentially contaminating substances such as solid and liquid wastes and bulk hydrocarbons will be stored and handled as per the requirements of the *Dangerous Goods Safety Act 2004*.	N/A	Potential for accidental loss or spill of hazardous materials to result in contamination of surface

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
hydrocarbons and other hazardous materials.		• Infrastructure which may be a source of contamination (e.g. substation and switchyard, operations and maintenance building and workshop, concrete batching area, refuelling locations) will be located at least 100 m from any wetland habitat (as defined in Section 9.3.6.2). • The CEMP (Appendix H) will include the following key management relevant to hydrocarbons and hazardous materials: - All liquid chemicals will be bunded. Bunds will be impermeable, have a capacity of 110% of the largest container stored or 25% the total volume stored and be covered/protected from rainfall and stormwater ingress - Bunds will be inspected regularly and kept free of residue, litter and stormwater - All chemical and fuel containing facilities will be regularly inspected for leaks and spills - Storage containers will be labelled as per the relevant SDS - Appropriate spill equipment is to be available during the transportation and handling of hazardous materials - Potentially contaminated water will be treated on site before being discharged into stormwater drainage or contained and removed as contaminated waste.		water, including wetlands, or groundwater. The assessment and significance of this residual impact is detailed in Section 7.6.7.
Draw in of the adjacent Beenup Mineral Sands acid mine plume during construction dewatering	N/A	• Civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable. • Dewatering will be managed and monitored in accordance with a detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix B), including the application of the following drawdown limits: - Maximum drawdown of 2.0 mbgl at the perimeter of each foundation. - Drawdown will not exceed 0.1 m beyond 100 m from any dewatering location.	N/A	No interaction with the Beenup Mineral Sands acid mine plume is expected. The assessment and significance of this residual impact is detailed in Section 7.6.8.
Groundwater drawdown associated with construction dewatering reducing water security for surrounding bore users	N/A	• Civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable. • Dewatering will be managed and monitored in accordance with a detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix B), including the application of the following drawdown limits: - Maximum drawdown of 2.0 mbgl at the perimeter of each foundation - Drawdown will not exceed 0.1 m beyond 100 m from any dewatering location.	N/A	No significant effect on bore productivity is expected. The assessment and significance of this residual impact is detailed in Section 7.6.9.

7.6. Assessment and Significance of Residual Impacts

7.6.1. Dewatering Leading to Temporary Reduction in Groundwater Levels and Reduced Interaction with Surface Water

Dewatering for the construction of Proposal infrastructure may result in groundwater drawdown, causing a temporary reduction in the groundwater level within the Superficial Aquifer, that may in turn lead to reductions in the extent and availability of surface water (Stantec 2025b).

A hydrogeological conceptual model was developed to predict the potential impacts of dewatering for the partial above ground foundation (primary option) on groundwater drawdown extents (Stantec 2025b). Several models applicable to the unconfined Superficial Aquifer were used to predict and analyse a range of aquifer and dewatering variables:

- Cooper Jacobs: Time-variant dewatering from a bore. Used to predict initial dewatering rates for specific time to achieve a target drawdown
- Dupuit-Thiem: Steady-state dewatering from a bore. Used to predict steady-state dewatering discharge rates and distance-drawdown
- Marinelli and Niccoli (2000) model: Steady-state inflow into a mine pit. This model was used to predict steady-state dewatering discharge rates.

The modelling was based on the following assumptions for proposed infrastructure excavations:

- Turbines: 0.8 mbgl and a target groundwater drawdown of 2 mbgl over an excavation of 30 m x 30 m
- Met mast: 1.5 mbgl and a target groundwater drawdown on 3 mbgl over an excavation of 2.2 m x 2.2 m.

Drawdown modelling also conservatively assumed groundwater will be at surface level during dewatering (i.e. drawdown will occur when the watertable is at or near its highest point), which is not anticipated given civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable. The Proponent also commits to a maximum drawdown of 2 mbgl at the perimeter of each foundation for all dewatering required.

The modelling categorised the Development Envelope into two zones based on hydrogeological characteristics and expected horizontal hydraulic conductivity (Figure 7-6; Stantec 2025b).

- Zone 1 (WMO1 bore group) Sandy clay (typical silt, clay range) located in the north of the Development Envelope. Comprises a thin layer of dune sands up to 2.0 mbgl overlying saturated grey and dark grey, interbedded / alternating bands of clayey and sandy soils and frequent pockets of organic and peaty material, likely residual soils developed on the Leederville Formation. Hydraulic conductivity set to 0.5 m/day.
- Zone 2: (WMO2 and WMO3 bore groups) in southern and central south of the Development Envelope, respectively. Sand (typical fine sand range) with hydraulic conductivity set conservatively to 20 m/day. This zone comprises:
    - Southern (WM02 bore group) parts: A layer of dune sands up to 6.0 mbgl with interbedded ferricrete, indurated to a duricrust. The ferricrete was encountered as a thick, massive rock unit directly overlying weakly cemented organic rich sands, likely associated with historic dune swales and lacustrine depositional environments. The soils comprising dominant clay, below the sands, were likely residual soils developed on the Leederville Formation.

- Central southern (WMO3 bore group) parts: Similar to WM02, dune sands up to 6.2 mbgl, with ferricrete encountered as thick, massive rock unit within the sands. Weakly cemented organic rich sands were present directly beneath the ferricrete, extending to 6.2 mbgl before intersecting clayey and sandy soils, likely residual soils developed on the Leederville Formation. A thin layer of sandstone was encountered at 19.65 m overlying more residual soils, encountered to the base of the borehole.

Dewatering at each foundation is expected to occur over approximately 33 days, allowing five days of initial pumping to attain target drawdown, followed by 28-day steady-state pumping to maintain the target drawdown during the concrete curing period (Stantec 2025b). Time taken to achieve target drawdown may vary depending on the conditions of the foundation location.

The results of the modelling indicate that initial pumping rates to achieve target drawdown within five days range between 1,525 m^3/day (meteorological tower within Zone 2) and 2,295 m^3/day (turbines within Zone 2). To maintain target drawdown for 28 days, pumping rates ranged between approximately 293 m^3/day (met mast within Zone 2) and 2,058 m^3/day (turbines within Zone 2). With modelling conservatively based on peak watertable levels, the actual rates required are anticipated to be lower.

The modelled predicted distance-drawdown results vary for dewatering of the turbine towers and meteorological masts given differing target drawdowns, as well as depending on the hydrogeological characteristics of their location within the Development Envelope (Stantec 2025b), as follows (Table 7-4; Figure 7-6):

- Zone 1 (north): Maximum target drawdown depths required for construction are expected to result in 0.5 m of drawdown extending to 43 m from turbine foundations
- Zone 2 (southern and central): Maximum target drawdown depths required for construction are expected to result in 0.5 m of drawdown extending to 117 m from turbine foundations.

The modelled predicted distance-drawdown results are expected to apply throughout each zone, in the event any turbine or met mast were required to be relocated from the points used in the models

Table 7-4: Predicted Steady-State Distance-Drawdown (Dupuit-Thiem Model)

Infrastructure Type	Target Drawdown (m)	Zone*	Predicted Distance-Drawdown (m) from Centre of Bore to a Depth (m) of:			
			>3	2	1	0.5
Turbine tower	2	Zone 1	9.5	17	31	43
		Zone 2	5	17	60	117
Met mast	3	Zone 1**	N/A	N/A	N/A	N/A
		Zone 2	1	6	34	86

Source: Stantec 2025b *Zone 1 is the sandy clay (typical silt, clay range) northern area of the Development Envelope and Zone 2 is the sand (typical fine sand range) found in the remainder of the Development Envelope (Figure 7-6). **Not applicable as no met masts are proposed in this area.

Groundwater levels within the Development Envelope are influenced by seasonal variation, with both the Superficial and Leederville aquifers experiencing natural variation of approximately 1 to 2 m (Stantec 2023b).

While drawdown modelling predicts 0.5 m drawdown extending 117 m from foundations in Zone 2, the Proponent will ensure that drawdown does not exceed 0.1 m beyond 100 m from any foundation location. The modelling undertaken conservatively assumed a surface level watertable (i.e. works conducted during the wet season) and did not account for infiltration of dewater through strategically

placed infiltration basins/trenches. Revised modelling will be undertaken based on detailed geotechnical investigations to ensure drawdown does not exceed 0.1 m beyond 100 m from any foundation location.

Dewatering will be scheduled to occur during the dry season where practicable. Dewatering will be temporary and is expected to be constrained to the Superficial Aquifer, which is expected to recover in the subsequent winter following dry season dewatering (Stantec 2025b). Although the Leederville Aquifer is not expected to be intercepted it is considered that if drawdown in the aquifer were to occur, it would recover rapidly (within a number of weeks or months) as it is recharged by vertical downward leakage from the Superficial Aquifer and horizontal and vertical flow from the north (Stantec 2025b).

Dewatering will be minimised, managed and monitored in accordance with a detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix B) to ensure that drawdown does not present an unacceptable impact on the environment. This will be achieved through the following mitigation:

- Application of the following drawdown limits:
    - Maximum groundwater drawdown of 2.0 mbgl at the perimeter of each foundation (turbines/met masts/towers).
    - Groundwater drawdown will not exceed 0.1 m beyond 100 m from any dewatering location
    - Groundwater drawdown will not exceed natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at GDEs.
- Use of alternative turbine foundations determined based on detailed site investigation and revised modelling (Section 2.2.1.1)
- Strategic disposal of dewater to, and location of, infiltration basins / trenches around the point of extraction to minimise the cone of depression
- Application of other management strategies as required (e.g. sheet piling)
- Civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable

Borrow pits will also be located and designed to ensure that no dewatering is required. The Proponent will continue to refine the design of the Proposal to minimise impacts from dewatering.

Given the implementation of the ASSDMP and the temporary and spatially constrained nature of the proposed dewatering, predicted groundwater drawdown is not expected to significantly impact the existing groundwater regime or interactions with surface water features within or surrounding the Development Envelope.

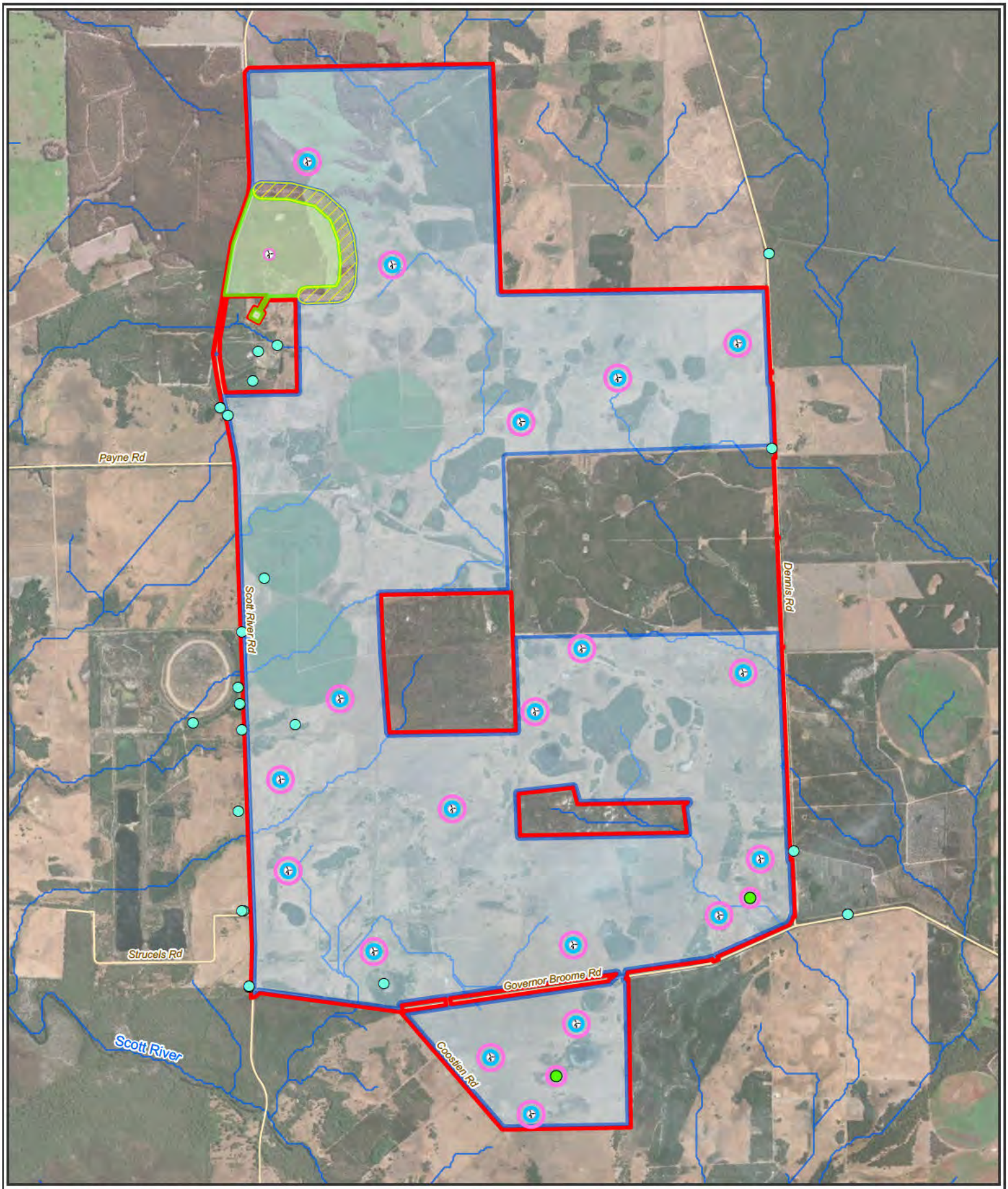


Figure 7-6: Predicted Steady-State Drawdown and Drawdown-Distance Across the Hydrological Zones of the Development Envelope

- Met Masts
- Registered Bores
- Wind Turbine
- Roads
- Rivers and Tributaries
- Zone 2
- Zone 1
- Transition Zone
- Development Envelope

Predicted Drawdown (m)

- 0.5
- 1
- 1.5
- 2
- 2.5
- 3

0 0.5 1 2
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/12/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

7.6.2. Penetration of an Aquitard Causing Excessive Leakage from the Superficial Aquifer

Excavation for Proposal infrastructure has the potential to penetrate ferricrete or clay layers which may be acting as an aquitard and thereby result in excessive leakage from the Superficial Aquifer into the underlying Leederville Aquifer (Stantec 2025b). However, ferricrete is not consistently present (locally confined) across the Development Envelope and a level of existing connection between the aquifers is expected in this location.

The Proposal is not expected to result in significant alterations to groundwater levels as a result of penetration of the aquitard during construction as the use of the two primary foundation options will reduce the likelihood of aquitard penetration, given excavations will be limited to up to 1.2 mbgl.

On this basis, any minor leakage of groundwater from the Superficial Aquifer is not expected to significantly impact the existing groundwater regime within and surrounding the Development Envelope.

7.6.3. Changes to Surface Hydrological Regimes due to Proposal Infrastructure

Proposal infrastructure has the potential to interfere with existing surface water flow patterns resulting in increased volume and duration of surface water inundation upstream, decreased flow downstream of infrastructure, and increased erosion and sedimentation (Stantec 2025b).

Changes to surface water flow and depth as a result of Proposal infrastructure are expected to be minimal given that key infrastructure is not proposed to be located within any potential waterways, inundation zones greater than 0.3 m or high velocity areas exceeding 2 m/s (Stantec 2025b).

Final infrastructure design will ensure that flood vulnerability requirements have been considered. A CEMP (Appendix H) will be implemented during construction of the Proposal to minimise the potential for impacts to surface hydrological regimes and flow patterns. Key management measures include scheduling civil construction, specifically activities that require excavation, to occur during the dry season where practicable, using drainage control methods (e.g. drains and culverts) in flood-prone areas, and vegetating or covering exposed soils in disturbed areas where velocities exceed 1 m/s.

Through the implementation of mitigation measures within the CEMP and considered Proposal design, the Proposal is not expected to result in significant impacts to surface hydrological regimes.

7.6.4. Changes to Groundwater Flow due to Proposal Infrastructure

Proposal infrastructure has the potential to interfere with existing groundwater flow, resulting in upstream mounding and reduced groundwater availability downstream (Stantec 2025b).

The Proposal is not expected to result in mounding or flow disruption beyond levels of natural seasonal variation (Stantec 2025b). The maximum depth of the primary foundation options is 1.2 mbgl and below ground foundations will only be utilised where there is no potential for interception with groundwater.

Through the implementation of the CEMP and ASSDMP, the Proposal is not anticipated to significantly impact groundwater flows.

7.6.5. Acidification and/or Toxicity of Surface Water and/or Groundwater During Construction

PASS material remains benign when in a natural, undisturbed and anoxic state. Construction of the Proposal, including excavation and dewatering, has the potential to expose PASS to oxygen, which may result in impacts to surface water or groundwater quality.

Some impact to groundwater quality is expected as a result of PASS disturbance. Typical impacts include elevated sulfate, low pH, high acidity, elevated acidity, elevated metals (particularly Iron and Aluminium) and low alkalinity in groundwater. It is noted that some areas within the Proposal already observe some of the aforementioned conditions (pers comm. Alan Foley 2025).

Potential for exposure of PASS, during excavation and dewatering has been minimised through the Proposals design. Three potential foundation designs (two primary, one secondary) have been included as part of the Proposal (see Section 2.2.1.1), with the two primary foundation options (above ground and partially above ground foundations) minimising the amount of PASS proposed to be excavated (as detailed in Section 6.6.1) and reducing associated dewatering requirements and magnitude (as detailed in Section 7.6.1). Furthermore, borrow pits will be located and designed to ensure that no dewatering is required.

Any PASS soils excavated during construction will be treated with lime where required, in accordance with the Preliminary ASSDMP (Appendix B) and reused onsite where possible. Treated soil will be assessed to validate the adequacy of the lime treatment and retreated and tested where required.

In accordance with the Preliminary ASSDMP (Appendix B) and as detailed in Section 7.6.1, appropriate groundwater level triggers will also be developed to ensure drawdown does not exceed 2 mbgl at the perimeter of each foundation and does not exceed 0.1 m beyond 100 m from any drawdown location in accordance with DWER guidelines (2015b), thereby limiting the dewatering exposure of PASS. Drawdown at GDEs will also not exceed natural seasonal variation levels (i.e. will remain above natural seasonal low in watertable).

Dewater will be treated for acidity and alkalinity as required in accordance with DWER guidelines (2015b) and the Preliminary ASSDMP (Appendix B) and reinfiltrated on-site where possible through the use of strategically placed infiltration basins/trenches. Dewater will be treated to ensure the pH is neutral to alkaline (7-8.5) to increase the buffering capacity of any dewater being returned to the aquifer. No dewater will be discharged to wetlands or waterways.

The Proponent considers that potential impacts of PASS disturbance during construction can be appropriately managed through the implementation of the ASSDMP, which will be prepared in accordance with relevant guidance and the Preliminary ASSDMP (Appendix B), and is expected to be a condition of the DA approval (Section 3.3). On this basis, construction of the Proposal is not expected to result in significant impacts to surface water or groundwater quality.

7.6.6. Reduced Water Quality due to Erosion, Sedimentation or Mobilisation of Nutrients

Clearing of vegetation, excavation and construction of the Proposal may result in erosion, sedimentation or the mobilisation of nutrients including nitrogen and phosphorus which has potential to impact the quality of surface water or groundwater.

Soil erosion within the Development Envelope during construction is unavoidable. Erosion will be limited to ground disturbance areas within the Indicative Disturbance Footprint, of which the majority (94.92%) is existing cleared areas. The Proposal has been designed to minimise clearing of native vegetation as much as possible, with a maximum clearing extent of 1 ha.

A CEMP (Appendix H) will be implemented during construction of the Proposal to minimise the potential for erosion, sedimentation and mobilisation of nutrients. Key management measures include installing erosion protection in line with relevant guidelines, capturing runoff from Proposal infrastructure in retention basins, vegetating or covering exposed soils in disturbed areas where velocities exceed 1 m/s, using drainage control methods (e.g. drains and culverts) in flood-prone areas, and scheduling civil

construction, specifically activities that require excavation, to occur during the dry season where practicable

Through the implementation of the CEMP, it is expected that erosion or sedimentation as a result of the Proposal will be limited and will not result in significant impacts to the quality of surface water or groundwater.

7.6.7. Contamination of Surface Water and/or Groundwater from Accidental Loss or Spills of Hydrocarbons and Other Hazardous Materials

Hydrocarbons and other chemicals will be used and stored within the Development Envelope during construction and operation of the Proposal (e.g. fuels, lubricants, cement, admixtures and other chemicals required for concrete batching). There is potential for accidental spills to occur, which may result in contamination of soil and subsequent impacts to environmental values, such as surface water and groundwater systems.

All potentially hazardous substances will be stored and handled in accordance with the *Dangerous Goods Safety Act 2004.* A CEMP (Appendix H) will be implemented during construction of the Proposal to minimise the potential for surface water or groundwater contamination. Spill response equipment will be readily available and accessible at the site of hazardous materials storage and use to ensure a prompt response to any accidental spills. All liquid chemicals will be bunded and covered/protected from rainfall and stormwater ingress and bunds will be regularly inspected and maintained. Any infrastructure which may be a source of contamination (e.g. substation and switchyard, operations and maintenance building and workshop, concrete batching areas, refuelling locations) will be located at least 100 m from wetlands.

Given the provision for appropriate contaminant containment and clean-up in the unlikely event of a large spill, the accidental loss or spill of hydrocarbons or other hazardous materials are not expected to result in significant residual impacts to surface water, groundwater.

7.6.8. Draw In of the Adjacent Beenup Mineral Sands Acid Mine Plume during Construction Dewatering

Dewatering for the Proposal has potential to interact with the acid mine plume from the adjacent Beenup Mineral Sands mine, resulting in acidification of groundwater.

However, the groundwater levels within the Development Envelope are higher than the adjacent Beenup Mineral Sands mine, with no suspected interaction (Stantec 2025b). Furthermore, the modelled drawdown extent of the Proposal does not interact with the acid groundwater plume (Stantec 2025b).

Through the implementation of the management measures outlined in the ASSDMP (Table 7-3), the Proposal is not expected to interact with the Beenup Mineral Sands acid mine plume.

7.6.9. Groundwater Drawdown Reducing Water Security for Surrounding Bore Users

Temporary reductions in the groundwater level within the Superficial Aquifer from dewatering may result in impacts to surrounding bores users.

Section 7.6.1 describes the modelling assessment undertaken to predict the extent of groundwater drawdown during construction. As discussed in this section:

- The Proponent will ensure that dewatering does not exceed 2 mbgl at the perimeter of each foundation and no more than 0.1 m beyond 100 m from any drawdown location

- The secondary foundation option (below ground) will only be used where it is confirmed prior to construction that dewatering would not be required.

No registered bore is intersected by the area of predicted drawdown (0.5 m contour) (Figure 7-6). Given this, and the temporary nature of dewatering, the Proponent does not anticipate any impact to surrounding bore users.

7.7. Environmental Outcomes

No significant impacts to surface water or groundwater are expected as a result of the Proposal. In consideration of the proposed avoidance and mitigation measures, the environmental outcomes of the Proposal for the Inland Waters environmental factor are:

- Minor, localised (i.e. largely within the watertables natural seasonal variation and managed to within 100 m of each dewatering location), and temporary impact to groundwater levels as a result of construction dewatering, with the Superficial Aquifer expected to recover by the subsequent winter period following construction
- No excessive leakage of the Superficial Aquifer as a result of excavations penetrating an aquitard
- Minor, short-term and localised acidification of groundwater as a result of construction dewatering
- Minor and localised impact to surface and ground water flows as a result of Proposal infrastructure
- Minor, localised and temporary impacts to surface water and/or groundwater quality resulting from ASS disturbance and management, erosion and sedimentation, mobilisation of nutrients, and/or the accidental loss or spill of hazardous materials
- No interaction with the Beenup Mineral Sands acid mine plume
- No impact on surrounding bore users.

Impacts will be managed through the implementation of management plans, including a CEMP (Appendix H) and a detailed ASSDMP prepared in consideration of Preliminary ASSDMP (Appendix B).

The Proponent considers that the Proposal can be implemented to meet the EPA's objective for the Inland Waters environmental factor "*to maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected"*.

8. Flora and Vegetation

8.1. EPA Environmental Factor Objective

The EPA's objective for the Flora and Vegetation factor is to "*protect flora and vegetation so that biological diversity and ecological integrity are maintained*" (EPA 2016a).

For the purposes of EIA, the EPA defines 'flora' as native vascular plants and 'vegetation' as groupings of different flora patterned across the landscape that occur in response to environmental conditions (EPA 2016a).

8.2. Relevant Policy and Guidance

Relevant policy and guidance documents for Flora and Vegetation and how they have been considered for this Proposal are summarised in Table 8-1.

Table 8-1: Policy and Guidance for Flora and Vegetation

Policy / Guidance	Consideration
Environmental Factor Guideline: Flora and Vegetation (EPA 2016a)	The information provided in this section addresses the 'considerations for environmental impact assessment' outlined within the guideline.
Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment (EPA 2016d)	This document guides the appropriate obtainment and collation of flora and vegetation data to be used in EIA. All studies conducted for the Proposal have been undertaken with regard for this guidance document.
Approved Conservation Advice for Scott River Ironstone Association (DSEWPaC 2013).	This advice identifies the key diagnostic characteristics, conservation objectives, critical habitat, key threats and priority management actions for Scott River Ironstone Association to guide the EIA.
Survey Guidelines for Australia's Threatened Orchids. Guidelines for detecting orchids listed as "Threatened" under the *Environment Protection and Biodiversity Conservation Act 1999* (DoE 2014)	This guidance was considered in the design of the targeted flora searches as part of the Detailed and Targeted flora and vegetation survey.

8.3. Receiving Environment

8.3.1. Studies and Survey Effort

A Detailed and Targeted flora and vegetation survey has been undertaken over approximately 99.95% of the Development Envelope (Phoenix 2025c). The field survey was conducted in spring 2023 across three phases to target certain flora flowering periods, particularly conservation significant flora. Additional Targeted flora searches were also undertaken in November 2024. The survey covered approximately 3,891.6 ha (the Survey Area).

An additional Reconnaissance flora and vegetation assessment was undertaken to fill the gap in the Phoenix (2025c) survey effort, covering approximately 0.05% of the Development Envelope (ELA 2025b). The survey covered approximately 1.72 ha. For the purposes of EIA, the data collected from this survey has been combined with that obtained during the Detailed and Targeted flora and vegetation survey (Phoenix 2025c).

The details and spatial extents of the above survey areas are provided in Table 8-2 and presented in Figure 8-1.

Several other flora and vegetation surveys have been conducted within the vicinity of the Survey Area, providing a greater understanding of the flora and vegetation values within the broader region to inform survey efforts. These include:

- Proposed Milyeannup Wind Farm - Single season detailed flora and vegetation assessment (Biota 2009a)
- Scott National Park - Flora and vegetation surveys conducted between 1990 – 1991 (Robinson and Keighery 1997)
- ESA C98 - Site inspection report (Woodman 2019b)
- ESA C458 - Site inspection report (Woodman 2019a).

Table 8-2: Flora and Vegetation Studies

Survey	Area (ha)	Scope & timing	Study/Survey Effort	Limitations
Detailed flora and vegetation survey for a Proposed Wind Farm in Scott River (Phoenix 2025c **Appendix I**	3, 891.56	The initial field survey was conducted across three phases in Spring 2023: • 1 – 5 September 2023 • 23 – 27 October 2023 • 13 – 17 November 2023. Additional targeted searches were conducted on 20 November 2024. The scope of the survey included: • A desktop assessment of databases and available literature to identify potential flora and vegetation values • Field surveys to establish and survey quadrats and relevés, as well as undertake targeted flora searches along meandering transects within habitats considered likely to support conservation significant flora and within previously recorded locations or significant plants • Mapping of vegetation communities and condition and compilation of a species inventory • Identification of conservation significant flora and vegetation communities.	The field survey included a total of 102 sample sites (72 10 x 10 m quadrats, 30 relevés). A total of 123 mapping notes were taken to provide supplementary data.	Limitations and constraints associated with this field survey are detailed as follows: • Not all historical significant flora records identified in the desktop review were visited. As such, these have been assumed as present (see Section 8.3.3.1).
Wind Farm in Scott River - Ecological Gap Survey (ELA 2025b) **Appendix J**	1.72	The Reconnaissance flora and vegetation assessment was conducted on 26 June 2025. The scope of the survey included: • A desktop assessment of the Phoenix (2025c) report to obtain information relating to conservation significant flora and ecological communities • A field survey to establish relevés • Mapping of vegetation communities to expand upon mapping completed by Phoenix (2025c).	The field survey included a total of three relevés.	Limitations and constraints associated with this field survey are detailed as follows: • The flora and vegetation survey was undertaken outside of the recommended survey timing for this region (September – November). However, detectability of species for the requirement of a Reconnaissance flora and vegetation survey was not considered to be a constraint as a post survey flora likelihood of occurrence assessment was undertaken in view of survey timing. An additional Targeted flora survey will be conducted within this survey area prior to development of the Proposal.

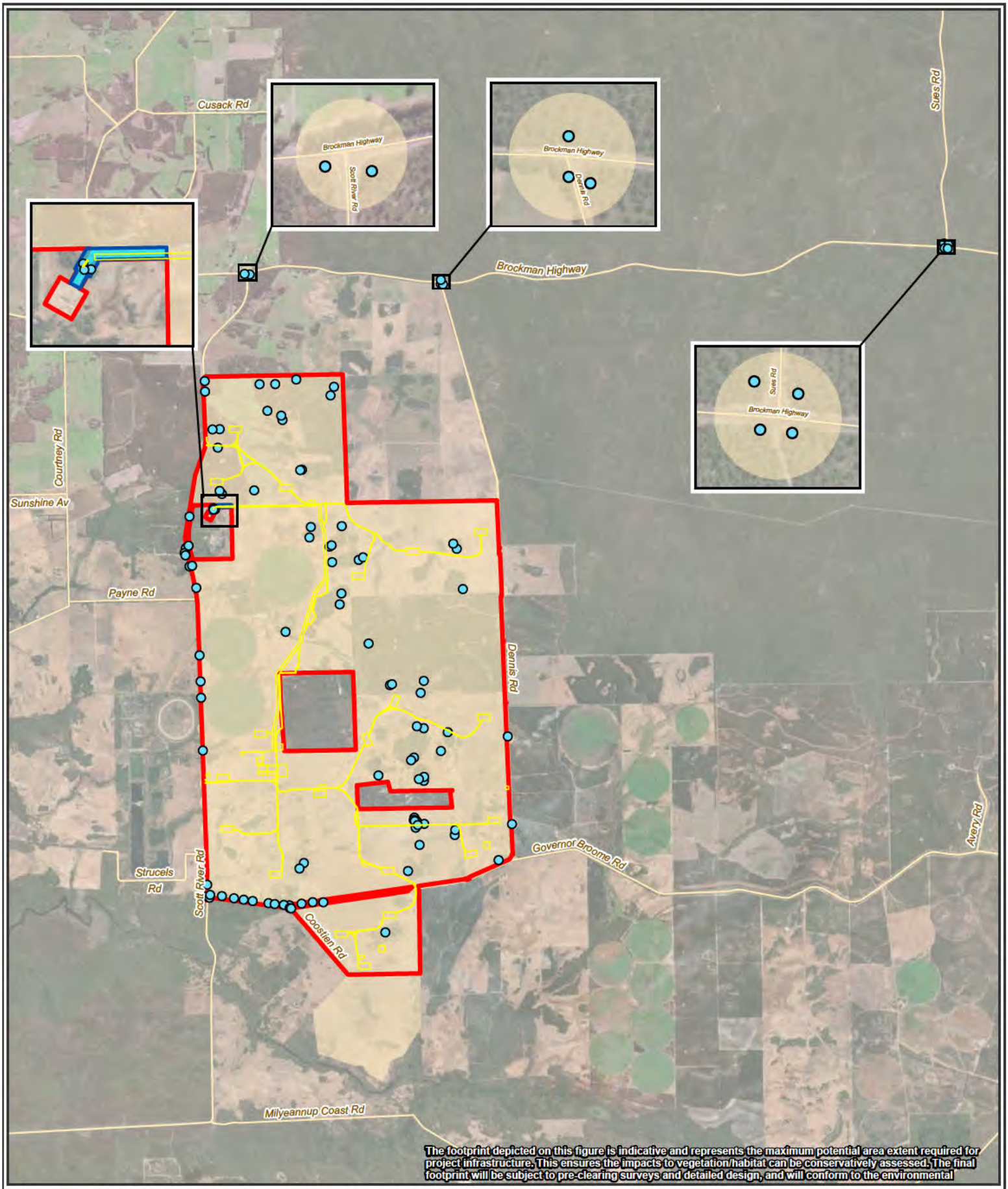


Figure 8-1: Flora and Vegetation Survey

- Sample Sites
- Roads
- Development Envelope
- Indicative Disturbance Footprint
- Survey extent of Gap Ecological Survey (ELA 2025b)
- Survey Extent of Phoenix (2025c) Detailed and Targeted Flora and Vegetation Survey

0 0.5 1 2
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

8.3.2. Vegetation

8.3.2.1. Interim Biogeographic Regionalisation of Australia

The Interim Biogeographic Regionalisation for Australia (IBRA) defines 89 bioregions across Australia, based on a range of biotic and abiotic factors such as climate, vegetation, fauna, geology and landform (Thackway and Cresswell 1995; DCCEEW 2024a). These bioregions are further refined into 419 subregions representing more localised and homogenous geomorphological units in each bioregion (DCCEEW 2024a). IBRA divides WA into 26 biogeographic regions and 53 subregions based on dominant landscape characteristics of climate, lithology, geology, landform and vegetation.

The Development Envelope is located predominantly within the Warren bioregion and subregion of the same name (WAR01) (Table 8-3). A small area in the north of the Development Envelope occurs within the Jarrah Forest bioregion and Southern Jarrah Forest (JAF02) subregion (Table 8-3).

Table 8-3: IBRA Subregions within the Development Envelope

IBRA subregion	Description	Total Extent (ha)	Total Extent within the Development Envelope (ha)	Proportion of Extent within the Development Envelope (%)
Warren	Dissected undulating country of the Leeuwin Complex and Albany Orogen with loamy soils supporting Karri Forest, laterites supporting Jarrah-Marri forest, leached sandy soils in depressions and plains supporting paperbark/sedge swamps, and Holocene marine dunes with *Agonis flexuosa* woodlands.	844,771.62	3,586.45	0.42
Southern Jarrah Forest (JAF02)	Jarrah-Marri forest on laterite gravels and in the eastern part, by Wandoo – Marri woodlands on clayey soils. Eluvial and alluvial deposits support *Agonis* shrublands. In areas of Mesozoic sediments, Jarrah forests occur in a mosaic with a variety of species-rich shrublands.	261,0294.94	10.40	<0.01
Total			3,596.85	-

8.3.2.2. Land Systems

Land systems mapping prepared by the Department of Primary Industries and Regional Development (DPIRD) provides a comprehensive and standardised description of landscapes, soils and vegetation of Western Australia at a regional scale (DPIRD 2022). These surveys describe the biophysical characteristics of each region and subsequently divide each region into land systems; land systems being defined as repeating patterns of topography, soils and vegetation (DPIRD 2022). The Development Envelope intersects two land systems: the Nillup Plain System and the Scott River Plain System (Table 8-4).

Table 8-4: Land Systems within the Development Envelope

Land System	Description	Total Extent (ha)	Total Extent within the Development Envelope (ha)	Proportion of Extent within the Development Envelope (%)
Nillup Plain System	Poorly drained plain, in the southern Donnybrook Sunkland. Sandy gravel, non-saline wet soil, grey deep sandy duplex, loamy gravel and pale deep sands. Jarrah-Marri-paperbark woodland.	50,929.98	15.66	0.03
Scott River Plain System	Poorly drained coastal plain, in the southern Donnybrook Sunkland. Non-saline wet soil and pale deep sand. Heaths, sedgelands and Jarrah-Marri-paperbark woodland.	63,905.0	3,581.19	5.60
Total			3,596.85	-

8.3.2.3. Pre-European Vegetation Associations

Vegetation type and extent have been mapped at a regional scale by Beard (2013) who categorised vegetation into broad vegetation associations (VAs). Based on this mapping, DPIRD has compiled a list of vegetation extent and types across Western Australia (DPIRD 2019; Shepherd *et al.* 2002).

Nine pre-European VAs occur within the Development Envelope (Table 8-5). All these VAs have greater than 30% of their pre-European extent remaining within the Warren and Jarrah Forest Bioregions.

The VA with the greatest proportion of its current extent represented in the Development Envelope is VA 1137, with 17.61%, all others have less than 10% of their current extents represented within the Development Envelope. The largest area of any one unit within the Development Envelope is VA 27, with 442.96 ha mapped within the Development Envelope. All others cover between less than 0.01 ha (VA 1134) and 226.61 ha (VA 3) within the Development Envelope.

Table 8-5: Pre-European Vegetation Associations

Vegetation association	Extent within the Warren and Jarrah Forest Bioregions			Extent within Development Envelope (ha)*	Proportion (%) of Current Extent within the Development Envelope
	Pre-European extent (ha)^	Current extent (ha)	Pre-European extent remaining (%)		
3, Medium Forest; Jarrah-Marri	2,640,853.64	1,799,419.74	68.14	226.61	0.01
14, Low Forest; Jarrah	93,960.86	70,081.19	74.59	51.63	0.07
27, Low woodland; paperbark (*Melaleuca* sp.)	120,081.46	88,997.90	74.11	442.96	0.50
51, Sedgeland; reed swamps, occasionally with heath	55,829.09	31,217.95	55.92	193.15	0.62
949, Low woodland; *Banksia*	3,196.76	1,539.26	48.15	117.31	7.62
973, Low Forest; paperbark (*Melaleuca rhaphiophylla*)	2,477.29	1,484.22	59.91	18.01	1.21
975, Low woodland; Jarrah	4,890.86	4,042.13	82.65	18.46	0.46
1134, Medium woodland; Jarrah (south coast)	37,488.91	30,358.47	80.98	0.75	<0.01
1137, Shrublands; *Melaleuca incana, Hakea tuberculata, Viminaria juncea* scrub on ironstone, south coast	1,079.83	346.53	32.09	61.01	17.61
Total				1129.89	-

^ Data Source: 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report) (GoWA 2019).

*The total extent of vegetation associations within the Development Envelope does not align with the total extent of the native vegetation types mapped by Phoenix (2025c) due to the broadscale nature of the State (GoWA 2019) vegetation mapping.

8.3.2.4. Vegetation Types

A total of 18 vegetation types were identified within the Development Envelope, covering a total of 3,596.85 ha (Phoenix 2025c). The majority (approximately 81%) of the Development Envelope (2,902,29 ha) comprises Cleared areas (2,476.41 ha), Plantations (Egg, Psp, 413.56 ha) and Water (12.32 ha). Vegetation type EmmAffMtAsDb, a Jarrah woodland, represents the largest area of intact native vegetation, covering 132.85 ha (approximately 4%) of the Development Envelope (Table 8-6; Figure 8-2).

Table 8-6: Vegetation Types within the Development Envelope

Vegetation types	Description	Extent within Survey Area (ha)	Extent within Development Envelope** (ha)	% of Development Envelope	Extent within Native-vegetated Portion of Survey Area* (%)
Aff	Low sparse woodland to woodland of *Agonis flexuosa* var. *flexuosa*, over variable low grassland of pasture weed species.	98.90	99.04	2.75	12.51
AmBsHc	Tall open shrubland variously composed of *Acacia myrtifolia*, *Banksia occidentalis*, and *Taxandria inundata*, over mid sparse shrubland variously composed of *Beaufortia sparsa*, *Hakea sulcata*, and *Hakea lasianthoides*, over variably present low to tall open sedgeland to sedgeland variously composed of *Hypolaena caespitosa*, *Machaerina rubiginosa*, and Melanostachya ustulata.	1.64	1.10	0.03	0.21
AsLs	Occasionally present low open woodland of *Agonis flexuosa* var. *flexuosa*, over tall open to closed shrubland of *Astartea scoparia*, over tall sparse sedgeland to sedgeland of *Leptocarpus scariosus*, *Machaerina rubiginosa*, and *Cyathochaeta clandestina*.	24.02	24.02	0.67	3.04
CcTpCeOh	Mid woodland to open forest of *Corymbia calophylla*, *Eucalyptus marginata* subsp. *marginata*, and occasionally *Agonis flexuosa* var. *flexuosa*, over variable mid to tall sparse shrubland to shrubland of *Taxandria parviceps*, *Xanthorrhoea preissii*, and *Acacia myrtifolia*, over tall sedgeland of *Cyathochaeta equitans*, *Anarthria scabra*, and *Hypolaena caespitosa*, over low sparse forbland of *Opercularia hispidula*, *Patersonia occidentalis* var. *latifolia*, and *Dasypogon bromeliifolius*.	75.26	36.01	1.00	9.49
CcTlXpAp	Mid open woodland to open forest of *Corymbia calophylla* occasionally with *Eucalyptus marginata* subsp. *marginata*, over tall sparse shrubland to shrubland of *Taxandria linearifolia*, variably with *T. parviceps* and *Acacia myrtifolia*, over mid open shrubland of *Xanthorrhoea preissii*, *Grevillea manglesioides* subsp. *manglesioides*, *and Hakea lasianthoides*, over tall sparse sedgeland to sedgeland of *Anarthria prolifera*, *Lepidosperma* sp. Blackwood (R. Davis 7696), and *Mesomelaena tetragona*.	2.12	-	-	0.27
ClcVj	Mid open to closed shrubland of *Calothamnus lateralis* var. *crassus*, *Adenanthos detmoldii*, and *Comesperma virgatum*, over tall open rushland/sedgeland variably composed of *Viminaria juncea*, *Leptocarpus laxus*, and *Leptocarpus scoparius*.	0.79	0.79	0.02	0.10
Egg	Planted mid woodland of **Eucalyptus globulus* subsp. *globulus* over low isolated grasses to sparse grassland of **Bromus diandrus* and **Lolium perenne* with variable collection of isolated herbs.	415.43	412.29	11.46	-

Vegetation types	Description	Extent within Survey Area (ha)	Extent within Development Envelope** (ha)	% of Development Envelope	Extent within Native-vegetated Portion of Survey Area* (%)
EmmAffMtAsDb	Mid open woodland to woodland of *Eucalyptus marginata* subsp. *marginata*, over variably composed low open woodland to woodland of *Agonis flexuosa* var. *flexuosa*, *Nuytsia floribunda*, and *Allocasuarina fraseriana*, over mid sparse to open shrubland of *Melaleuca thymoides*, *Jacksonia horrida*, and *Xanthorrhoea preissii*, over tall sedgeland of *Anarthria scabra*, *Lyginia imberbis*, and *A. prolifera*, over low sparse forbland of *Dasypogon bromeliifolius* and *Phlebocarya ciliata*.	135.20	132.85	3.69	17.11
EmmTpAs	Low to mid woodland to open forest of *Eucalyptus marginata* subsp. *marginata*, over tall sparse to open shrubland of *Taxandria parviceps* and *Melaleuca preissiana*, over tall sparse to open sedgeland of *Anarthria scabra*, *Juncus pallidus*, and *Machaerina articulata*.	28.43	10.62	0.30	3.60
EmmTpGoMtPu	Mid open woodland to open forest of *Eucalyptus marginata* subsp. *marginata* and *Corymbia calophylla*, over tall sparse to open shrubland of *Taxandria parviceps*, with clumps of *Kingia australis* and/or *Dasypogon hookeri*, over low sparse to open shrubland of *Gompholobium obovatum*, *Acacia browniana* var. *browniana*, and *Hibbertia cunninghamii*, over tall open sedgeland of *Anarthria prolifera*, *Mesomelaena tetragona*, and variable dense clumps of *Lepidosperma leptostachyum*, over tall sparse to open forbland of *Patersonia umbrosa* var. *xanthina*, *Lomandra pauciflora*, *Tetrarrhena laevis*.	2.13	-	-	0.27
EmmXpMtDb	Low to mid open woodland to forest of *Eucalyptus marginata* subsp. *marginata* and *Agonis flexuosa* var. *flexuosa*, over mid sparse shrubland of *Xanthorrhoea preissii*, *Kunzea recurva*, and *Hakea ceratophylla*, over tall sparse to open sedgeland of *Mesomelaena tetragona*, *Hypolaena pubescens*, and *Anarthria scabra*, over low sparse forbland to forbland of *Dasypogon bromeliifolius*, *Conostylis aculeata* subsp. *aculeata*, and *Microtis media* subsp. *media*.	79.05	73.46	2.04	10.00
Mj	Tall open sedgeland to sedgeland of *Machaerina juncea*, *Leptocarpus scariosus*, and *Lepidosperma longitudinale*.	106.69	90.54	2.52	13.50
MpXpHfSs	Variably present low sparse woodland of *Melaleuca preissiana*, over mid to tall sparse to open shrubland of *Xanthorrhoea preissii*, variably with *Homalospermum firmum* and/or *Astartea scoparia*, over variable low to tall open sedgeland of *Sporadanthus strictus*, *Loxocarya cinerea*, and *Leptocarpus* spp.	3.84	3.83	0.11	0.49

Vegetation types	Description	Extent within Survey Area (ha)	Extent within Development Envelope** (ha)	% of Development Envelope	Extent within Native-vegetated Portion of Survey Area* (%)
MrCh	Low to mid woodland of *Melaleuca rhaphiophylla* occasionally with *M. preissiana*, over irregular sparse rushland of *Cycnogeton huegelii*, *Lepidosperma longitudinale*, and *Juncus pallidus*.	41.39	41.39	1.15	5.24
MrTjLs	Low open woodland to woodland of *Melaleuca rhaphiophylla* and/or *Melaleuca preissiana*, over tall open to closed shrubland of *Taxandria juniperina*, *Astartea scoparia*, and occasionally *Callistachys lanceolata*, over sedgeland of *Leptocarpus scariosus*, *Cycnogeton huegelii*, and *Aphelia cyperoides*.	93.64	93.64	2.60	11.85
PeeLs	Low to mid open shrubland of *Pericalymma ellipticum* var. *ellipticum*, variously with *Grevillea papillosa* and/or *Grevillea diversifolia* subsp. *subtersericata*, over tall open sedgeland to sedgeland of *Leptocarpus scariosus*, *Chordifex amblycoleus*, and *Juncus pallidus*.	16.07	16.07	0.45	2.03
Psp	Planted mid open woodland of **Pinus* sp.	1.60	1.27	0.04	-
TiLs	Tall shrubland of *Taxandria inundata*, *Astartea scoparia*, and *Calothamnus lateralis* var. *crassus*, over open sedgeland to sedgeland of *Leptocarpus scariosus*, *Juncus pallidus*, and *Machaerina juncea*.	40.99	40.99	1.14	5.19
XpAs	Mid sparse to open shrubland of *Xanthorrhoea preissii*, *Gompholobium tomentosum*, and *Taxandria parviceps*, over tall open to closed sedgeland of *Anarthria scabra*, *A. prolifera*, and *Hypolaena caespitosa*.	25.55	23.84	0.66	3.21
XpMdLm	Mid sparse to open shrubland of *Xanthorrhoea preissii*, *Acacia myrtifolia*, and *Kunzea recurva*, over low sparse shrubland to shrubland of *Melaleuca densa*, *Pimelea rosea* subsp. *rosea*, and *Hibbertia stellaris*, over tall open sedgeland to sedgeland of *Loxocarya magna*, *Mesomelaena tetragona*, and *Hypolaena pubescens*.	15.05	6.40	0.18	1.90
Non-vegetated units					
Cleared	Devoid of native vegetation.	2,673.22	2,476.41	68.85	-
Water	Areas of open water.	12.32	12.32	0.34	-
Total		3,893.33	3,596.85	100.00	100.00

*Phoenix (2025c) survey area. **Small areas equating to less than 1% of the Development Envelope were extrapolated.

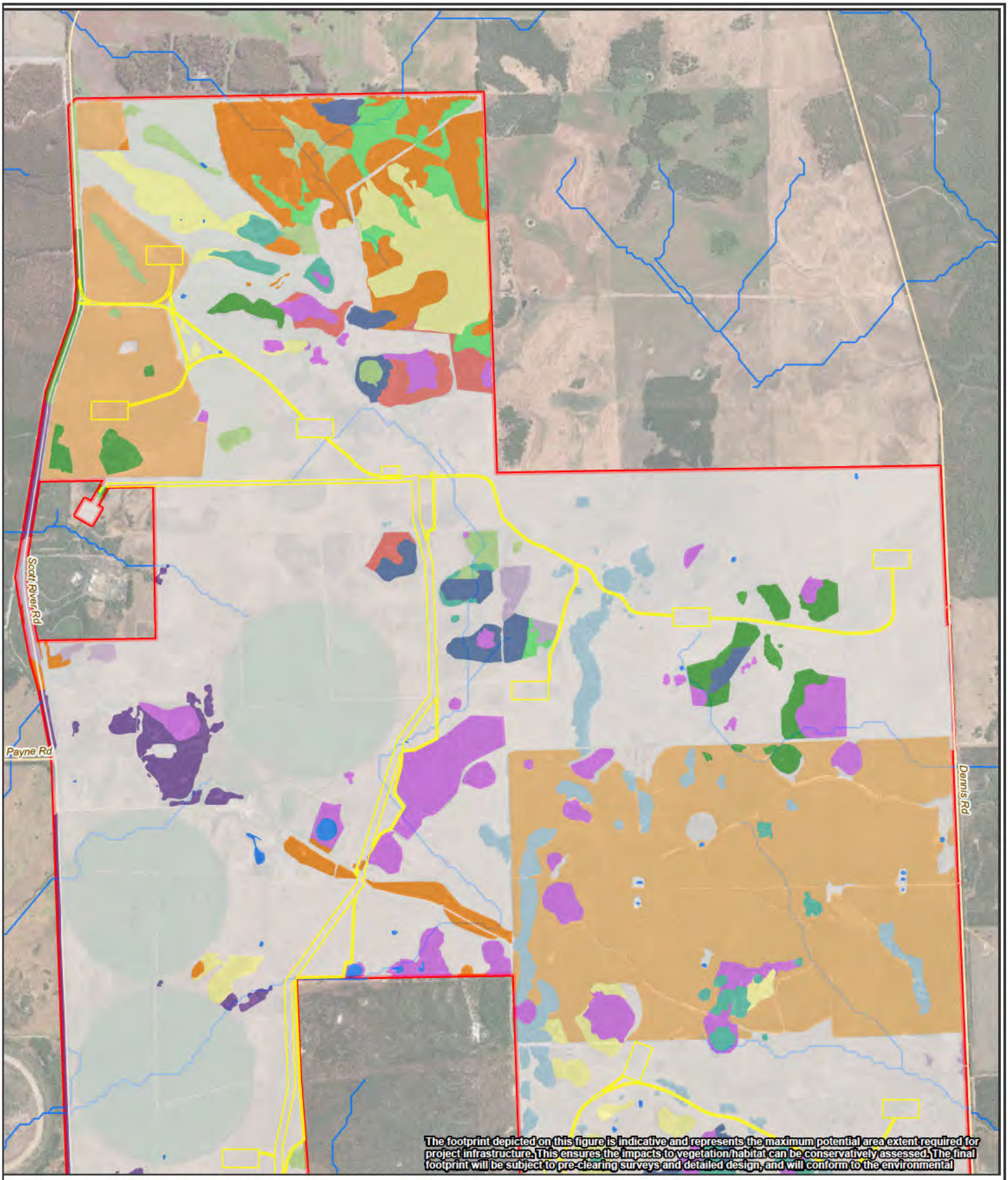
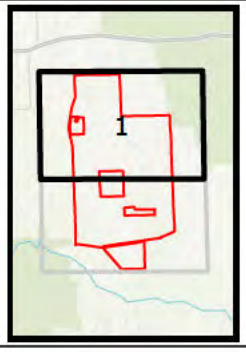


Figure 8-2: Vegetation Types (Page 1 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint
- Cleared

Veg type

- Aff
- AsLs
- CcTpCeOh
- Egg
- EmmAffMtAsDb
- EmmTpAs
- EmmXpMtDb
- Mj
- MpXpHfSs
- MrCh
- MrTjLs
- PeeLs
- TiLs
- Water
- XpAs



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

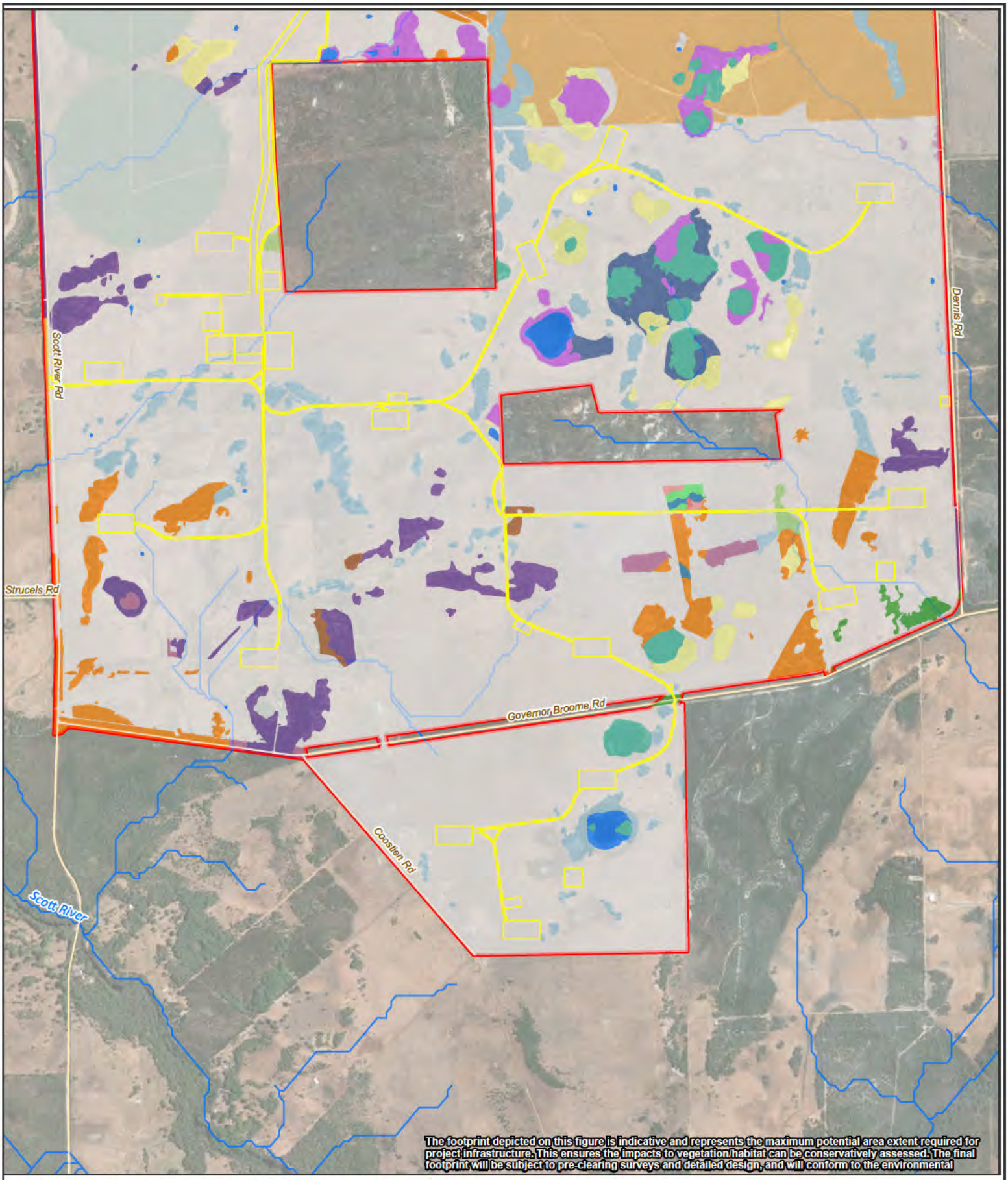


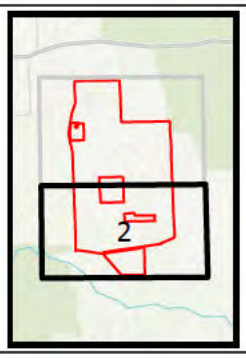
Figure 8-2: Vegetation Types (Page 2 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

- Cleared

Veg type

- Aff
- AmBsHc
- AsLs
- CcTpCeOh
- ClcVj
- Egg
- EmmAffMtAsDb
- EmmTpAs
- EmmXpMtDb
- Mj
- MpXpHfSs
- MrCh
- MrTjLs
- PeeLs
- Psp
- TiLs
- Water
- XpAs
- XpMdLm



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

8.3.2.5. Vegetation Condition

The majority (approximately 80%) of vegetation within the Development Envelope is considered to be in Completely Degraded condition based on the Keighery (1994) vegetation scale provided in the EPA *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment* (Phoenix 2025c; EPA 2016d; Table 8-7; Figure 8-3).

Table 8-7: Vegetation Condition across the Development Envelope

Condition Rating	Extent within Survey Area (ha)	Extent within Development Envelope (ha)	% of Development Envelope
Pristine	30.20	25.62	0.71
Excellent	248.99	237.67	6.61
Very Good	178.74	165.08	4.59
Good	124.95	112.15	3.12
Degraded	207.89	154.07	4.28
Completely Degraded	3,090.25	2889.94	80.35
Water (not assessed)	12.31	12.31	0.34
Total	3,893.33	3596.85	100.00

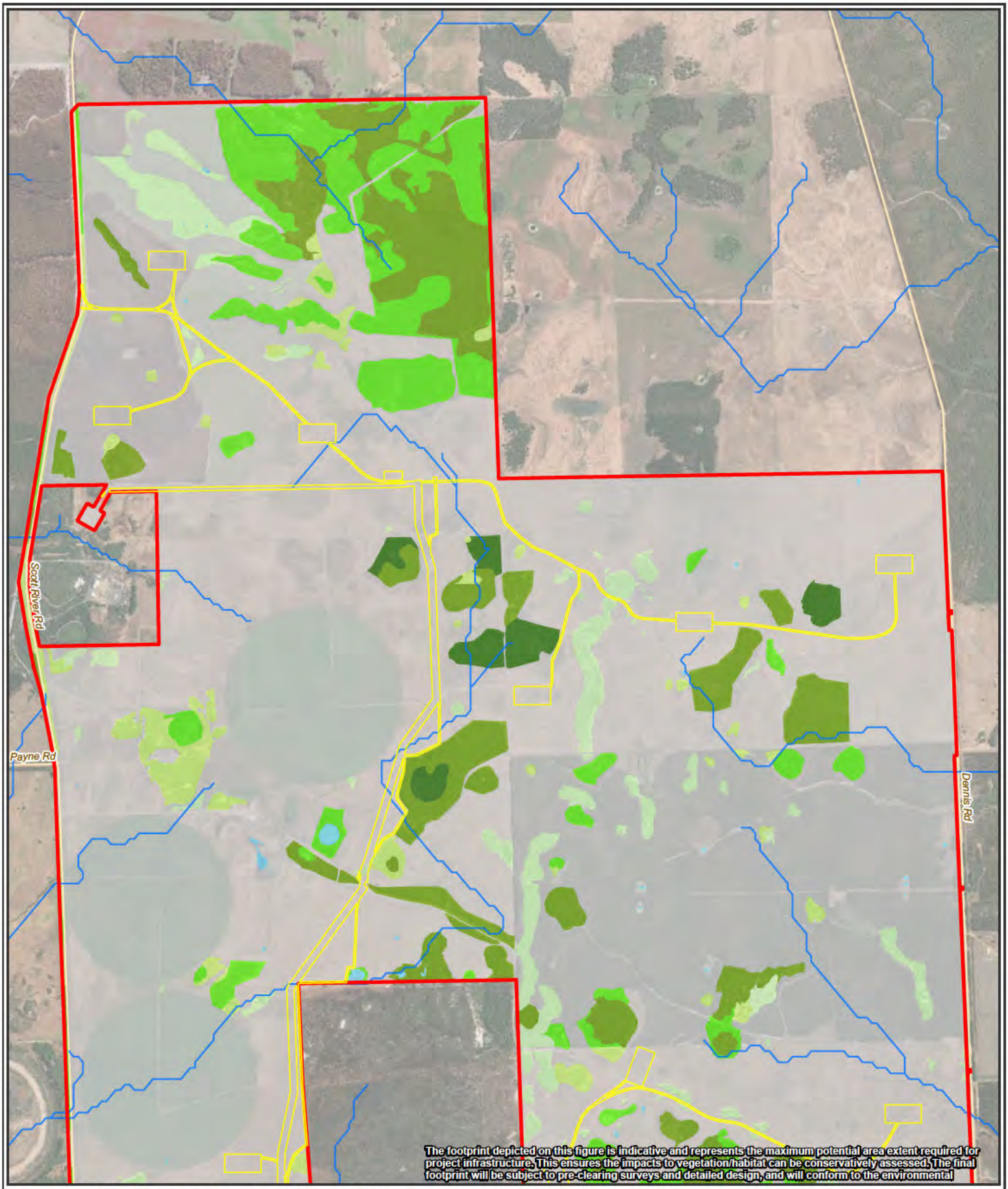
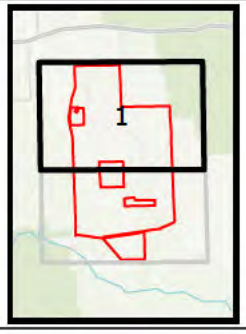


Figure 8-3: Vegetation Condition (Page 1 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Vegetation condition

- Pristine
- Excellent
- Very Good
- Good
- Degraded
- Completely degraded
- Water



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

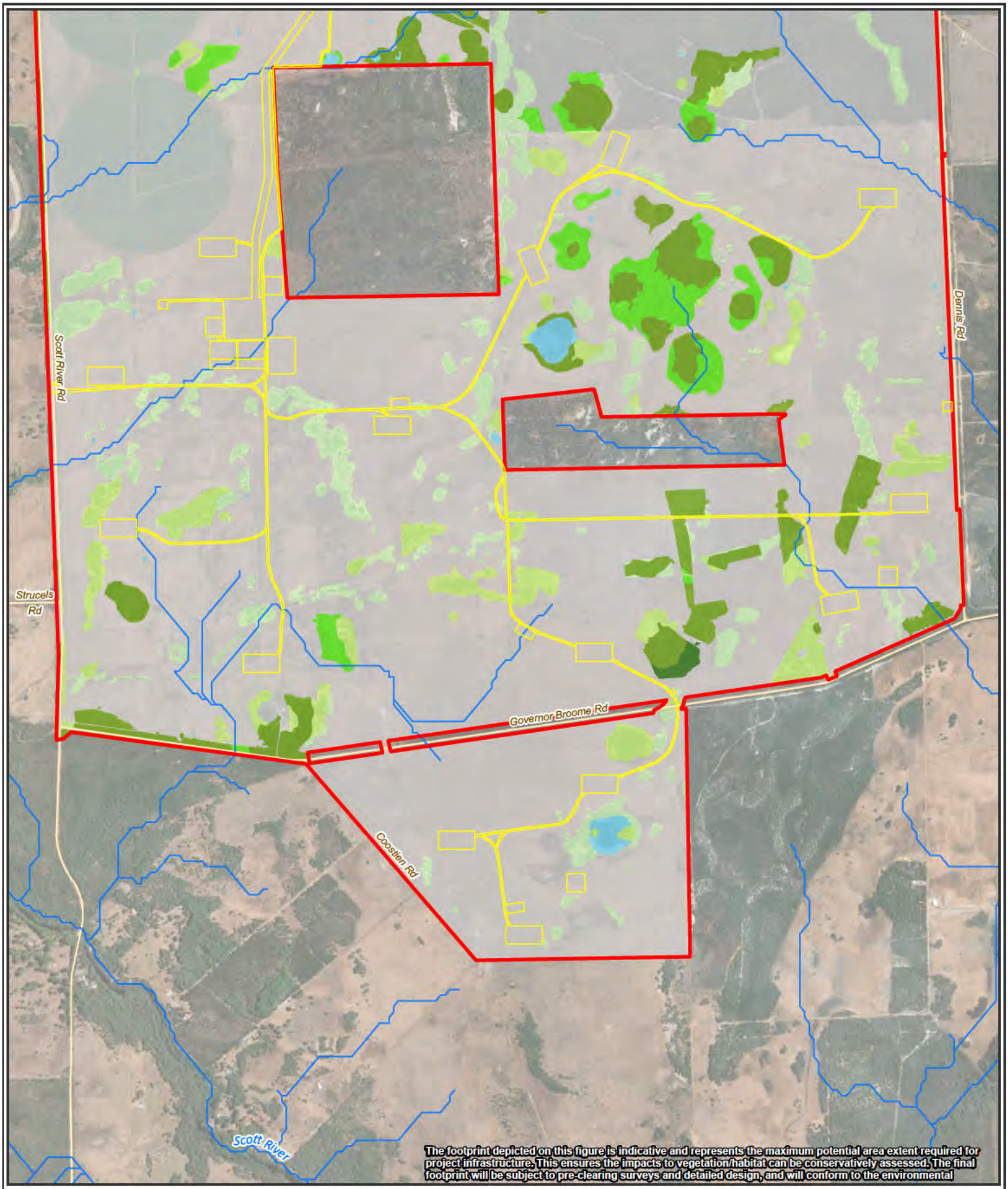
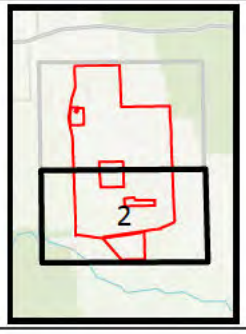


Figure 8-3: Vegetation Condition (Page 2 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Vegetation condition

- Pristine
- Excellent
- Very Good
- Good
- Degraded
- Completely degraded
- Water



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

8.3.2.6. Conservation Significant Vegetation

Threatened and Priority Ecological Communities

One TEC listed under the EPBC Act and BC Act intersects the Development Envelope, namely the Scott River Ironstone Association Community (Scott River Ironstone TEC; listed as Endangered [EN] under the EPBC Act and BC Act) (Figure 8-4). Four vegetation types were considered representative of this TEC, and as such are considered to be of regional significance, including:

- AmBsHc
- EmmTpAs
- Mj
- XpMdLm.

A total of 109.5 ha of Scott River Ironstone TEC was delineated within the Survey Area, with 83.58 ha occurring within the Development Envelope. In accordance with the *Approved conservation advice for Scott River Ironstone Association* (DSEWPaC 2013), occurrences of XpMdLm, EmmTpAs, Mj and AmBsHc mapped as Degraded were not defined as TEC.

The Development Envelope was also assessed for the presence of the *Empodisma* peatlands of southwestern Australia TEC (listed as EN under the EPBC Act and BC Act). None of the vegetation types recorded within the Development Envelope were considered representative of this TEC, due to a lack of key indicator species, community structure and peaty soils (DCCEEW 2023a; Phoenix 2025c).

In addition, none of the vegetation types present within the Development Envelope or Survey Area were found to represent any Priority Ecological Communities (PECs) as listed by DBCA.

Restricted Vegetation Types

Three vegetation types within the Development Envelope were identified as restricted communities as they occupy less than 1.0% of the of the native vegetated portion of the Survey Area (Phoenix 2025c; Table 8-6). As such, they are considered locally significant. These are:

- AmBsHc
- ClcVj
- MpXpHfSs.

Habitat for Significant Flora Species

Nine vegetation types within the Development Envelope (AmBsHc, AsLs, ClcVj, EmmAffMtAsDb, EmmTpAs, EmmXpMtDb, TiLs, XpAs and XpMdLm) were identified as being of local significance as they support populations of Threatened or Priority flora species.

Vegetation type EmmXpMtDb was identified as being primary habitat for the greatest amount of conservation significant species, with nine Threatened/Priority flora species recorded within its surveyed extent.

Figure 8-4: Threatened Ecological Communities (Page 1 of 2)

Roads

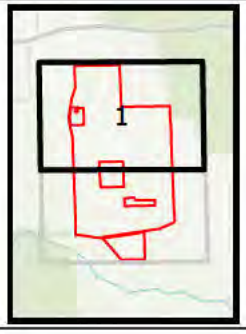
Rivers and Tributaries

Development Envelope

Indicative Disturbance Footprint

Threatened Ecological Communities

Scott River Ironstone Association (Phoenix 2025c)



0 0.25 0.5 1

Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

Figure 8-4: Threatened Ecological Communities (Page 2 of 2)

Roads

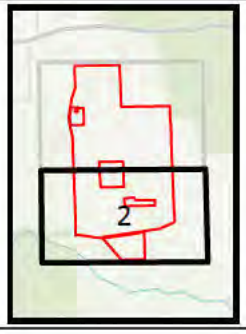
Rivers and Tributaries

Development Envelope

Indicative Disturbance Footprint

Threatened Ecological Communities

Scott River Ironstone Association (Phoenix 2025c)



0 0.25 0.5 1

Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

8.3.2.7. Groundwater Dependent Vegetation

Groundwater Dependent Ecosystems (GDEs) are defined as ecosystems that require groundwater to meet their ecological water requirements (Phoenix 2025c), and can include aquatic, terrestrial (GDV) and subterranean ecosystems. For the purposes of this chapter, the GDEs discussed are those that relate to flora and vegetation values only which includes terrestrial GDV.

GDV is generally classified as either obligate or facultative phreatophytes depending upon degree of groundwater dependency of the vegetation. Obligate phreatophytes rely entirely on groundwater for survival, whereas facultative phreatophytes use groundwater situationally and is not dependent on its presence (Thomas 2013 as cited by Stantec 2025b).

Based on available literature, seven of the vegetation types delineated within the Development Envelope are considered GDV (Phoenix 2025c; Table 8-8; Figure 8-5) including:

- Four known GDV comprising obligate phreatophytes
- Three potential GDV comprising facultative phreatophytes.

The Scott River Ironstone TEC is considered obligate GDV that is believed to depend heavily on the Superficial Aquifer to provide water supply, particularly during the summer months (CALM 2008; Phoenix 2025c). Therefore, all vegetation types that represent Scott River Ironstone TEC, are recognised as confirmed and obligate GDV. This includes AmBsHc, EmmTpAs, Mj and XpMdLm, which collectively cover 108.65 ha within the Development Envelope (Table 8-8), including 25.07 ha that was not mapped as TEC due to its degraded condition (Section 8.3.2.6.1).

Vegetation types where *Melaleuca* spp. dominate the species assemblage were assigned as potential facultative GDV; as no site-specific studies have been conducted to confirm groundwater dependence (Phoenix 2025c). An area of 138.86 ha of potential facultative *Melaleuca*-dominated GDV from three vegetation types have been mapped within the Development Envelope (Table 8-8).

Six additional vegetation types within the Development Envelope contain incidental or non-dominant groundwater dependent species, and while they do not qualify for the entire vegetation unit to be considered as GDV, polygons containing these species have the potential to qualify as GDV (Table 8-8). Non-dominant/incidental phreatophytes recorded within the Development Envelope include several banksia species, namely *Banksia littoralis* (obligate), *Banksia ilicifolia* (obligate) and *Banksia attenuata* (facultative). Other facultative phreatophytes recorded include *Melaleuca preissiana* and *Melaleuca rhaphiophylla*.

Table 8-8: Known and Potential Groundwater Dependent Vegetation Types within the Development Envelope

Vegetation Type	Basis for Inclusion as GDV	Likely Groundwater Dependence Type	Extent within Development Envelope (ha)
Confirmed GDV			
AmBsHc	GDV (TEC)	Obligate	1.10
EmmTpAs	GDV (TEC/ Analogous to TEC)	Obligate	10.62
Mj	GDV (TEC)	Obligate	90.54
XpMdLm	GDV (TEC)	Obligate	6.40
Potential GDV			
MpXpHfSs	GDV (*Melaleuca* spp. dominated)	Facultative	3.83
MrCh	GDV (*Melaleuca* spp. dominated)	Facultative	41.39
MrTjLs	GDV (*Melaleuca* spp. dominated)	Facultative	93.64

Vegetation Type	Basis for Inclusion as GDV	Likely Groundwater Dependence Type	Extent within Development Envelope (ha)
Vegetation types containing incidental or non-dominant groundwater dependent species			
AsLs	Presence of *M. preissiana*	Facultative	24.02
CcTpCeOh	Presence of *B. attenuata and M. preissiana*	Facultative	35.89
EmmAffMtAsDb	Presence of *B. attenuata* and *B. ilicifolia*	Facultative	132.85
EmmXpMtDb	Presence of *B. littoralis* and *B. ilicifolia*	Obligate	73.46
PeeLs	Presence of *B. littoralis*	Obligate	16.07
TiLs	Presence of *M. rhaphiophylla*	Facultative	40.99
Total	-	-	**570.80**

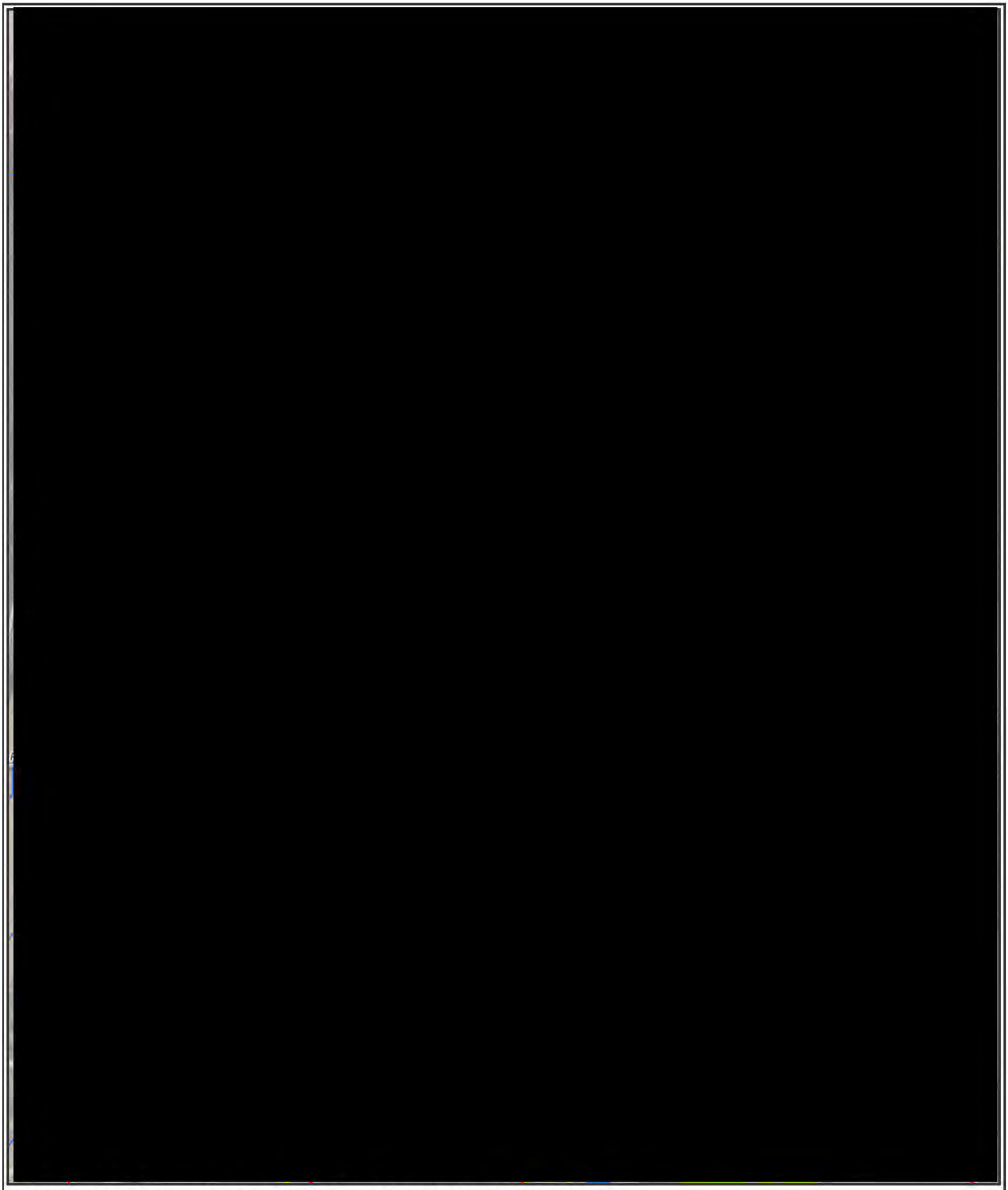


Figure 8-5: Groundwater Dependent Vegetation (Page 1 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

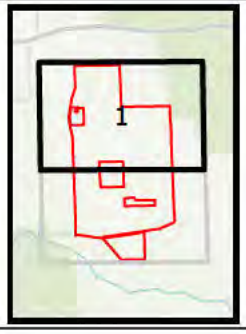
Groundwater Dependent Vegetation

Confirmed GDV

- Confirmed GDV (Analogous to TEC)
- Confirmed GDV (TEC)

Potential GDV

- Known to contain record(s) of GDV associated species
- Potential GDV (Melaleuca spp.)



0 0.25 0.5 1

Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

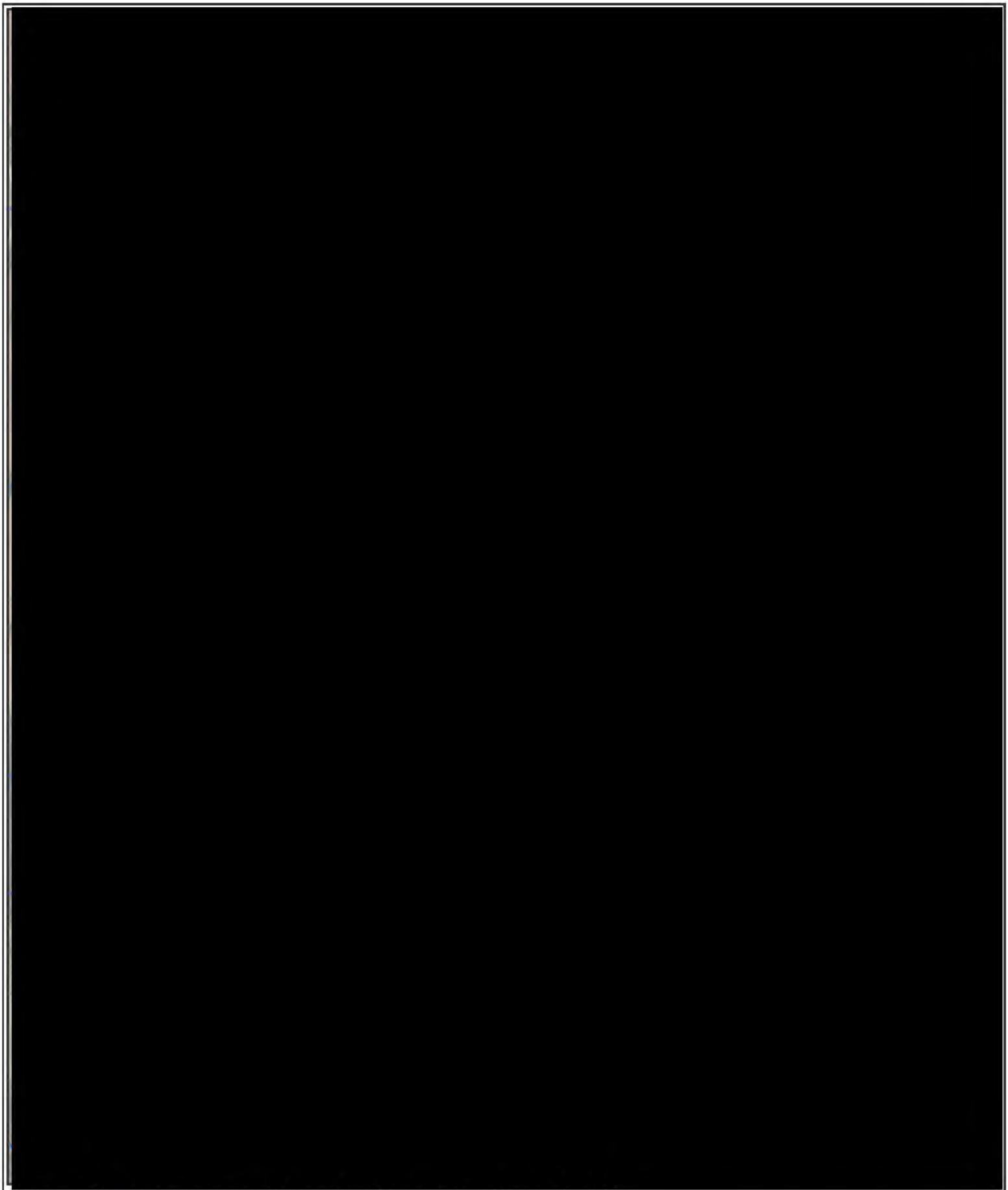


Figure 8-5: Groundwater Dependent Vegetation (Page 2 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

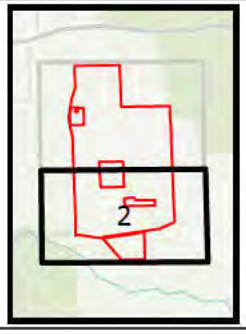
Groundwater Dependent Vegetation

Confirmed GDV

- Confirmed GDV (Analogous to TEC)
- Confirmed GDV (TEC)

Potential GDV

- Known to contain record(s) of GDV associated species
- Potential GDV (Melaleuca spp.)



0 0.25 0.5 1

Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

8.3.3. Flora

The survey identified a total of 423 taxa (353 native and 70 introduced) in the Survey Area, representing 65 families and 209 genera. The most dominant families within this assemblage include Fabaceae, Proteaceae, Poaceae, Myrtaceae, Restionaceae and Cyperaceae.

8.3.3.1. Conservation Significant Flora

Three flora species listed as Threatened under the EPBC Act were recorded in the Survey Area, namely (Phoenix 2025c):

- *Lambertia orbifolia* subsp. *vespera* (listed as EN under the EPBC Act and BC Act) – recorded within the Development Envelope
- *Verticordia plumosa* var. *vassensis* (listed as EN under the EPBC Act and BC Act) – not recorded within the Development Envelope
- *Grevillea brachystylis* subsp. *australis* (listed as Vulnerable [VU] under the EPBC Act and Critically Endangered [CR] under the BC Act) – recorded within the Development Envelope.

A total of 16 Priority flora species were recorded during the survey, of which twelve occur within the Development Envelope (Phoenix 2025c).

Two additional Threatened and three Priority species have been previously recorded within the Development Envelope, but were not targeted during the survey, given they were located a substantial distance from the expected areas of disturbance. Therefore, these unconfirmed desktop records have been treated as present.

Table 8-9, Figure 8-6 and Figure 8-7 detail the records of conservation significant flora within the Development Envelope.

8.3.3.2. Introduced Flora

A total of 70 introduced (weed) flora species were recorded during the survey (Phoenix 2025c). None of the recorded species are listed as a Declared Pest or Weed of National Significance (WoNS) under the *Biosecurity and Agricultural Management Act 2007* (BAM Act).

Table 8-9: Conservation Significant Flora recorded in the Development Envelope

Species	Conservation Status		Habitat	Vegetation Type Presence	No. of Populations (Individuals) Recorded during Survey	No. of Populations (Individuals) in Development Envelope Recorded during Survey	No. of Unconfirmed Desktop Individuals in Development Envelope
	BC Act/DBCA	EPBC Act					
Conospermum quadripetalum	CR	-	Shrubs, 0.20-0.30 m high. Sandy clay, sand. Flats behind coastal hills. Peppermint and Jarrah/ paperbark woodlands over mixed shrubs and sedgelands. Flowers September to November.	AsLs, TiLs, EmmTpAs, XpAs, CcTlXpAp and EmmTpGoMtPu	0 (0)	0 (0)	6
Darwinia ferricola	EN	EN	Large, much branched, semi-climbing or rounded shrub, to 1.5 m high. Shallow red or brown clays over winter-wet ironstone. Flowers late winter to early summer, peak in spring.	AsLs, TiLs, PeeLs, MpXpHfSs, XpAs, AmBsHc, XpMdLm and ClcVj	0 (0)	0 (0)	1
Lambertia orbifolia subsp. vespera	EN	EN	Sand or sandy clay in association with ironstone in seasonally wet areas. Open woodland of *Eucalyptus marginata*, *Corymbia calophylla* or *Agonis flexuosa* over closed shrubland, or shrubland over dense heath (WAH 1998-).	XpAs	1 (4)	1 (4)	0
Grevillea brachystylis **subsp.** *australis*	VU	VU	Wet depressions and swamps in grey clayey sand. Grows amongst *Corymbia calophylla, Agonis flexuosa* and *Agonis parviceps* (WAH 1998-)	EmmXpMtDb	6 (6)	6 (6)	67
Synaphea nexosa	P1	-	Depressions in road verges and wet disturbed areas on brown clayey sand. Often growing amongst weeds (WAH 1998-).	EmmXpMtDb	4 (36)	2 (31)	20
Boronia anceps	P3	-	Winter wet depressions and flat areas next to road verges. Grows amongst *Agonis flexuosa, Nuytsia floribunda*, *Eucalyptus marginata* and *Corymbia calophylla* with *Adenanthos detmoldii* (WAH 1998-).	AmBsHc, ClcVj, EmmTpAs and EmmXpMtDb	13 (160)	9 (115)	5

Species	Conservation Status		Habitat	Vegetation Type Presence	No. of Populations (Individuals) Recorded during Survey	No. of Populations (Individuals) in Development Envelope Recorded during Survey	No. of Unconfirmed Desktop Individuals in Development Envelope
	BC Act/DBCA	EPBC Act					
Calothamnus lateralis **var.** *crassus*	P3	-	Winter-wet flats, swamps, depressions and drainage lines. Often amongst *Agonis flexuosa*, *Hakea* spp., *Restionaceae* spp. (WAH 1998-).	AsLs, CcTlXpAp, ClcVj, EmmAffMtAsDb, EmmTpAs, EmmXpMtDb, MrCh, PeeLs, TiLs and XpAs	63 (2,334)	42 (190)	24
Dampiera heteroptera	P3	-	Grey-black-brown soils on winter-wet depressions, sandy rises and drainage lines. Often grows amongst *Eucalyptus marginata*, *Corymbia calophylla* and *Taxandria* spp. (WAH 1998-).	CcTlXpAp, CcTpCeOh, ClcVj, EmmXpMtDb and XpAs	7 (10)	4 (4)	0
Leucopogon alternifolius	P3	-	Swamps and wetlands on grey-black peaty sand. Amongst *Homalospermum firmum* and *Beaufortia sparsa* (WAH 1998-).	XpAs	2 (2)	2 (2)	0
Leucopogon wheelerae	P3	-	Restricted to heath or woodland edge on seasonally wet flats. Flowers from August to November.	AsLs, TiLs, PeeLs, MpXpHfSs, XpAs, AmBsHc, XpMdLm, ClcVj, Mj, EmmAffMtAsDb, EmmXpMtDb, EmmTpAs, CcTpCeOh, CcTlXpAp and EmmTpGoMtPu	0 (0)	0 (0)	1
Loxocarya magna	P3	-	Sand, loam and clay ironstone in seasonally inundated or damp habitats (WAH 1998-).	EmmTpAs and XpMdLm	27 (189)	11 (74)	8

Species	Conservation Status		Habitat	Vegetation Type Presence	No. of Populations (Individuals) Recorded during Survey	No. of Populations (Individuals) in Development Envelope Recorded during Survey	No. of Unconfirmed Desktop Individuals in Development Envelope
	BC Act/DBCA	EPBC Act					
Grevillea manglesioides **subsp.** *ferricola*	P3	-	Swampy plains and winter-wet flats on red-brown clay-loam over ironstone. Heathlands or shrublands amongst *Viminaria juncea* and *Melaleuca* spp. (WA 1998-).	AmBsHc, ClcVj, EmmTpAs and XpMdLm.	39 (285)	7 (35)	10
Gastrolobium formosum	P3	-	Riverbanks or swamps in clay loam soils (WAH 1998-).	EmmXpMtDb.	9 (30)	9 (30)	17
Grevillea papillosa	P3	-	Swamps and winter-wet flat on white-grey sandy soils, next to road verges, drainage lines and winter wet depressions. Often growing amongst *Adenanthos detmoldii*, *Melaleuca* spp. and *Nuytsia floribunda* (WAH 1998-).	Aff, AsLs, CcTpCeOh and EmmXpMtDb.	70 (396)	20 (74)	60
Adenanthos detmoldii	P4	-	Swampy roadsides and wetland plains on white-grey clayey sand soils. Often grows amongst *Xanthorrhoea preissii*, *Agonis parviceps* and *Eucalyptus marginata* (WAH 1998-).	ClcVj, EmmAffMtAsDb, EmmTpAs and EmmXpMtDb.	91 (1,779)	49 (358)	62
Adenanthos x pamela	P4	-	Grey sand, laterite. Damp flats and roadsides (WAH 1998-).	EmmXpMtDb	2 (2)	2 (2)	0
Aotus carinata	P4	-	Wetlands and damp plains on brown clayey loam with grey sand. Often grows with Eucalyptus marginata, *Adenanthos detmoldii* and *Beaufortia sparsa* (WAH 1998-).	EmmTpAs and XpAs	4 (18)	4 (18)	0

Species	Conservation Status		Habitat	Vegetation Type Presence	No. of Populations (Individuals) Recorded during Survey	No. of Populations (Individuals) in Development Envelope Recorded during Survey	No. of Unconfirmed Desktop Individuals in Development Envelope
	BC Act/DBCA	EPBC Act					
Banksia meisneri **subsp.** *ascendens*	P4	-	Shrub, 0.70-1.5 m high; branchlets hairy. Sand, sandy loam and sandy clay over laterite. Swampy flats. Jarrah low woodlands, mixed shrublands over sedgelands. Flowers April to September.	AsLs, TiLs, PeeLs, MpXpHfSs, XpAs, AmBsHc, XpMdLm, ClcVj, Mj, EmmAffMtAsDb, EmmXpMtDb, EmmTpAs, CcTpCeOh, CcTlXpAp and EmmTpGoMtPu	0 (0)	0 (0)	1
Stylidium leeuwinese	P4	-	Erect perennial, herb, 0.15-0.6 m high. Grey to black peaty sand. Winter-wet habitats and depressions. Shrubland, heath, sedgeland or low woodland. Flowers February to May.	AsLs, TiLs, PeeLs, MpXpHfSs, XpAs, AmBsHc, XpMdLm, ClcVj, Mj, EmmAffMtAsDb, EmmXpMtDb, EmmTpAs, CcTpCeOh, CcTlXpAp, EmmTpGoMtPu	0 (0)	0 (0)	3

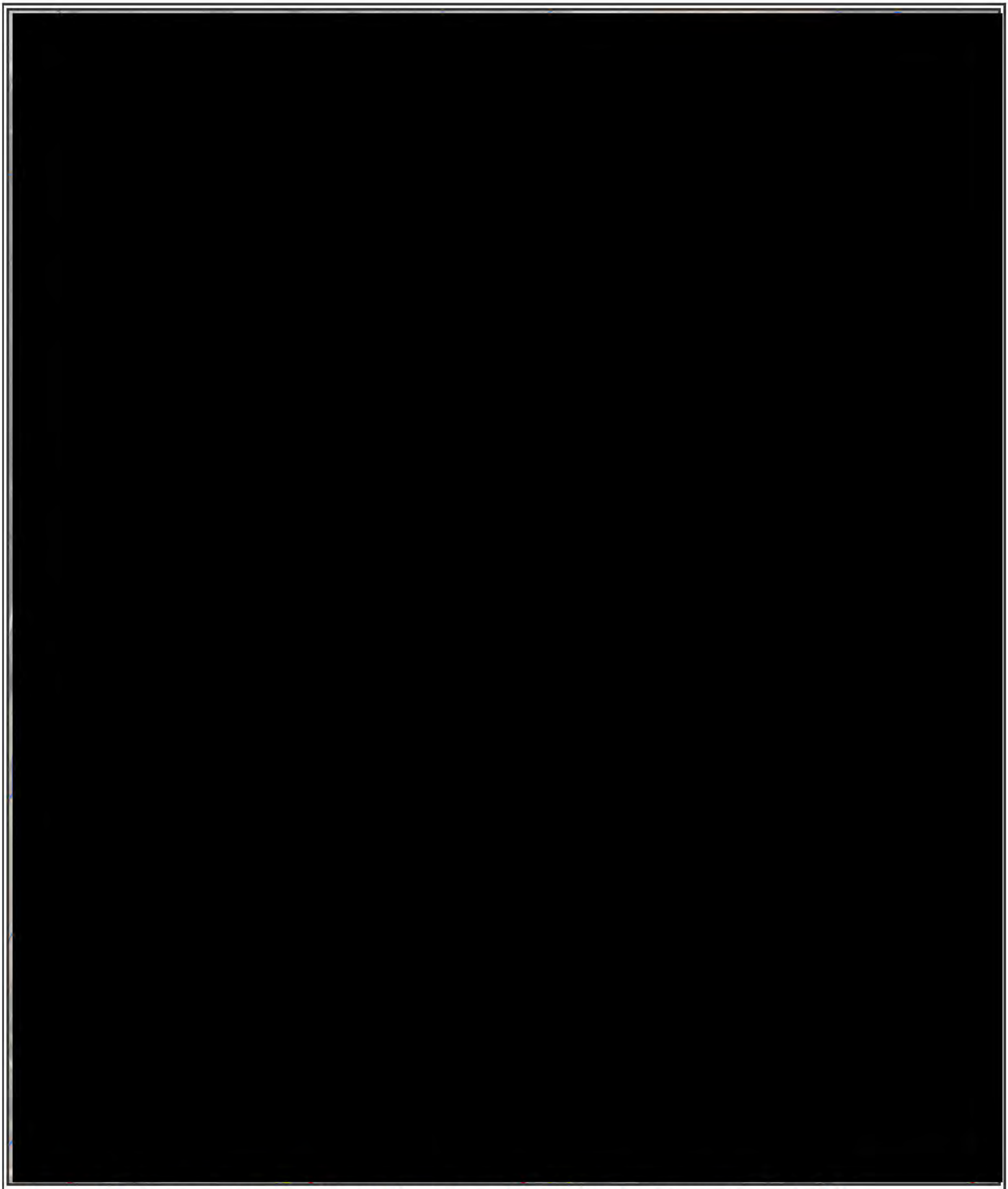
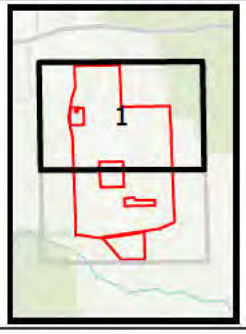


Figure 8-6: Conservation Significant Flora Recorded during the Survey (Page 1 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Conservation Significant Flora

- *Adenanthos detmoldii* P4 (DBCA list)
- *Banksia meisneri subsp. ascendens* P4 (DBCA list)
- *Boronia anceps* P3 (DBCA list)
- *Calothamnus lateralis var. crassus* P3 (DBCA list)
- *Conospermum quadripetalum* CR (BC Act)
- *Darwinia ferricola* EN (EPBC & BC Acts)
- *Gastrolobium formosum* P3 (DBCA list)
- *Grevillea brachystylis subsp. australis* VU/EN (EPBC Act; BC Act)
- *Grevillea manglesioides subsp. ferricola* P3 (DBCA list)
- *Grevillea papillosa* P3 (DBCA list)
- *Leucopogon wheelerae* P3 (DBCA list)
- *Loxocarya magna* P3 (DBCA list)
- *Stylidium leeuwinense* P4 (DBCA list)
- *Synaphea nexosa* P1 (DBCA list)



0 0.25 0.5 1

Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

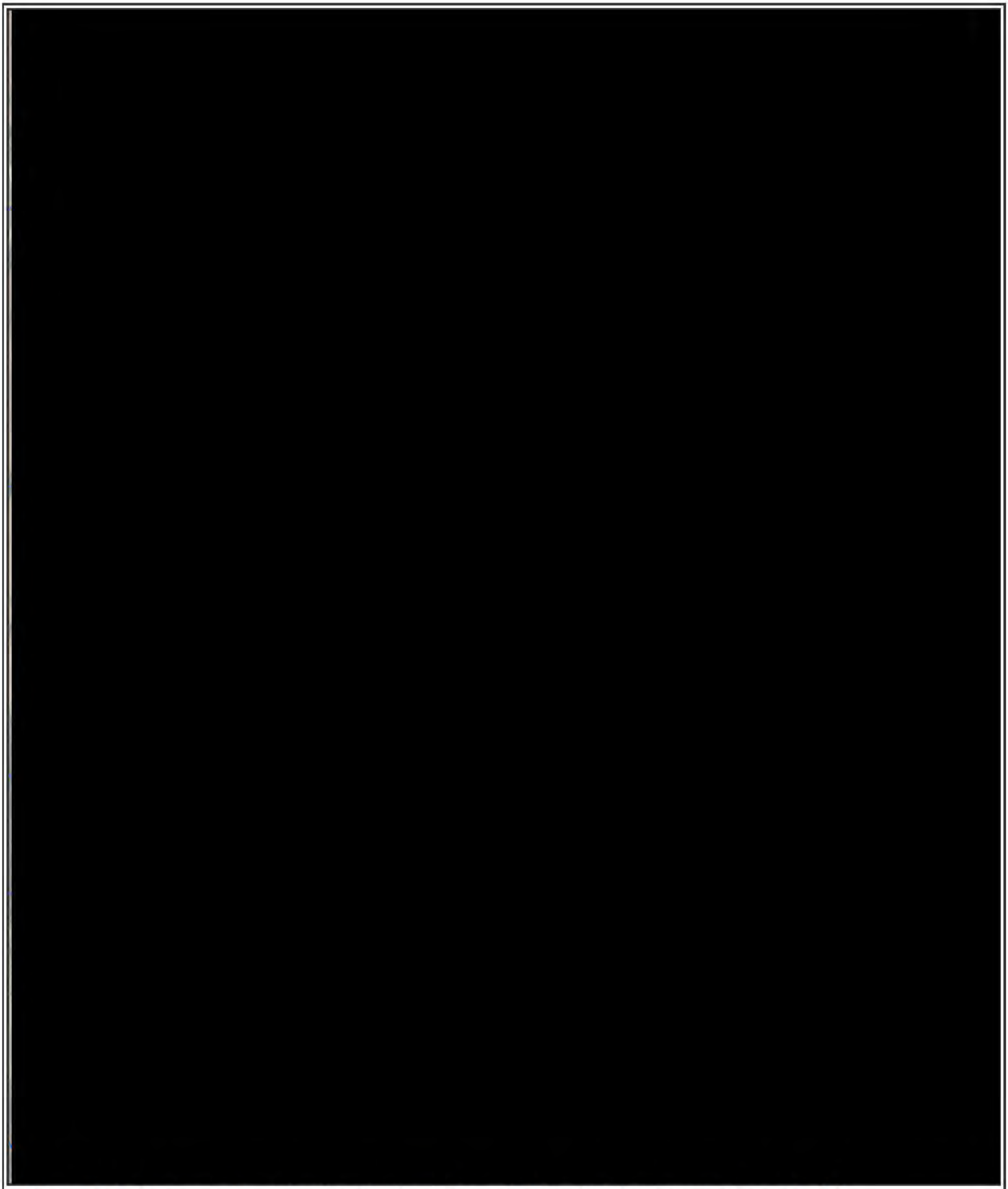
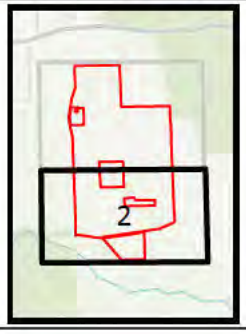


Figure 8-6: Conservation Significant Flora Recorded during the Survey (Page 2 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Conservation Significant Flora

- *Adenanthos detmoldii* P4 (DBCA list)
- *Banksia meisneri subsp. ascendens* P4 (DBCA list)
- *Boronia anceps* P3 (DBCA list)
- *Calothamnus lateralis var. crassus* P3 (DBCA list)
- *Conospermum quadripetalum* CR (BC Act)
- *Darwinia ferricola* EN (EPBC & BC Acts)
- *Gastrolobium formosum* P3 (DBCA list)
- *Grevillea brachystylis subsp. australis* VU/EN (EPBC Act; BC Act)
- *Grevillea manglesioides subsp. ferricola* P3 (DBCA list)
- *Grevillea papillosa* P3 (DBCA list)
- *Leucopogon wheelerae* P3 (DBCA list)
- *Loxocarya magna* P3 (DBCA list)
- *Stylidium leeuwinense* P4 (DBCA list)
- *Synaphea nexosa* P1 (DBCA list)



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

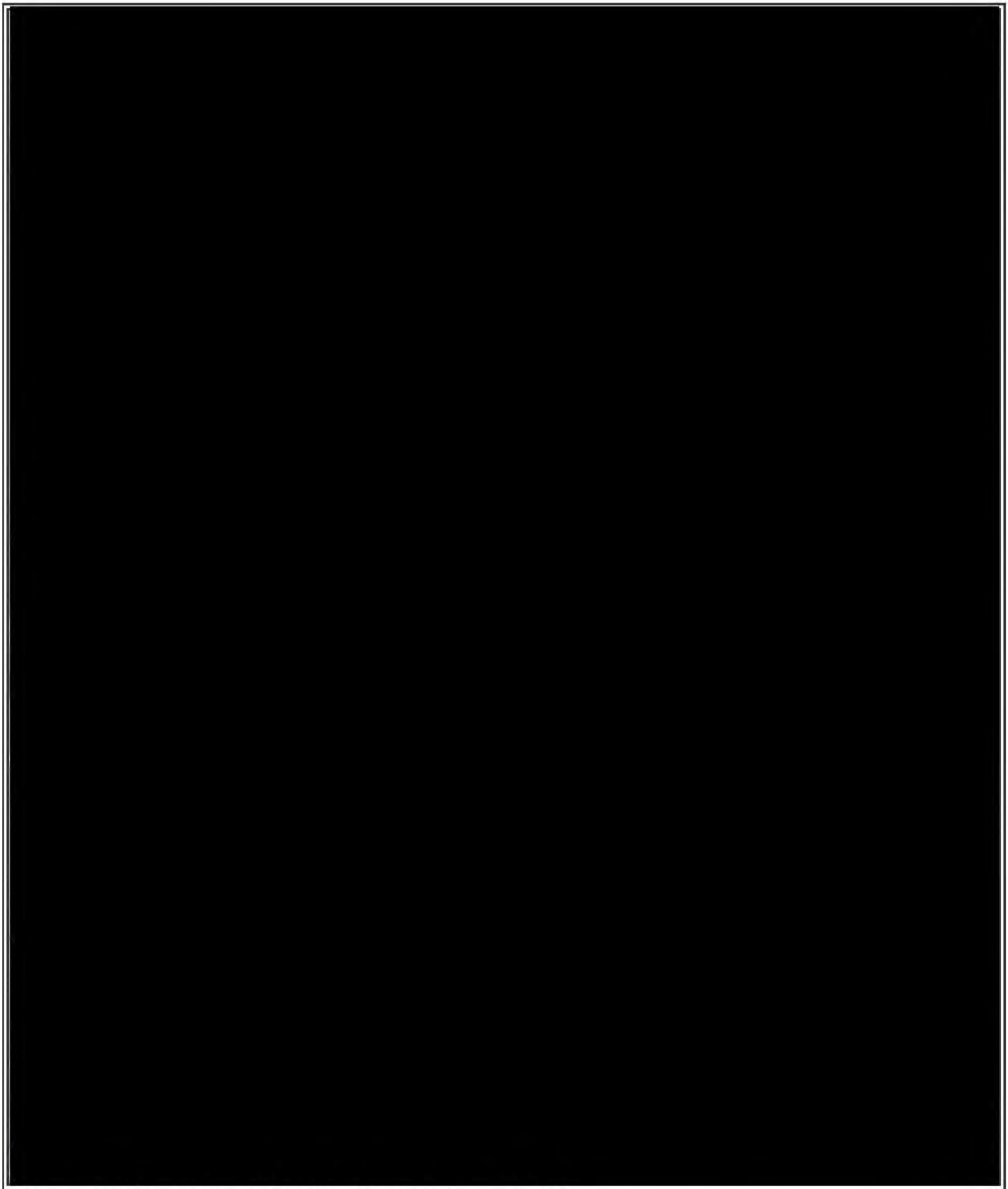
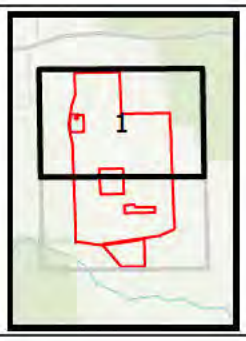


Figure 8-7: Unconfirmed Desktop Records (Page 1 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Conservation Significant Flora

- *Adenanthos detmoldii* P4 (DBCA list)
- *Banksia meisneri subsp. ascendens* P4 (DBCA list)
- *Boronia anceps* P3 (DBCA list)
- *Calothamnus lateralis var. crassus* P3 (DBCA list)
- *Conospermum quadripetalum* CR (BC Act)
- *Darwinia ferricola* EN (EPBC & BC Acts)
- *Gastrolobium formosum* P3 (DBCA list)
- *Grevillea brachystylis subsp. australis* VU/EN (EPBC Act; BC Act)
- *Grevillea manglesioides subsp. ferricola* P3 (DBCA list)
- *Grevillea papillosa* P3 (DBCA list)
- *Leucopogon wheelerae* P3 (DBCA list)
- *Loxocarya magna* P3 (DBCA list)
- *Stylidium leeuwinense* P4 (DBCA list)
- *Synaphea nexosa* P1 (DBCA list)



0 0.25 0.5 1

Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

Figure 8-7: Unconfirmed Desktop Records (Page 2 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Conservation Significant Flora

- *Adenanthos detmoldii* P4 (DBCA list)
- *Banksia meisneri subsp. ascendens* P4 (DBCA list)
- *Boronia anceps* P3 (DBCA list)
- *Calothamnus lateralis var. crassus* P3 (DBCA list)
- *Conospermum quadripetalum* CR (BC Act)
- *Darwinia ferricola* EN (EPBC & BC Acts)
- *Gastrolobium formosum* P3 (DBCA list)
- *Grevillea brachystylis subsp. australis* VU/EN (EPBC Act; BC Act)
- *Grevillea manglesioides subsp. ferricola* P3 (DBCA list)
- *Grevillea papillosa* P3 (DBCA list)
- *Leucopogon wheelerae* P3 (DBCA list)
- *Loxocarya magna* P3 (DBCA list)
- *Stylidium leeuwinense* P4 (DBCA list)
- *Synaphea nexosa* P1 (DBCA list)

0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/11/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

8.4. Potential Environmental Impacts

The potential direct and indirect impacts of the Proposal on flora and vegetation prior to mitigation being applied have been identified as:

- Loss of native vegetation due to clearing
- Loss of conservation significant flora species due to clearing
- Loss of conservation significant vegetation communities due to clearing
- Increased fragmentation of native vegetation due to clearing
- Degradation of vegetation from increased dust deposition
- Degradation of vegetation from introduction and/or spread of weeds and/or dieback
- Groundwater drawdown associated with construction dewatering potentially reducing the hydroperiod and health of GDV
- Degradation or alteration of vegetation as a result of altered hydrological regimes
- Degradation of vegetation from increased risk of bushfires.

8.5. Mitigation

The Proponent has applied the mitigation hierarchy during the design of the Proposal to reduce the potential impacts to any flora and vegetation within and surrounding the Development Envelope as far as practicable. Potential impacts have primarily been avoided or minimised through the design of the Proposal during the planning phase.

A key mitigation measures is the preparation of a CEMP to manage potential environmental impacts during the construction phase. Management and mitigation measures used to minimise the impacts to flora and vegetation during construction are detailed in the CEMP (Appendix H).

The specific mitigation and management measures proposed to be implemented by the Proponent have been detailed in Table 8-10.

Table 8-10: Proposed Flora and Vegetation mitigation measures

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Loss of native vegetation due to clearing.	• Clearing of the following native vegetation has been avoided through the refinement of the Indicative Disturbance Footprint: - Native vegetation within conservation covenant areas - Locally restricted vegetation types (AmBsHc, ClcVj and MpXpHfSs) - Native vegetation growing in association with wetland habitats, including any contiguous* native vegetation within 50 m (Section 9.6.1).	• The Indicative Disturbance Footprint has been designed to utilise existing cleared areas and tracks as much as practicable to reduce clearing of native vegetation. • All temporary construction infrastructure (e.g., laydown areas and concrete batching plant) will be located within areas of existing disturbance, reducing clearing. • Clearing of vegetation in Very Good to Pristine condition will be limited to a 0.02 ha area that could not be avoided, located adjacent to the existing transmission line in support of connecting the Proposal to the existing Beenup substation (Figure 8-8). • An additional Targeted flora survey will be conducted within the ecological gap survey area (ELA 2025b) to confirm the absence of Threatened and Priority flora. • A CEMP (Appendix H) will be implemented during construction. This will include the following key management measures to minimise impacts from clearing, which will include: - Requiring all site personnel and contractors to undertake site-specific environmental induction to ensure they are aware of native vegetation clearing requirements and locations of Threatened and Priority flora prior to commencement of works - Requiring all clearing and ground disturbance activities to have an active ground disturbance permit - Requiring all areas to be cleared to be clearly pegged and demarcated by a qualified surveyor	• Areas that are cleared in support of the Proposal will be rehabilitated during decommissioning in accordance with the Preliminary Decommissioning Plan (Appendix C).	Based on the mitigation proposed the Proposal will result in the clearing of a maximum of 1.0 ha of remnant native vegetation. The assessment and significance of this residual impact is detailed in Section 8.6.1.
Loss of conservation significant flora species due to clearing.	• The optimisation of the Indicative Disturbance Footprint during the planning phase of the Proposal has avoided clearing of Scott River Ironstone TEC and all Threatened and Priority flora individuals. • Clearing of contiguous native vegetation within 50 m of the Scott River Ironstone TEC and within 50 m of known records of Threatened and P1 species and within 20 m of P2, P3 and P4 species, will be avoided, with the exception of the southern site entrance where a buffer of only 18 m can be maintained (Figure 8-8). A larger buffer could not be maintained at this location as detailed in Section 8.6.2.			Based on the mitigation proposed no residual impact is likely for conservation significant flora species as a result of clearing.
Loss of conservation significant vegetation communities due to clearing activities.				Based on the mitigation proposed minor disturbance (0.01 ha) will occur within the 50 m buffer of a single occurrence of Scott River Ironstone TEC. The assessment and significance of this residual impact is detailed in Section 8.6.2.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Increased fragmentation of native vegetation.	N/A	- Requiring all known locations of Threatened and Priority Flora, and Scott River Ironstone TEC and associated contiguous native vegetation within 50 m of a clearing boundary to be identified and clearly pegged or demarked prior to clearing - Undertaking routine inspections of the disturbance demarcation to ensure no disturbance outside of the designated area and recording of land disturbance in a register to support compliance audits and reporting.		Based on the mitigation proposed minor increase in fragmentation of remnant vegetation is considered likely. The assessment and significance of this residual impact is detailed in Section 8.6.3.
Degradation of vegetation from increased dust deposition.	N/A	• A CEMP (Appendix H) will be implemented during construction. This will include the following key management measures to minimise impacts from dust: - Dust suppression techniques during construction, such as water carts - Speed limits on unsealed roads/tracks - Progressive clearing, and rehabilitation of temporary disturbance areas.	• Land temporarily disturbed during construction (e.g. laydown areas and concrete batching plant) will be rehabilitated to the original land use or to a post closure land use agreed with the landowners, reducing the potential for dust emissions.	Based on the mitigation proposed the Proposal will result in localised short-term increase in fugitive dust during construction. The assessment and significance of this residual impact is detailed in Section 8.6.4.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Degradation of vegetation from introduction and/or spread of weeds and/or dieback.	N/A	• Preparation and Implementation of the CEMP (Appendix H) to minimise impacts from weeds, which will include: - Limiting access points to only those necessary - Ensuring all vehicles, equipment machinery and personnel (including footwear) arriving to the proposal site are clean of plant material, seeds and soil - The Vehicle-Machinery Hygiene Checklist shall be completed for all vehicles, equipment and machinery arriving onsite - Ensuring any vegetation or soil that is infested with weeds or pathogens is handled, stored and disposed of as pest contaminated material (e.g. covered during transport, contained) - Undertake a risk assessment to identify potential spread of weeds associated with planned activities. - Conduct a pre and post construction weed survey to validate controls and provide a baseline - Manage all imported basic raw materials to minimise the risk of introducing weeds, seeds and pathogens - Confirm any cleared material to be mulched and reused onsite is free of weed material prior to use • Completion of a *Phytophthora* dieback survey prior to construction. • Develop and implement a Dieback Management Plan to minimise the risks related to the introduction and/or spread of dieback, where required.	N/A	Based on the mitigation proposed the Proposal will result in the potential introduction and/or spread of weeds and/or dieback. The assessment and significance of this residual impact is detailed in Section 8.6.5.
Groundwater drawdown associated with construction dewatering potentially reducing the hydroperiod and health of GDV	• Borrow pits will be constructed above watertable. • Transmission poles and towers will utilise concrete caisson (bored concrete) foundation.	• Civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable • Dewatering will be minimised, managed and monitored in accordance with a detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix H), to ensure that drawdown does not present an unacceptable impact to the environment. This will be achieved through: - Application of the following drawdown limits: - Maximum drawdown of 2.0 mbgl at the perimeter of each foundation	N/A	Based on the mitigation proposed the Proposal is not anticipated to impact health of GDV as a result of dewatering during construction. The assessment and significance of this residual impact is detailed in Section 8.6.6.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
		- Drawdown will not exceed 0.1 m beyond 100 m from any dewatering location - Drawdown will not exceed natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at GDE. • Use of alternative turbine foundations (Section 2.2.1.1). • Strategic disposal of dewater to, and location of, infiltration basins / trenches around the point of extraction to minimise the cone of depression. • Application of other management strategies as required (e.g. sheet piling).		
Degradation or alteration of vegetation as a result of altered hydrological regimes.	N/A	• Civil infrastructure will be located and designed to ensure specific risk-based flood vulnerability requirements have been addressed and will be located outside of the 1% AEP flood extent, where practicable. • Modification of existing drainage infrastructure will be avoided, where possible, unless the proposed modification will improve drainage and not lead to any detrimental impacts to downstream receptors. • Drainage controls (e.g. drains and culverts) will be appropriately located, designed, constructed and maintained to maintain surface water flow regimes and minimise erosion. • Flow velocities will be maintained below 2 m/s upstream and downstream of disturbance areas, including at culvert inlet and outlets. • Design and construction works will ensure that local grading and excavation areas do not create areas of pooled water. - Exposed soils will be vegetated or covered (e.g. with rock or synthetic liners) in disturbed areas where surface water flow velocities exceed 1 m/s and remain below 2 m/s.	N/A	Potential for minor changes to surface water flow that could have minor impacts on vegetation. The assessment and significance of this residual impact is detailed in Section 8.6.7.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Degradation of vegetation as a result of increased risk of bushfires.	N/A	• A Bushfire Management Plan (BMP; Linfire 2025a) and Bushfire Risk Management Plan (BRMP; Linfire 2025b) will be implemented during construction and operation of the Proposal. This will include the following key management measures: - Establishment of non-vegetation and asset protection zones - All wind turbines will be fitted with an automatic fire detection and alarm system, as well as an automatic fire suppression system - All buildings and vehicles will be fitted with first response fire equipment - Adhering to local government fire restrictions, including daily checks of fire danger ratings - Emergency services will have full access to the Development Envelope and water tanks for emergency response inside or outside of the Development Envelope.	N/A	Minor increase in risk of accidental bushfires. The assessment and significance of this residual impact is detailed in Section 8.6.8.

*Contiguous native vegetation is defined as remnant native vegetation not separated by more than 5 m of cleared land.

8.6. Assessment and Significance of Residual Impacts

The following sections assess and determine the significance of the residual impacts to Flora and Vegetation, as identified in Table 8-10.

8.6.1. Loss of Native Vegetation due to Clearing

The Proposal has been designed to largely avoid areas of remnant vegetation by preferentially locating the Development Envelope in a highly disturbed landscape, with much of the native vegetation having been cleared for agricultural use.

Table 8-11 presents the approximate loss of native vegetation based on the Indicative Disturbance Footprint. The Indicative Disturbance Footprint represents the maximum potential extent required for the Proposal of which only 0.71 ha (0.64%) is located within areas mapped as native vegetation (Figure 8-2; Table 8-11). However, the Proposal allows for clearing of up to 1.00 ha of native vegetation to provide flexibility to refine the Indicative Disturbance Footprint within the Development Envelope during detailed design (Figure 8-2; Table 8-11; Table 8-12).

Clearing of native vegetation will be restricted to small areas to facilitate ingress of turbine components, upgrades to the existing Beenup Mine to Manjimup 132 kV transmission line, and where an alternative layout was not possible due to the avoidance of other significant receptors. Specifically, the clearing of native vegetation is considered unavoidable at the following sites (Figure 8-8):

- Area 1: Clearing of approximately 0.19 ha of native vegetation mapped as Good condition at the northern main site entrance, required for ingress of the turbine components. However, review of aerial imagery and a subsequent site visit by (G Wells, personal communication, 22 November 2025) confirmed that this area will only require the removal of an isolated number of native sedges. This location was selected to utilise existing farm track and minimise clearing requirement.
- Area 2: Clearing of approximately 0.02 ha of native vegetation in Degraded to Excellent condition, required for the new transmission line to connect the Proposal to the existing Beenup substation. This was located to avoid potential nesting trees for black cockatoos and to be as close as possible to the existing transmission line to reduce clearing requirements.
- Area 3: Clearing of approximately 0.14 ha of native vegetation in Degraded condition required for the Proposal transmission line. This transmission line route was selected to avoid impacts to the adjacent Conservation Covenant Area.
- Area 4: Clearing of approximately 0.01 ha of native vegetation in Good Condition to facilitate transport of turbine components south of Governor Broome Road. This location was selected to minimise clearing requirements by utilising an existing farm access point in the southern road reserve and to avoid impacts to sensitive environmental values, including TEC, a lodged Aboriginal Heritage site and other sensitive environmental values (i.e. conservation significant flora, potential nesting trees for black cockatoos, and higher quality habitat for western ringtail possum and black cockatoos) (Section 9.3.4).

The clearing of vegetation in Very Good to Pristine condition will be limited to the 0.02 ha of clearing required for the new transmission line (Area 2), in support of connecting the Proposal to the existing Beenup substation (Table 8-12). The impacts on individual vegetation types are expected to be minimal given the maximum clearing allowance and the linear configuration of the Indicative Disturbance Footprint allows for clearing to be distributed across a range of vegetation types, with no single

vegetation type being substantially cleared. In addition, no clearing of locally restricted vegetation types (AmBsHc, ClcVj and MpXpHfSs) is proposed.

Table 8-13 presents the approximate loss of mapped pre-European vegetation associations based on the Indicative Disturbance Footprint, as well as the maximum proposed clearing of each VA. Based on the Indicative Disturbance Footprint, at a regional scale, the Proposal will result in minimal clearing within the current mapped extent (GoWA 2019) of each VA, particularly given the linear configuration of the Indicative Disturbance Footprint.

Clearing will also be minimised as much as possible within VA 1137 given it has been reduced by 67.91% from its original extent. In the unlikely event all potential native vegetation clearing (1.00 ha) were required to impact VA 1137, 32.00% would remain intact (i.e. an increase in loss of 0.09%, or a 68.00% reduction from its original extent).

The Proponent commits to the avoidance of restricted vegetation types and vegetation in Very Good to Pristine condition, with the exception of 0.02 ha of Excellent condition vegetation, required for a new transmission line (Area 2). Given this, and the relatively small amount of vegetation to be cleared in comparison to the extent of the Development Envelope and the large remnants of vegetation present within adjacent national parks, the proposed clearing of 1.00 ha of remnant native vegetation is not expected to be considered significant.

Table 8-11: Approximate Clearing within the Indicative Disturbance Footprint by Vegetation Type

Vegetation Types	Extent within Survey Area (ha)	Extent within Development Envelope (ha)	Extent within Indicative Disturbance Footprint (ha)	Extent within Indicative Disturbance Footprint (%)	Maximum Proposed Native Vegetation Clearing (ha)**
AsLs	24.02	24.02	0.04	0.04	
TiLs	40.99	40.99	0.00	0.00	
PeeLs	16.07	16.07	0.01	0.01	
MrCh	41.39	41.39	0.00	0.00	
MrTjLs	93.64	93.64	0.22	0.20	
XpAs	25.55	23.84	0.01	0.01	
Aff	98.90	99.04	0.12	0.12	1.00*
EmmXpMtDb	79.05	73.46	<0.01	<0.01	
EmmAffMtAsDb	135.20	132.85	0.18	0.17	
CcTpCeOh	75.26	36.01	0.07	0.07	
Mj	106.69	90.54	<0.01	<0.01	
EmmTpAs	28.43	10.62	0.00	0.00	
XpMdLm	15.05	6.40	0.00	0.00	
AmBsHc	1.64	1.10	0.00	0.00	
ClcVj	0.79	0.79	0.01	0.01	0.00
MpXpHfSs	3.84	3.83	0.04	0.03	
Total	786.51	694.59	0.71	0.66	1.00
Non-native Vegetation					
Psp	1.60	1.27	0.00	0.00	-
Egg	415.43	412.29	4.71	4.42	-
Water	12.32	12.32	0.00	0.00	-
Cleared	2,673.22	2,476.41	101.20	94.92	-
Total	3,102.57	2,902.29	105.90	99.34	-
Total (overall)	3,889.08	3596.85	106.61	100.00	1.00

*This impact excludes occurrences of these vegetation types that are representative of the Scott River Ironstone Association TEC. NB: Minor discrepancies due to rounding.

** Provides maximum limits on how much clearing can occur for each vegetation type but total clearing will not exceed 1 ha.

Table 8-12: Approximate Clearing within the Indicative Disturbance Footprint by Vegetation Condition

Vegetation Condition	Extent within Survey Area (ha)	Extent within Development Envelope (ha)	Extent within Indicative Disturbance Footprint (ha)	Extent within Indicative Disturbance Footprint (%)	Maximum Proposed Clearing of Native Vegetation (ha)*
Pristine	30.20	25.62	0.00	0.00	0.02
Excellent	248.99	237.67	0.20	0.19	
Very Good	178.74	165.08	<0.01	<0.01	
Good	124.95	112.15	0.23	0.21	1.00
Degraded	207.89	154.07	0.28	0.26	
Completely Degraded	3,090.25	2889.94	105.90	99.34	
Water (not assessed)	12.31	12.31	0.00	0.00	-
Total	3,893.33	3596.85	106.61	100.00	1.00

*Provides maximum limits on how much clearing can occur for each vegetation condition but total clearing will not exceed 1 ha.

Table 8-13: Approximate Clearing within the Indicative Disturbance Footprint by Pre-European Vegetation Association

Vegetation Association	Extent within the Warren and Jarrah Forest Bioregions			Extent within Development Envelope (ha)^	Extent within Indicative Disturbance Footprint (ha)^	Maximum Proposed Clearing of Native Vegetation (ha)
	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)			
3, Medium Forest; Jarrah-Marri	2,640,853.64	1,799,419.74	68.14	226.61	0.19	1.00
14, Low Forest; Jarrah	93,960.86	70,081.19	74.59	51.63	0.00	
27, Low woodland; paperbark (*Melaleuca* sp.)	120,081.46	88,997.90	74.11	442.96	18.51	
51, Sedgeland; reed swamps, occasionally with heath	55,829.09	31,217.95	55.92	193.15	2.29	
949, Low woodland; *Banksia*	3,196.76	1,539.26	48.15	117.31	2.29	
973, Low Forest; paperbark (*Melaleuca rhaphiophylla*)	2,477.29	1,484.22	59.91	18.01	0.00	
975, Low woodland; Jarrah	4,890.86	4,042.13	82.65	18.46	0.00	
1134 Medium woodland; Jarrah (south coast)	37,488.91	30,358.47	80.98	0.75	0.00	

Vegetation Association	Extent within the Warren and Jarrah Forest Bioregions			Extent within Development Envelope (ha)^	Extent within Indicative Disturbance Footprint (ha)^	Maximum Proposed Clearing of Native Vegetation (ha)
	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)			
1137, Shrublands; *Melaleuca incana, Hakea tuberculata, Viminaria juncea* scrub on ironstone, south coast	1,079.83	346.53	32.09	61.01	3.55	
Total	2,959,858.70	2,027,487.38	-	1129.89	26.82	1.00

^The total extent of vegetation associations within the Development Envelope and Indicative Disturbance Footprint does not align with the total extent of the native vegetation types mapped by Phoenix (2025c) due to the broadscale nature of the State (GoWA 2019) vegetation mapping.

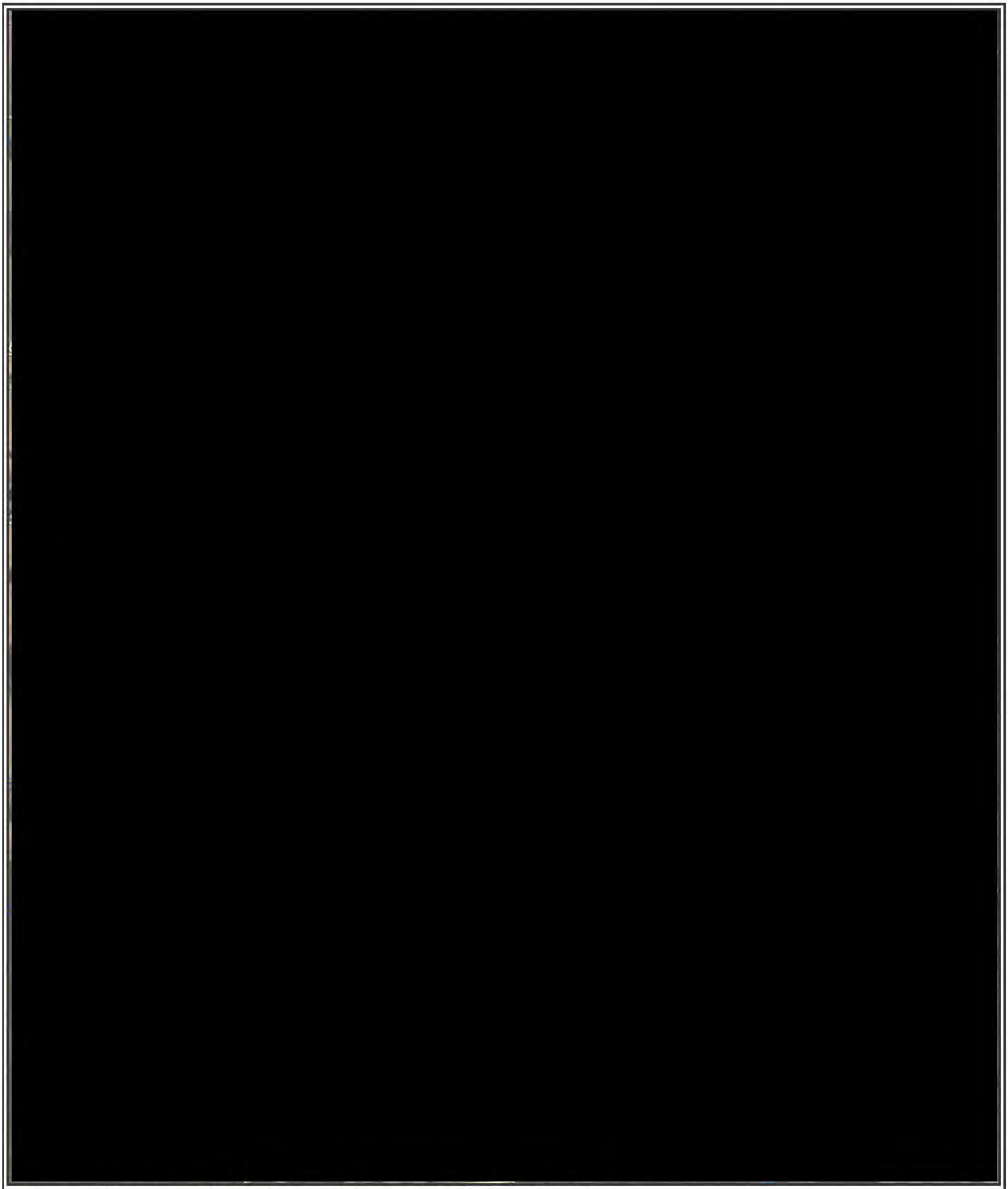


Figure 8-8: Unavoidable Areas of Native Vegetation Clearing

- Roads
- Watercourses
- Development Envelope
- Unavoidable Clearing Area
- Indicative Disturbance Footprint
- Threatened Ecological Communities (Scott River Ironstone Association)

Native Vegetation

- Pristine
- Excellent
- Very Good
- Good
- Degraded

Non-native Vegetation

- Water
- Completely Degraded

0 0.5 1 2

Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

8.6.2. Loss of Conservation Significant Vegetation Communities due to the Clearing Activities

The implementation of the Proposal will not result in the clearing of any TECs listed under the EPBC Act or BC Act, or any PECs listed by DBCA, including the Scott River Ironstone TEC. All areas of the Scott River Ironstone TEC and any contiguous native vegetation within 50 m will be clearly pegged and demarcated by a qualified surveyor prior to clearing, where located within 50 m of proposed clearing activity.

In accordance with the *Approved Conservation Advice for Scott River Ironstone Association TEC* (DSEWPaC 2013), it is recommended that a buffer zone of at least 50 m be maintained around a patch of Scott River TEC, to protect against weed introduction and hydrological impacts. A maximum of 0.01 ha of contiguous native vegetation is required to be cleared at one location within 50 m of the Scott River Ironstone TEC (Figure 8-8, Area 4). This clearing is currently unavoidable as it is required to facilitate blade transport to the most southern wind turbine locations, however, ensures the least amount of clearing whilst avoiding TEC, a lodged Aboriginal Heritage site and other sensitive environmental values (i.e. conservation significant flora, potential nesting trees for black cockatoos, and higher quality habitat for western ringtail possum and black cockatoos) (Section 9.3.4).

Some additional minor disturbance may also occur within the 50 m buffer in already cleared areas or within areas of native vegetation not contiguous with the TEC. All ground disturbance will be managed in accordance with the CEMP (Appendix H) to mitigate weed intrusion, hydrological changes and other indirect impacts on TEC (Sections 8.6.4 to 8.6.8).

Given the complete avoidance of TEC, minimal amount of clearing required within 50 m of the TEC (0.01 ha), implementation of the CEMP, and as indirect impacts are not expected to be significant (Sections 8.6.4 to 8.6.8), the Proposal is unlikely to result in loss of TEC.

8.6.3. Increased Fragmentation of Native Vegetation due to Clearing

Fragmentation occurs when the continuity of vegetation is disrupted and reduced into several smaller patches. The spatial separation of these patches can lead to a decline in biodiversity and reduced population size. This can lead to reduced recruitment for flora species and altered community structures.

The landscape in which the Proposal will be constructed is already highly fragmented from historical land clearing for agricultural use. The potential for fragmentation is minimised as the internal access roads have been designed to follow existing cleared areas and tracks or occur along the periphery of native vegetation wherever possible. Some minor fragmentation will occur at Governor Broome Road (Figure 8-8), where clearing is required to facilitate the transport of turbine components. Given this is the only instance of fragmentation expected to occur, the Proposal is not expected to result in significant impacts to native vegetation due to fragmentation.

8.6.4. Degradation of Vegetation from Increased Dust Deposition

Localised short-term increases in fugitive dust emissions will occur primarily during the construction phase of the proposal from activities including vegetation clearing, excavations, earthworks and vehicle movements. During construction, dust emissions will be managed through the mitigation measures outlined in the CEMP (Appendix H), as detailed in Section 8.5. Dust emissions may also be generated during the operational phase by infrequent vehicle movements on unsealed internal access roads.

Given the relatively minimal disturbance required (approximately 107 ha within the 3,597 ha Development Envelope) and the short construction phase (18-24 months) impacts that may occur during construction would be relatively short in duration and restricted to the areas of construction and access roads. Once operational, vehicle movement within the Development Envelope will be minimal, with access tracks to be used by approximately five full time staff when undertaking wind farm maintenance activities, landowner liaison, environmental management and safety. Therefore, only minor dust generation is expected during the operational phase. Moreover, given the location of the Proposal within a mostly cleared, fragmented landscape, it is not anticipated that remnant vegetation, most of which will not be adjacent to major Proposal activities (e.g. wind turbine construction areas), will be significantly impacted by occasional and temporary potential dust deposition occurrences.

The Proposal may result in a minor, temporary increase in dust deposition on vegetation during construction; however, through the implementation of dust management and mitigation measures, impacts associated with increased dust emissions are expected to be localised and temporary. Therefore, impacts are not expected to be significant.

8.6.5. Degradation of Vegetation from Introduction and/or spread of Weeds and/or Dieback

Clearing, vehicle and machinery movements have the potential to spread and/or introduce weed species and pathogens such as *Phytophthora cinnamomi*. The landscape in which the Proposal occurs is largely cleared and weed species are common throughout the agricultural land of the local area. A total of 70 weed species were recorded during the survey, none of which are listed as a Declared Pest or WoNS under the BAM Act. Given the existing presence of weeds throughout the Development Envelope, the Proposal is unlikely to introduce or spread weeds that will further degrade vegetation.

Phytophthora cinnamomi infestation is a threatening process affecting the viability and genetic diversity of the native flora of south-western Australia. The pathogen is recognised in the EPBC Act as one of five key threatening processes affecting biodiversity in Australian ecosystems (Dunstan et al. 2008). The pathogen can spread through soil, water or infected plant material, where moist or wet conditions

favour dispersal of the pathogen. Several species within the Scott River Ironstone TEC are considered susceptible to Dieback, particularly members of the Proteaceae and Epacridaceae (Luu and English 2004). Hygiene measures such as Clean on Entry procedures and vehicle checks will be implemented in accordance with the CEMP (Appendix H) to limit the potential for the introduction and/or spread of weeds and dieback. To assess and mitigate the potential impacts of dieback within the Development Envelope, a dieback assessment will be undertaken, and a subsequent Dieback Management Plan developed prior to construction of the Proposal, where required.

As native vegetation clearing will be limited to a maximum of 1.00 ha, the potential for clearing activities to spread and/or introduce weed species and pathogens within native vegetation is expected to be low. Given this, the existing presence of weeds throughout the degraded landscape and that weed and pathogen management measures will be implemented, no significant residual impacts on vegetation from the introduction or spread of weeds and/or dieback are anticipated from the Proposal.

8.6.6. Groundwater Drawdown Potentially Reducing the Hydroperiod and Health of GDV

Temporary reductions in the groundwater level within the Superficial Aquifer from dewatering during construction (Section 7.6.1) may result in impacts to the inundation period of groundwater dependent wetland values and the health of GDV. Section 7.6.1 describes the modelling assessment undertaken to predict the extent of groundwater drawdown during construction. As discussed, the Proponent will ensure that:

- Drawdown does not exceed the natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at any GDV
- Below ground foundations (Section 2.2.1.1) will only be used where it is confirmed prior to construction that dewatering would not be required.

Based on the modelled drawdown less than 0.04 ha of GDV occurs within an area modelled to experience less than 0.5 m dewatering, which is well within the anticipated levels of natural seasonal variation of 1-2 m (Table 8-14; Figure 8-9; Stantec 2025b).

Table 8-14: Predicted Drawdown Interaction with GDV Receptors

GDV Category	GDV Subcategory	Extent within Development Envelope (ha)	Area within Drawdown Extents (ha) (%of Extent within Development Envelope)		
			>2 m	1–2 m	0.5–1 m
Confirmed GDV	Scott River Ironstone TEC*	108.66	0 (0)	0 (0)	0.03 (0.03)
Potential GDV	Vegetation types dominated by *Melaleuca rhaphiophylla* and *Melaleuca preissiana* (MrCh)^	138.86	0 (0)	0 (0)	0.01 (<0.01)
Total		247.52	0 (0)	0 (0)	0.04 (0.02)

*Coincides with fauna habitat GDE (Section 9.3.6.2): Seasonally Inundated Sedgeland wetland.
^Coincides with fauna habitat GDE (Section 9.3.6.2): Seasonally Inundated Paperbark Woodland. Source: Stantec 2025b

This modelled impact is expected to be conservative based on the conservative nature of the drawdown modelling (i.e. assumes groundwater at surface and does not account for recharge associated with infiltration of dewater). To further minimise the extent of drawdown the Proponent commits to:

- Scheduling civil construction activities, specifically activities that require excavation, to occur during the dry season, where practicable

- Managing dewatering so that drawdown does not exceed 0.1 m beyond 100 m from any dewatering location or natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at GDE.
- Discharge of dewater to strategically placed infiltration basins to further minimise drawdown
- Utilisation of alternative management measures if required (e.g. reduced dewatering rates, use of above ground foundation option, sheet piling based on detailed site investigation and revised modelling)
- Implementation of detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix B).

Given the temporary and spatially constrained nature of the proposed dewatering and the implementation of the detailed ASSDMP, the Proponent considers that drawdown of groundwater is not expected to significantly impact GDV within or surrounding the Development Envelope.

8.6.7. Degradation or Alteration of Vegetation as a Result of Altered Hydrological Regimes

Proposal infrastructure has the potential to interfere with existing surface water flow patterns resulting in decreased downstream flow, upstream waterlogging, or increased erosion and sedimentation, which has the potential to degrade or alter vegetation.

As outlined in Section 7.6.3, changes to surface water flow and depth as a result of Proposal infrastructure are expected to be minimal given that key infrastructure is not proposed to be located within any potential waterways, inundation zones greater than 0.3 m or high velocity areas exceeding 2 m/s. Furthermore, a CEMP (Appendix H) will be implemented during construction of the Proposal to minimise the potential for impacts to surface hydrological regimes and flow patterns, in turn ensuring minimal impact to relevant existing native vegetation.

Through the implementation of mitigation measures within the CEMP and considered Proposal design, the Proposal is not expected to result in significant impacts to surface hydrological regimes including flow regimes such that vegetation may be significantly impacted.

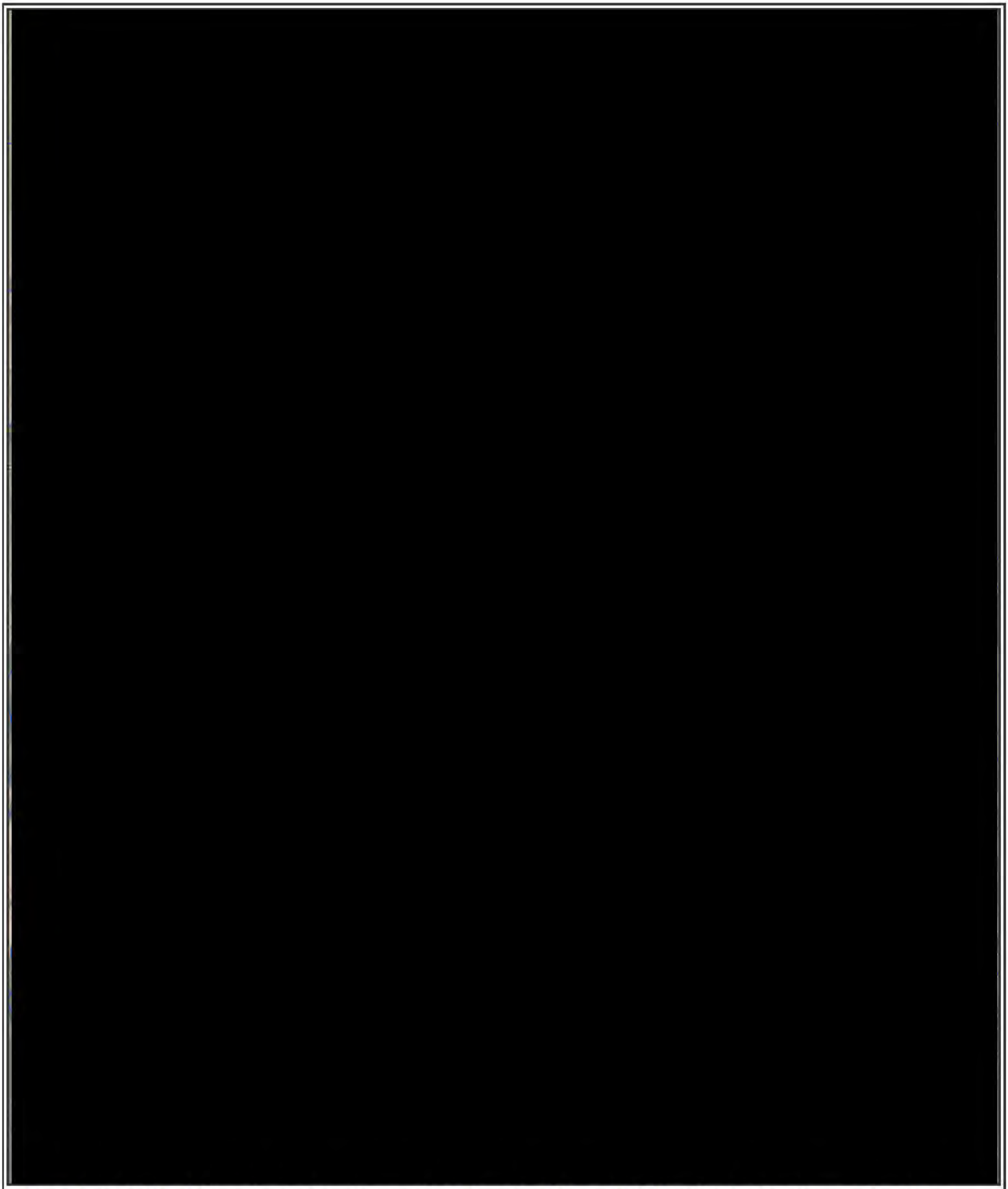


Figure 8-9: Predicted Groundwater Drawdown and Confirmed and Potential GDV within the Development Envelope

- Met Masts
- Wind Turbine
- Rivers and Tributaries
- Roads
- Development Envelope

Predicted Drawdown (m)

- 0.5
- 1
- 1.5
- 2
- 2.5
- 3

Groundwater Dependent Vegetation

Confirmed GDV

- Confirmed GDV (Analogous to TEC)
- Confirmed GDV (TEC)

Potential GDV

- Known to contain record(s) of GDV associated species
- Potential GDV (Melaleuca spp.)

0 0.5 1 2

Kilometers

Datum/Projection: GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA A TETRA TECH COMPANY

8.6.8. Degradation of Vegetation from Increased Risk of Bushfires

Construction activities, particularly clearing of native vegetation, welding and the movement of vehicles and heavy machinery have the potential to result in a bushfire that could degrade native vegetation and flora. In addition, fire hazards specific to wind farms can include electrical hazards (power surges, hot surfaces, lightning strike), chemical hazards (leakage of oils and other flammables), increased fire spread due to air flow or falling debris (including turbine blades), obstruction of aerial firefighting access and landscape hazards (ignition within the wind farm facility or external ignition of infrastructure from radiant heat or embers) (Linfire 2025b). The Development Envelope is designated as a bushfire prone area (DFES 2024), with the continuous native vegetation in the surrounding forests presenting the highest bushfire risk in the local area (Linfire 2025b).

However, as noted by the Australasian Fire and Emergency Services Authorities Council, the likelihood of turbine fires is considered to be low given appropriate protection measures are applied (Linfire 2025b). Furthermore, wind farms can reduce bushfire risk through:

- Improved private access roads, allowing better access for emergency services in case of fire and providing additional firebreaks
- Having full time operational staff on site, meaning more eyes and ears on the ground to spot bush fires early
- Attracting lightning strikes during thunderstorms (rather than hitting the ground and vegetation), with strikes safely managed by their built-in protection systems (AFESCA 2018)
- Installing remote monitoring systems to notify personnel if a fire is detected
- Providing dedicated water tanks at the wind farm which can be used in the event of a fire.

The risk of fire associated with the Proposal will be managed through the implementation of a BMP (Linfire 2025a) and BRMP (Linfire 2025b). Vegetation will be maintained around all infrastructure to reduce bushfire risk, including the implementation of NVZ and APZ around the base of each wind turbine. All wind turbines will be fitted with an automatic fire detection and alarm system, as well as an automatic fire suppression system. In the event of a turbine fire, the affected turbine will automatically shut down. Turbines will also have the capability to be remotely shut down and de-energised in the event of bushfire. The fire detection and alarm system will include notification to relevant personnel, such as wind farm staff, DFES, the local fire brigade and/or neighbouring landowners.

In accordance with the BMP (Linfire 2025a), the Proposal will be:

- Equipped with a mobile fire trailer (or similar approved device) which the Proponent must ensure is maintained and ready for use at all times during bushfire season, including ensuring a full water tank and pump fuel tank
- Provide water for managing fire, currently proposed to be stored in three clearly signposted 45 kL firewater tanks across the site.

The Proponent will ensure that access to the Development Envelope and water tanks is available to emergency services at any time.

On the basis of the above, the Proposal is not expected to increase the risk of bushfires.

8.7. Environmental Outcomes

The Proposal is not anticipated to have any significant residual impacts on flora or vegetation due to the following:

- The Proposal will result in the clearing of up to 1.00 ha of native vegetation, including a maximum of 0.02 ha of vegetation in Very Good or better condition
- Clearing will be restricted to small areas required for the construction of internal access roads, particularly to facilitate ingress of turbine components, upgrades to the existing Beenup Mine to Manjimup 132 kV transmission line, and where an alternative layout was not possible due to the avoidance of other significant receptors. Approximately 0.36 ha of native vegetation clearing is considered unavoidable. The remainder of the 1.00 ha clearing will allow for flexibility in project design
- The avoidance of conservation significant flora (including contiguous native vegetation within 50 m of known Threatened and P1 species and within 20 m of P2, P3 and P4 species), TEC, and locally restricted vegetation types that occur within the Development Envelope during clearing
- Clearing of a maximum of 0.01 ha of contiguous native vegetation within the Scott River Ironstone TEC 50 m buffer (Figure 8-8)
- The Proposal has been designed to preferentially locate infrastructure within cleared agricultural land and is thus unlikely to cause significant fragmentation to native vegetation within the Development Envelope
- There will be negligible impact to GDV as a result of the minor, localised and temporary construction dewatering, noting drawdown will be managed so as not to exceed the natural seasonal variation (i.e. will remain above natural seasonal low in watertable)
- Impacts to vegetation due to altered hydrological regimes will be minimal
- The indirect impacts likely to occur during construction and operation of the Proposal, namely increased dust deposition, the introduction and/or spread of weeds and dieback, dewatering impacts to GDEs, alterations to hydrological regimes and accidental bushfires will be minimised through the implementation of the mitigation measures outlined within the Proposal's CEMP (Appendix H), a Dieback Management Plan (as required), an ASSDMP (Appendix B), a BMP (Linfire 2025a) and BRMP (Linfire 2025b).

The Proponent considers that the Proposal can be implemented to meet the EPA's objective for the Flora and Vegetation factor to "*protect flora and vegetation so that biological diversity and ecological integrity are maintained*".

9. Terrestrial Fauna

9.1. EPA Environmental Factor Objective

The EPA's objective for the Terrestrial Fauna factor is to "*protect terrestrial fauna so that biological diversity and ecological integrity are maintained*" (EPA 2016c).

For the purposes of EIA, the EPA defines terrestrial fauna as "animals living on land or using land (including aquatic systems) for all or part of their lives. Terrestrial fauna includes vertebrate (birds, mammals including bats, reptiles, amphibians, and freshwater fish) and invertebrate (arachnids, crustaceans, insects, molluscs and worms) groups" (EPA 2016c).

9.2. Relevant Policy and Guidance

Relevant policy and guidance documents for Terrestrial Fauna and how they have been considered for this Proposal are summarised in Table 9-1.

Table 9-1: Policy and Guidance for Terrestrial Fauna

Policy / Guidance	Consideration
Environmental Factor Guideline: Terrestrial Fauna (EPA 2016c)	The information provided in this section addresses the 'considerations for environmental impact assessment' outlined within the guideline.
Technical Guidance: Terrestrial vertebrate fauna surveys for environmental impact assessment (EPA 2016)	This document guides the appropriate obtainment and collation of terrestrial fauna data to be used in Environmental Impact Assessment (EIA). All studies conducted for the Proposal were undertaken with regard for this guidance document.
Technical Guidance: Sampling of short range endemic invertebrate fauna (EPA 2016e)	This document guides the appropriate sampling and collation of Short Range Endemic (SRE) invertebrate fauna data to be used in EIA. All studies conducted for the Proposal were undertaken with regard for this guidance document.
Referral Guideline for 3 WA threatened black cockatoo species Carnaby's Cockatoo (*Zanda latirostris*), Baudin's Cockatoo (*Zanda baudinii*) and the Forest Red-tailed Black-cockatoo (*Calyptorhynchus banksii naso*) (DAWE 2022)	Used to guide impact assessment criteria and survey methodology for Carnaby's Cockatoo, Baudin's Cockatoo and Forest Red-tailed Black Cockatoo (collectively referred to as black cockatoos).
Scoring system for the assessment of foraging value of vegetation for Black-Cockatoos (Bamford 2021)	This scoring system guides the assessment of foraging habitat quality for black cockatoos based on site condition, context and stocking rate.
Survey guidelines for Australia's Threatened birds. Guidelines for detecting birds listed as Threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (DEWHA 2010b)	This document guides the appropriate obtainment and collation of data relating to bird species listed as Threatened under the EPBC Act.
Survey guidelines for Australia's threatened bats. Guidelines for detecting bats listed as Threatened under the *Environmental Protection and Biodiversity Conservation Act 1999* (DEWHA 2010a)	This document guides the appropriate obtainment and collation of data relating to bat species listed as Threatened under the EPBC Act.
Survey guidelines for Australia's Threatened mammals. Guidelines for detecting mammals listed as Threatened under the *Environment Protection and Biodiversity Conservation Act 1999* (DSEWPaC 2011)	This document guides the appropriate obtainment and collation of data relating to mammal species listed as Threatened under the EPBC Act.
EPBC Act Policy Statement 3.10 Significant impact guidelines for the vulnerable western ringtail possum (*Pseudocheirus occidentalis*) in the southern Swan Coastal Plain, Western Australia (DEWHA 2009b)	Used to guide impact assessment for the Western Ringtail Possum which is listed as CR under the EPBC Act.

Policy / Guidance	Consideration
EPBC Act Policy Statement 3.21 Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed Migratory shorebird species (DoEE 2017)	Used to guide impact assessment for shorebird species listed as Migratory under the EPBC Act.
Wind Farms and Birds: Interim Standards For Risk Assessment. Australian Wind Energy Association Report (Brett Lane and Associates 2005)	This document guides the appropriate methodology to be applied for the Bird and Bat Risk Assessment and utilisation surveys.
Onshore Wind Farm Guidance: Best practice approaches when seeking approval under Australia's national environment law (Draft)	This document guides best practice approaches to the assessment of proposed onshore wind farm projects, with a focus on bird and bat management.

9.3. Receiving Environment

9.3.1. Studies and Survey Effort

A range of fauna surveys and assessments were completed for the Proposal, including basic and targeted fauna surveys, a preliminary bird and bat risk assessment (BBRA) survey and SRE Invertebrate desktop assessment. All fauna surveys have been conducted in accordance with the relevant guidance outlined in Section 9.2. The methodology and timing for these surveys is discussed in the following sections, as well as Table 9-2.

9.3.1.1. Basic and Targeted Fauna Survey

A Basic and Targeted fauna survey has been undertaken over approximately 99.95% of the Development Envelope (Phoenix 2025a). The field survey was undertaken across three phases from 2023 to 2025. The initial survey phase occurred in August 2023 and targeted wetland habitats to account for rainfall and inundated conditions. The second survey took place in December 2023, where all habitat types were able to be sampled unlike during winter, when access was restricted by seasonally inundated wetlands. The third phase occurred over spring 2024 to summer 2025, when 14 field trips were completed, mostly to assess black cockatoo and Western Ringtail Possum habitat values. The fauna Survey Area covered a total of 3,891.6 ha, inclusive of the Development Envelope and three road intersections to the north of the Development Envelope (Figure 9-1). A total of 151 sites were sampled across the survey phases and opportunistic observations were made at an additional 63 locations.

The following field methods were used to record and characterise terrestrial fauna species and habitat data during the Basic and Targeted fauna survey:

- Broad fauna habitat assessment
- Active diurnal searches
- Avifauna searches
- Bat echolocation recordings
- Targeted survey for black cockatoos
- Targeted survey for Western Ringtail Possum
- Targeted survey for Australasian Bittern.

9.3.1.2. Basic and Targeted Fauna Gap Survey

An additional Basic fauna survey and Targeted black cockatoo and Western Ringtail Possum habitat assessment was undertaken to fill the gap in the Phoenix (2025a) survey effort, covering approximately 0.05% of the Development Envelope (ELA 2025b). The survey covered approximately 1.72 ha (Figure 9-1). For the purposes of EIA, the data collected from this survey has been combined with that obtained during the Basic and Targeted fauna survey conducted by Phoenix (2025c).

Additional historical terrestrial vertebrate fauna surveys have been conducted within the vicinity of the Survey Area, providing a greater understanding of the terrestrial fauna values within the broader region to inform survey efforts. These include:

- Heavy minerals mine Beenup – comprehensive fauna survey (LEC 1990)
- Milyeannup wind farm terrestrial fauna survey (Biota 2009c)
- Beenup Mineral Sands Mine site – wetland bird monitoring (Ninox 2011)
- Expansion of recreational facilities at Gloucester Park, Margaret River – Level 1 fauna assessment, Level 1 terrestrial vertebrate fauna (Litoria Ecoservices 2016)
- Augusta Boat Harbour to Dead Finish Pathway Project – Western Ringtail Possum habitat assessment (Litoria Ecoservices 2017)
- Lot 2602 McDonald Road, Karridale Flora and Fauna Assessment (ELM 2017)
- Turner Caravan Park – Augusta – Targeted vertebrate fauna survey assessment (Harewood 2018)
- Margaret River Senior High School – fauna significance assessment (Ecosystem Solutions 2020).

9.3.1.3. Preliminary Bird and Bat Risk Assessment Survey

The Preliminary Bird and Bat Risk Assessment (BBRA) Survey was undertaken within the Development Envelope and included a level two investigation comprising a regional overview of the area, bird and bat utilisation surveys (BBUS) and a preliminary risk assessment (Phoenix 2025b). Bird and bat utilisation surveys were conducted across two phases, including four sampling events across each season in Year 1 (May 2023 to January 2024) to account for seasonal changes in bird and bat occurrence and an additional eight monthly sampling events in Year 2 (between September 2024 and March 2025) focusing on the activity periods for species of concern identified during Year 1 surveys (i.e. black cockatoos and migratory birds). The Year 1 field survey included a total of 16 sites, comprising three Reference sites and 13 Impact sites. The site selection was revised following the Year 1 surveys in response to the Year 1 survey findings and the proposed turbine placement. A total of 12 new sites were added, and ten original sites were not resampled, totalling 18 sample sites in Year 2. Five of these new sites were Regional reference sites located at the Hardy Inlet (located 10 km – 14 km from the Development Envelope), for the purpose of collecting contextual data on Migratory shorebird activity within the region. The BBUS area covered a total of 3,882.2 ha with all Impact, reference and regional sites shown in Figure 9-2. Specifically, the following surveys were undertaken:

- Bird utilisation surveys
- Bat utilisation surveys
- Audio recordings for Masked Owl and black cockatoos.

Bird and bat data was also sourced from the Basic and Targeted fauna survey (Phoenix 2025a, see Section 9.3.1.1). This suite of additional work provided supplementary data for the BBUS in lieu of

roaming surveys recommended by Brett Lane and Associates (2005). Opportunistic records of birds were also made whenever observed during both the BBRA and Basic and Targeted fauna surveys.

9.3.1.4. SRE Invertebrate Desktop Assessment

The SRE Invertebrate Desktop Assessment (Invertebrate Solutions 2024a) was undertaken to identify known SRE fauna within the Development Envelope, as well as habitats in which they are likely to occur. The primary sources of data for the desktop assessment were WAM records, database searches and a literature review. The Desktop Study Area covered approximately 100,000.0 ha, based on a search area of 100 km from the centre of the Development Envelope (Appendix M).

Table 9-2: Terrestrial Fauna Studies

Survey	Area (ha)	Scope & Timing	Study / Survey Effort	Limitations
Basic and Targeted vertebrate fauna survey for a Proposed Wind Farm in Scott River (Phoenix 2025a) **Appendix K**	3,891.6	The field survey was conducted across three phases: • **Phase 1:** Winter (28–31 August 2023) • **Phase 2:** Summer (6–12 December 2023) • **Phase 3:** Spring (Late October and late November 2024) and Summer (December 2024 and early January 2025). The scope of the survey included: • A desktop assessment of databases and available literature to identify conservation significant fauna that may occur • Active diurnal searches and targeted searches for conservation significant species identified in the desktop assessment • Avifauna censusing • Bat echolocation recordings • Broad fauna habitat assessments and habitat assessments for conservation significant fauna • Mapping of desktop assessment results, conservation significant fauna records and habitat within the survey area.	The field survey included a total of 151 sampling sites. Opportunistic observations were made at an additional 63 locations. The total survey effort for each field method is detailed as follows: • Active diurnal searches: 45 hours • Avifauna census: 12 hours • Audio recordings: 223 nights • Bat echolocation recordings: 14 nights • Black cockatoo breeding/roosting surveillance: 34 hours • Targeted searches for Western Ringtail Possum: 15 hours.	Limitations and constraints associated with this field survey are detailed as follows: • Few comprehensive or systematic fauna surveys have been undertaken within the Scott River region to provide contextual information.
Wind Farm in Scott River Ecological Gap Survey (ELA 2025b) **Appendix J**	1.72	The field survey was conducted on 26 June 2025. The scope of the survey included: • A desktop assessment of the Phoenix (2025a) report to obtain information relating to conservation significant fauna • A field survey to collect fauna data and assess fauna habitats, including nocturnal searching to identify Western Ringtail Possum individuals • Habitat assessments for black cockatoos and Western Ringtail Possum • Mapping of desktop assessment results and conservation significant fauna habitat within the survey area.	The field survey included a total of three sampling sites. Opportunistic observations were made at ten locations as part of the Basic Fauna survey.	Limitations and constraints associated with the field survey are detailed as follows: • Rainy conditions encountered during the targeted Western Ringtail Possum survey may have impacted the ability to detect Western Ringtail Possum individuals, representing a potential constraint.

Survey	Area (ha)	Scope & Timing	Study / Survey Effort	Limitations
Bird and Bat Risk Assessment for a Proposed Wind Farm in Scott River – Level Two Investigation (Phoenix 2025b) **Appendix L**	3,882.2	Field surveys were undertaken over 12 periods between May 2023 and March 2025: • **Autumn:** 24–26 May 2023 • **Winter:** 1 –16 August 2023 • **Spring:** 17–20 November 2023 • **Summer:** 10–2 January 2024 • **Spring:** 27 – 30 September 2024 • **Spring:** 17 – 18, 21 October 2024 • **Spring:** 13 – 14 November 2024 • **Summer:** 2 December 2024 • **Summer:** 11 – 12 December 2024 • **Summer:** 16 – 17 January 2025 • **Summer:** 13 – 14 February 2025 • **Autum:** 6 – 7 March 2025. The scope of the survey included: • A desktop assessment of databases to identify potential habitat attributes for birds and bats and prepare a list of birds and bats, including conservation significant species that may occur • Bird utilisation surveys to generate quantitative data on birds within the survey area and surrounds • Bat utilisation surveys to generate quantitative data on bats within the survey area and surrounds • Audio recordings for conservation significant bird species • A likelihood of occurrence assessment for conservation significant species and identification of additional non-conservation significant species of concern • A preliminary risk assessment using a combination of likelihood and consequence of impact on bird and bat species of concern.	• The bird utilisation survey included a total of 28 sites, comprising nine Impact sites, 14 Reference sites and five Regional reference sites. The survey effort comprised: - Fixed-point counts at each location for 30 minutes each sample event - Two to six counts conducted in each survey phase at most Impact and Reference sites, including morning and afternoon counts - Regional reference sites were sampled once each in spring and autumn, and were accessed by boat at variable times of the day - A total survey effort of 150 hours; 63.5 hours from Impact sites, 82.0 hours from Reference sites and 4.5 hours at Regional reference sites. • The bat utilisation survey was undertaken during Year 1 of the survey program and comprised: - Placement of echolocation recorders at the same 16 fixed-point locations as the Year 1 bird utilisation survey - Recorders were operated for one night (unless conditions were windy) from 30 minutes before sunset to 30 minutes after sunrise - A total survey effort of 71 nights; 11 nights from Impact sites and 60 nights from Reference sites - Echolocation data was analysed by WA Bat Call. Audio recordings for conservation significant birds comprised: • Placement of audio recorders at each of the 16 Year 1 sample sites during winter, spring and summer	Limitations and constraints associated with this field survey are detailed as follows: • As bats were detected via echolocation recordings it was not possible to determine flight heights or distance and direction from the recorder • Two sites could only be surveyed once, due to land holder restrictions which took effect during the Year 1 sampling event. This limitation was addressed during the revision of Year 2 sites. • Below average rainfall between July and December may have influenced the number and diversity of Migratory bird records in Spring 2023.

Survey	Area (ha)	Scope & Timing	Study / Survey Effort	Limitations
			• Recorders were operated for one night during each sample period from 30 minutes before sunset to 30 minutes after sunrise • A total survey effort of 55 nights • Analysis of the audio data focused on Masked Owl and three Threatened black cockatoo species.	
Desktop Assessment of Short Range Endemic Fauna for a Proposed Wind Farm in Scott River – Western Australia (Invertebrate Solutions 2024a) **Appendix M**	100,000.0	The scope of the desktop assessment included: • A search of the WAM databases for Arachnids, Crustacea and Molluscs for potential SRE taxa occurring in the Scott River region • A likelihood of occurrence assessment for SRE invertebrates using a combination of regional and local botanical and landform information and database searches • Examination of taxonomic groups known to contain SRE representatives to determine if SRE status is to be assigned • Assessment of SRE habitat within the Development Envelope using broad groupings associated with the vegetation types in Phoenix (2025c).	The desktop assessment consulted the following databases and information sources: • Published and unpublished reports concerning SRE invertebrates from the region • Protected Matters Search Tool (PMST) (DCCEEW 2024e) • Fauna records (WAM 2024a,b,c) • Vegetation descriptions and mapping within the Detailed flora and vegetation survey for a Proposed Wind Farm in Scott River (Phoenix 2025c).	-

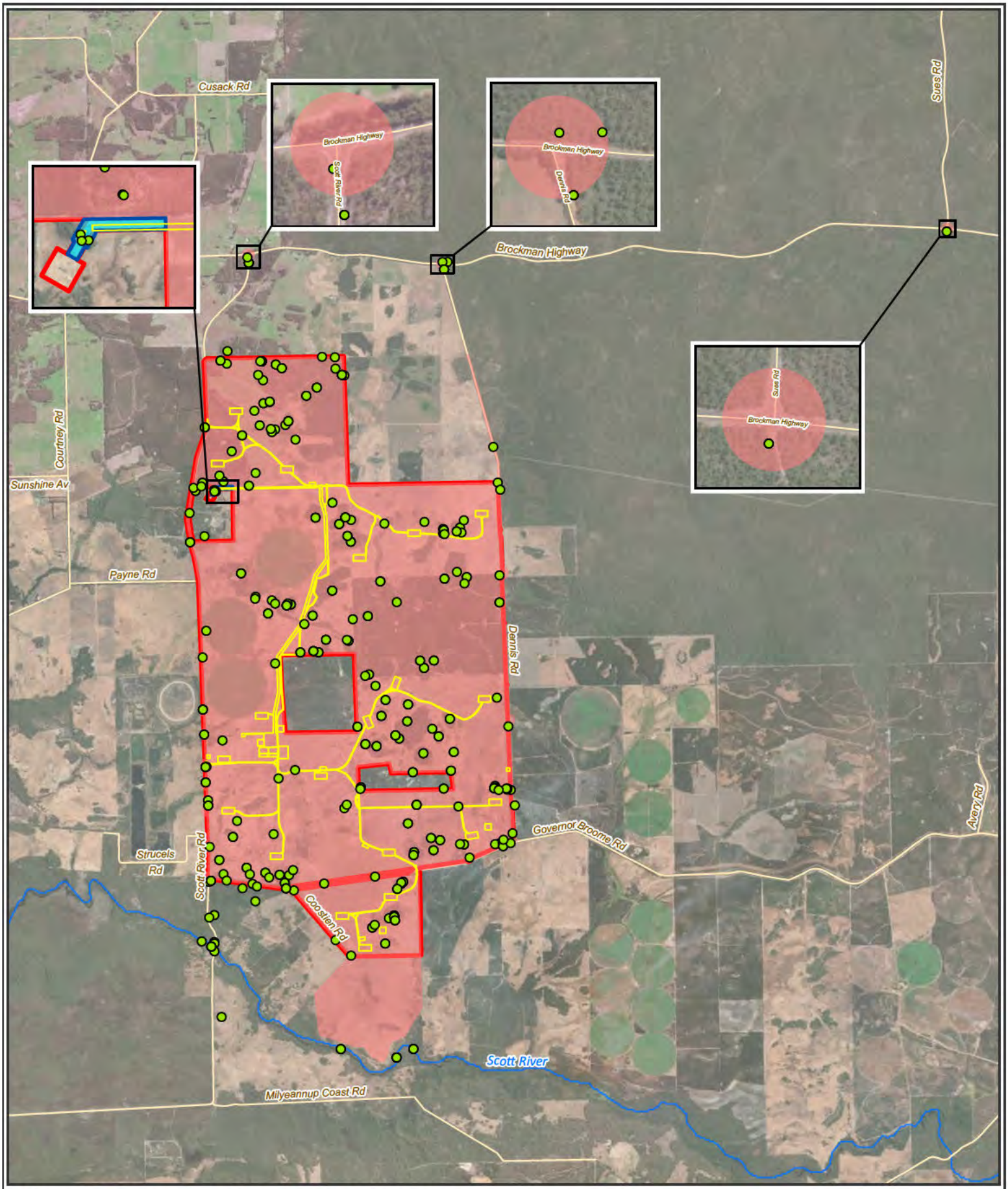


Figure 9-1: Terrestrial Vertebrate Fauna Survey

- Sample Sites
- Roads
- Watercourses
- Development Envelope
- Indicative Disturbance Footprint
- Ecological gap survey extent (ELA 2025b)
- Basic and Targeted vertebrate fauna survey extent (Phoenix 2025a)

0 0.75 1.5 3
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

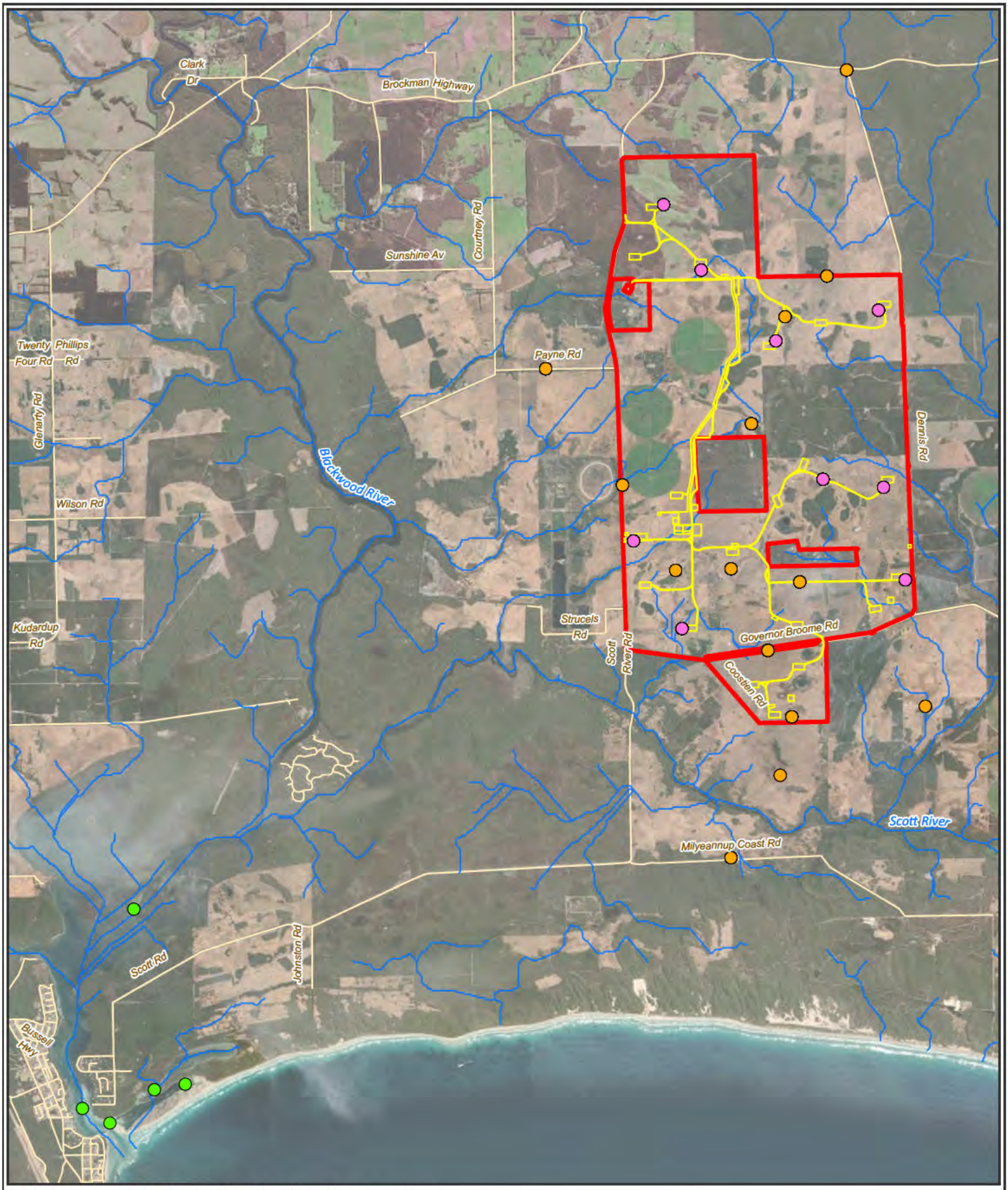


Figure 9-2: Bird and Bat Utilisation Survey

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Survey site

- Impact Sites
- Reference Sites
- Regional Reference Sites

0 0.75 1.5 3
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

9.3.2. Terrestrial Fauna Habitat

Ten broad fauna habitat types were identified during the Basic and Targeted fauna survey, including three wetland habitats, two woodlands and five highly modified habitats (Table 9-3; Figure 9-3; Phoenix 2025a). All of these fauna habitat types occur within the Development Envelope, covering a total of 3,596.85 ha.

The majority (approximately 80%) of the Development Envelope comprises the highly modified habitats, which cover 2,892.54 ha and provide limited value for fauna, however, the cleared paddocks may provide seasonal foraging value to bird species, such as black cockatoos, during seeding. The plantations also represent potential food sources for Carnaby's and Baudin's cockatoos and the dams are considered a drinking water source for fauna.

Specific habitat requirements for conservation significant species with a likelihood rating of Possible (rare) or greater are discussed further in Section 9.3.4.

Table 9-3: Fauna Habitat Type Extent and Description within the Proposal

Habitat Type	Fauna Habitat Description	Extent within Survey Area (ha)	Extent within Development Envelope (ha)	% of Development Envelope	Representative Photograph
Wetlands					
Seasonally inundated paperbark woodland (wetland)	Seasonally inundated sumplands with low open paperbark (*Melaleuca*) woodlands over shrubs, sedges and/or grasses.	144.89	144.89	4.03	
Seasonally inundated sedgeland (wetland)	Seasonally inundated sumplands/floodplains with open to dense mixed sedges, occasional paperbark (*Melaleuca*).	107.01	90.54	2.52	
Seasonally inundated shrubland (wetland)	Seasonally inundated sumplands with variable open to sparse shrublands, species including paperbarks (*Melaleuca*), Peppermint (*Agonis flexuosa* var. *flexuosa*), *Acacia* and occasional Balga (*Xanthorrhoea preissii*).	126.07	116.90	3.25	
Woodlands					

Habitat Type	Fauna Habitat Description	Extent within Survey Area (ha)	Extent within Development Envelope (ha)	% of Development Envelope	Representative Photograph
Marri-Jarrah-Peppermint woodland	Low to mid open woodlands of Jarrah (*Eucalyptus marginata* subsp. *marginata*), Marri (*Corymbia calophylla*) and Peppermint (*Agonis flexuosa* var. *flexuosa*).	322.18	252.93	7.03	
Open woodland of Peppermint trees (degraded)	Open Peppermint (*Agonis flexuosa* var. *flexuosa*) woodlands over pastures.	98.90	99.05	2.75	

Habitat Type	Fauna Habitat Description	Extent within Survey Area (ha)	Extent within Development Envelope (ha)	% of Development Envelope	Representative Photograph
Highly modified					
Cleared	Cleared areas absent or near absent of native vegetation; agricultural paddocks and roads. May contain isolated paddock trees, generally of Peppermint (*Agonis flexuosa* var. *flexuosa*).	2,667.32	2476.44	68.85	
Cleared - degraded sumpland	Sumpland wetland that has been cleared and is devoid of native vegetation. Essentially paddock (as above 'Cleared' habitat) but seasonally inundated with occasional, isolated sedge plants remaining.	8.23	0.84	0.02	
Dam	Artificial pond or dam with standing water.	1.70	1.70	0.05	

Habitat Type	Fauna Habitat Description	Extent within Survey Area (ha)	Extent within Development Envelope (ha)	% of Development Envelope	Representative Photograph
Bluegum plantation	Planted mid woodland of Bluegum (**Eucalyptus globulus* subsp. *globulus*).	415.43	412.29	11.46	
Pine plantation	Planted open woodland of pine (**Pinus* sp.) plantation.	1.60	1.27	0.04	
Total	-	3,893.33	3,596.85	100.00	-

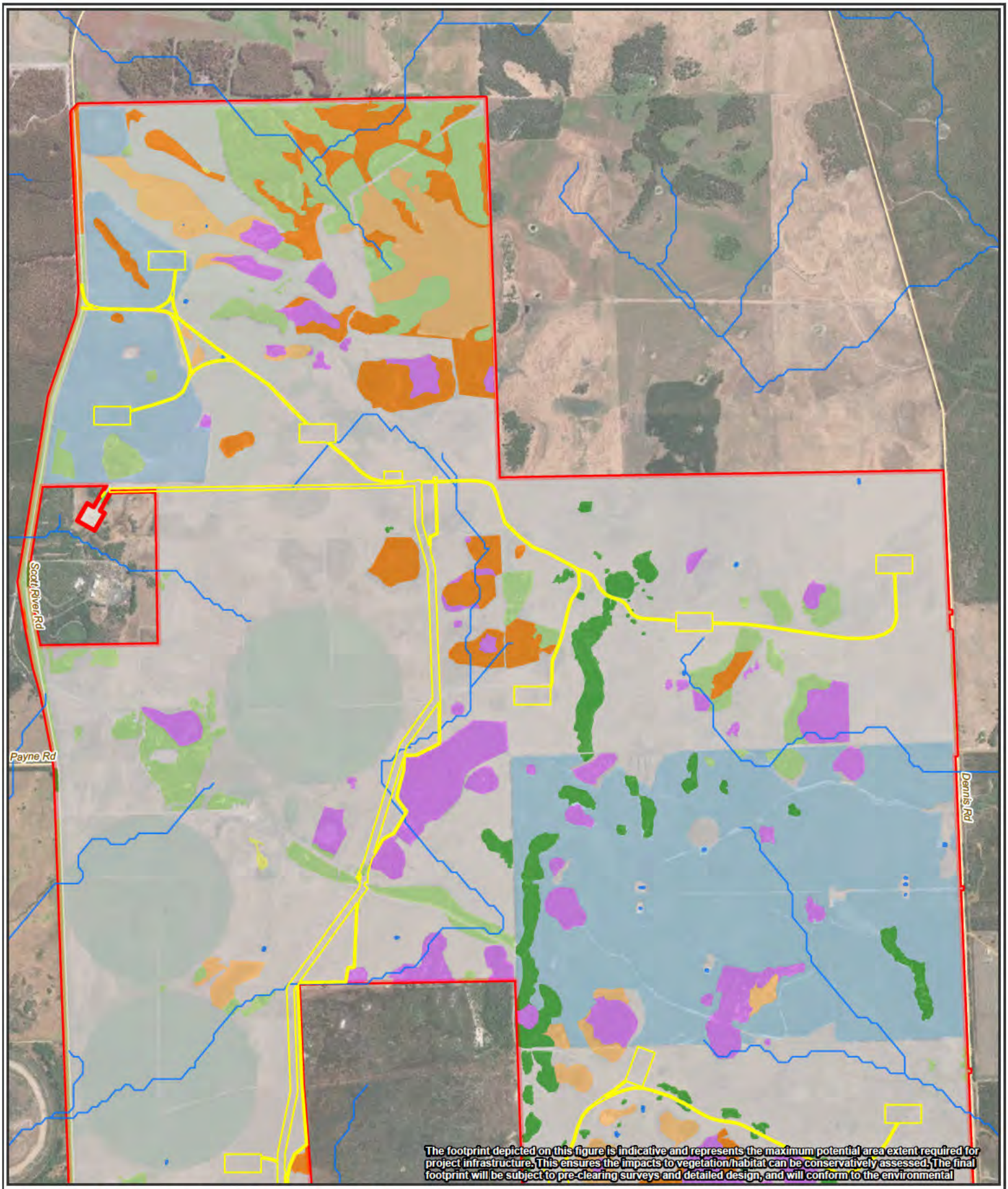
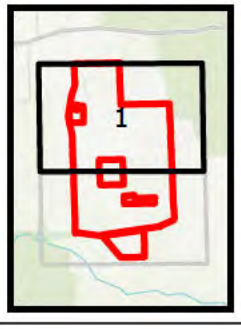


Figure 9-3: Terrestrial Fauna Habitat Types (Page 1 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint
- Cleared

Terrestrial Fauna Habitat (Phoenix 2025a)

- Bluegum plantation
- Cleared - degraded sumpland
- Marri-Jarrah-Peppermint woodland
- Open woodland of Peppermint trees (degraded)
- Seasonally inundated paperbark woodland (wetland)
- Seasonally inundated sedgeland (wetland)
- Seasonally inundated shrubland (wetland)
- Dam



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/15/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

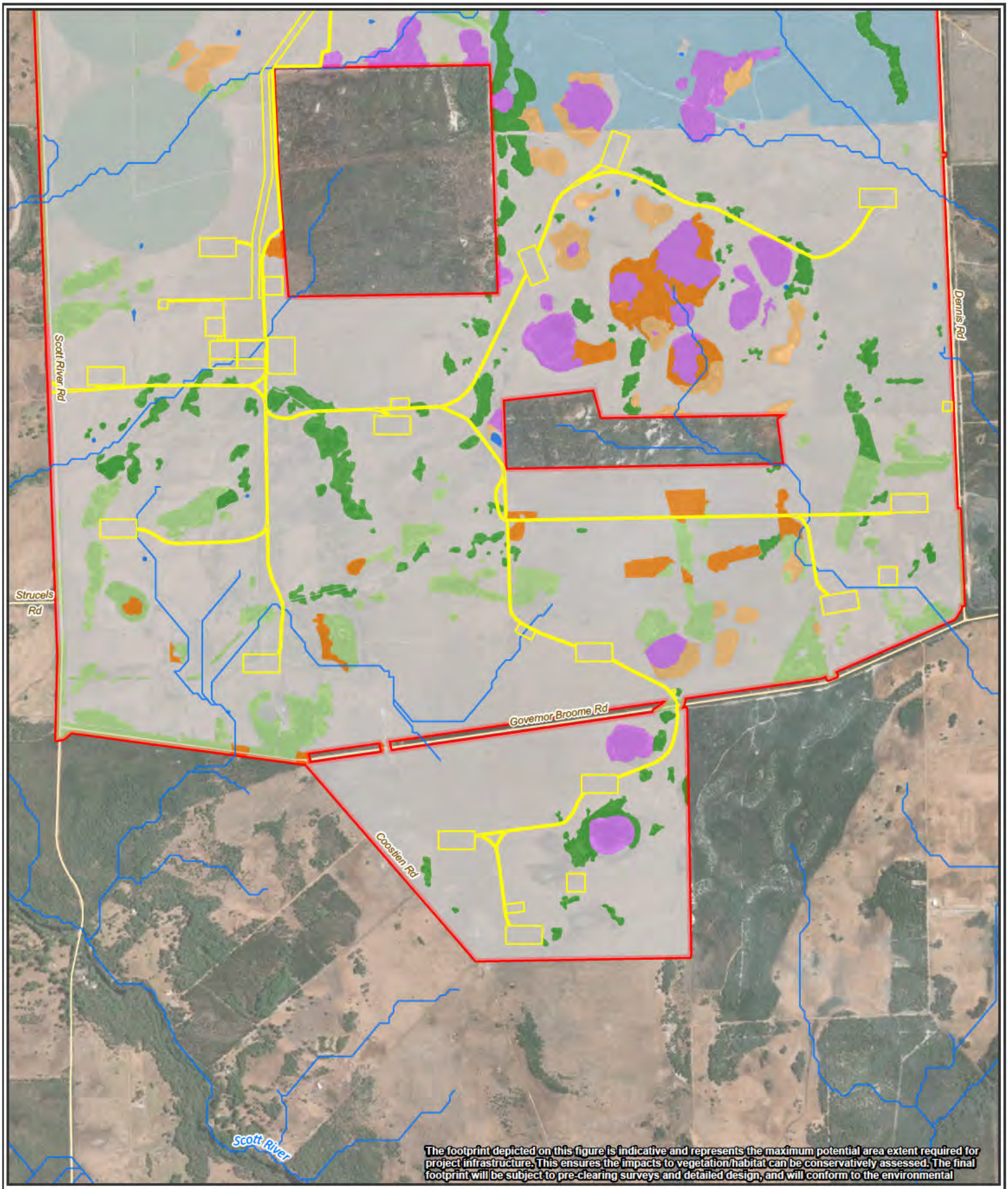
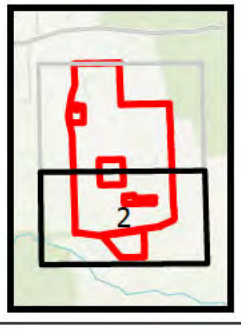


Figure 9-3: Terrestrial Fauna Habitat Types (Page 2 of 2)

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint
- Cleared

Terrestrial Fauna Habitat (Phoenix 2025a)

- Bluegum plantation
- Marri-Jarrah-Peppermint woodland
- Open woodland of Peppermint trees (degraded)
- Pine plantation
- Seasonally inundated paperbark woodland (wetland)
- Seasonally inundated sedgeland (wetland)
- Seasonally inundated shrubland (wetland)
- Dam



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/15/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

9.3.3. Vertebrate Fauna Species Assemblage

The desktop review identified a total of 262 vertebrate species as potentially occurring within a 10 km or 40 km radius, including 12 amphibians, 24 reptiles, 198 birds and 28 mammals (Phoenix 2025a). During the field surveys, a total of 137 terrestrial vertebrate species were recorded, comprising nine amphibians, 105 birds, 17 mammals and six reptiles.

Of the 137 species of vertebrate fauna recorded, 130 species were native and seven were introduced. The introduced species assemblage included three feral predators, namely Cat, Dog and Red Fox.

9.3.4. Conservation Significant Vertebrate Fauna

A total of seven conservation significant terrestrial fauna species listed under the EPBC Act, BC Act or as Priority fauna by DBCA were recorded within the Development Envelope (Phoenix 2025a; Figure 9-4) comprising the following:

- Western Ringtail Possum (*Pseudocheirus occidentalis;* listed as CR under the EPBC Act and BC Act)
- Baudin's Cockatoo (*Zanda baudinii*; listed as EN under the EPBC Act and BC Act)
- Carnaby's Cockatoo (*Zanda latirostris;* listed as EN under the EPBC Act and BC Act)
- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*; listed as VU under the EPBC Act and BC Act)
- Wood Sandpiper (*Tringa glareola;* listed as Migratory [MI] under the EPBC Act and BC Act)
- Osprey (*Pandion haliaetus;* listed as MI under the EPBC Act and BC Act)
- Western False Pipistrelle (*Falsistrellus mackenziei;* listed as P4 by DBCA).

Another three conservation significant terrestrial fauna species were recorded outside the Development Envelope, namely Peregrine Falcon (*Falco peregrinus*; listed as Other Specially Protected Fauna [OS] under the BC Act), Quenda (*Isoodon fusciventer*; listed as P4 by DBCA) and Masked Owl (southwest) (*Tyto novaehollandiae novaehollandiae*; listed as P3 by DBCA).

An assessment of the likelihood of occurrence of conservation significant terrestrial fauna species within the Development Envelope is provided in Appendix K. A total of seven conservation significant fauna species are considered likely to occur within the Development Envelope, based on the currency and proximity of desktop records and the suitability of habitat present, including the three species recorded outside the Development Envelope (Phoenix 2025a). A further ten species are considered to possibly occur as a temporary, seasonal visitor, and an additional 11 species were considered to possibly occur, but only on rare occasions, hence they were assigned as Possible (rare) (Figure 9-4).

All species with a likelihood rating of Possible (rare) or greater are described in detail in Table 9-4, along with consideration of suitability of the fauna habitat recorded within the Development Envelope. A more detailed discussion of the distribution, occurrence and potential habitat of the Western Ringtail Possum and black cockatoos within the Development Envelope is provided in Section 9.3.4.1 and 9.3.4.2.

Table 9-4:Significant Fauna Recorded or Likely to Occur within the Development Envelope

Species	Conservation Status	Habitat Preferences	Likelihood of Occurrence	Suitable Habitat within the Development Envelope
Birds				
Curlew Sandpiper (*Calidris ferruginea*)	Critically Endangered (EPBC Act and BC Act) Migratory (EPBC Act)	Occurs on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons. Known to favour non-tidal swamps, lakes and lagoons near the coast, and ponds in saltworks and sewage farms. Also recorded inland, though less often, including around ephemeral and permanent lakes, dams, waterholes and bores/drains, usually with bare edges of mud or sand (DCCEEW 2024g).	**Possible** Nearby record. Suitable habitat present. Arrives in the South West in spring; therefore, may be a temporary, seasonal visitor.	The Development Envelope contains 2,831.32 ha of potentially suitable habitat for the species (Wetland habitats, Cleared, Cleared-degraded sumpland, Dam).
Australasian Bittern (*Botaurus poiciloptilus*)	Endangered (EPBC Act and BC Act)	Found in large, relatively undisturbed, freshwater or brackish swamps with dense vegetation (Birdlife Australia 2013), including wetlands on the south coast from Augusta to Cape Arid. Habitat critical to survival is described as generally large, fresh to moderately brackish wetlands with pH of 5.5-8.5 (DBCA 2018).	**Possible (rare)** Development Envelope is within known range and potentially suitable habitat is present. No previous records within 10 km. Targeted searches and recorders did not detect the species. However, the potential for occasional presence at the larger wetlands within the Development Envelope cannot be discounted, but unlikely to be a regular visitor or regularly transit through the Development Envelope.	The Development Envelope contains 352.33 ha of potentially suitable habitat for the species, comprising the three wetland habitats.
Baudin's Cockatoo (*Zanda baudinii)*	Endangered (EPBC Act and BC Act)	The Baudin's Cockatoo typically inhabits the temperate forests and woodlands of the southwest of WA that are dominated by Jarrah, Marri and *Eucalyptus diversicolor* (Karri) (Johnstone et al. 2010). Generally, night roosting habitat occurs in or near riparian environments or other permanent water sources, comprising tall trees, but particularly Jarrah, Flooded Gum, Blackbutt, Tuart and introduced eucalypts such as Blue Gum (*E. globulus*) and Lemon Scented Gum (*Corymbia citriodora*) (DAWE 2022).	**Recorded** A total of 57 individuals were recorded from seven observations. The following additional records were also recorded that could not be identified to species level and may be associated with this species: • 117 individuals from 84 records of white-tailed black cockatoos (either Carnaby's or Baudin's)	The Development Envelope contains: • 580 potential nesting trees, including 4 suitable breeding trees • 38.31 ha of High quality foraging habitat and 321.84 ha of Moderate quality foraging habitat • Potential roosting habitat within the Marri-Jarrah Peppermint Woodland habitat, Seasonally inundated shrubland wetland and Seasonally inundated paperbark woodland (wetland) habitats.

Species	Conservation Status	Habitat Preferences	Likelihood of Occurrence	Suitable Habitat within the Development Envelope
			• 99 individuals from 18 records of black cockatoos (could represent any of the black cockatoo sp.). A total of 572 minutes of white-tailed black cockatoos were collected in audio recordings.	A more detailed habitat assessment for Baudin's Cockatoo is provided in Section 9.3.4.2 and presented in Figure 9-7.
Carnaby's Cockatoo (*Zanda latirostris*)	Endangered (EPBC Act and BC Act)	Carnaby's Cockatoo utilises a variety of forests, shrublands and banksia woodlands. The species uses native shrubland, kwongan heathland and proteaceous woodland, including banksia woodland for foraging, where it feeds on mainly the seeds and less often the nectar of *Eucalyptus* spp., *Banksia* spp., *Hakea* spp. and even *Pinus* spp. (DCCEEW 2026b). Roosting habitat occurs in or near riparian environments or natural and artificial permanent water sources and comprises any tall trees, but particularly Flat-topped Yate (*E. occidentalis*), Salmon Gum, Wandoo, Marri, Karri, Blackbutt, Tuart, and introduced eucalypts and pines (DAWE 2022).	**Recorded** A total of 154 individuals were recorded from 38 observations. The following additional records were also recorded that could not be identified to species level and may be associated with this species: • 117 individuals from 84 records of white-tailed black cockatoos (Carnaby's or Baudin's) • 99 individuals from 18 records of black cockatoos (could represent any of the black cockatoo species). A total of 572 minutes of white-tailed black cockatoos were collected in audio recordings. There is no breeding habitat for Carnaby's Cockatoo within the Development Envelope, as it occurs within the non-breeding range for the species, as defined in DAWE (2022).	The Development Envelope contains: • 28.91 ha of High quality foraging habitat and 497.78 ha of Moderate quality foraging habitat • Potential roosting habitat within the Marri-Jarrah Peppermint Woodland habitat, Seasonally inundated shrubland wetland, Seasonally inundated paperbark woodland (wetland) and Pine plantation habitats. A more detailed habitat assessment for Carnaby's Cockatoo is provided in Section 9.3.4.2 and presented in Figure 9-6.
Common Greenshank (*Tringa nebularia*)	Endangered (EPBC Act) Migratory (EPBC Act and BC Act)	Occurs in wetlands throughout Australia (DCCEEW 2025b). Prefers coastal or inland wetlands, in estuaries and mudflats, mangrove swamps and lagoons. Foraging habitat includes mudflats, channels, or the edges of mangroves, sedges and saltmarsh. Does not breed in Australia. Breeding occurs in the Palaearctic. Arrives in the South West as early as August.	**Likely** Many records (>90) in proximity to the Development Envelope, primarily associated with the Blackwood River, Scott Rivier and the adjacent Beenup artificial wetlands. The species is found in a wide variety of inland wetlands (DCCEEW 2024c. Therefore,	The Development Envelope contains 354.87 ha of potentially suitable habitat for the species (Wetland habitats, Cleared degraded sumpland and Dam).

Species	Conservation Status	Habitat Preferences	Likelihood of Occurrence	Suitable Habitat within the Development Envelope
			suitable habitat is present. Likely to occur within the Development Envelope in September and October when the wetland habitats and some areas of paddock are likely to be inundated after winter.	
Siberian Sand Plover (*Anarhynchus Mongolus*)	Endangered (EPBC Act and BC Act) Migratory (EPBC Act)	Typically found in coastal and estuarine environments. Utilises intertidal mudflats and sandflats, as well as sheltered harbours. Occasionally occupies sandy beaches, rock platforms, saltmarshes, mangrove saltworks, brackish swamps and silt islands (DCCEEW 2024j).	**Possible (rare)** Nearby record but mainly occurs in coastal habitats. Main habitats not present.	The Development Envelope contains 352.33 ha of potentially suitable habitat for the species, comprising the three wetland habitats.
Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*)	Vulnerable (EPBC Act and BC Act)	The species roosts in dense forests comprised of mostly tall trees, but particularly Jarrah, Marri, Blackbutt, Tuart and introduced eucalypt trees, that on average receive more than 600 mm of annual rainfall (DAWE 2022; Saunders and Ingram 1995). These dense forests are also utilised for foraging, where, in small family groups, the cockatoos leave the roost at sunrise to feed (Johnstone and Kirkby 1999).	**Recorded** A total of 206 individuals were recorded from 48 observations The following additional records were also recorded that could not be identified to species level and may be associated with this species: • 99 Individuals from 18 records of black cockatoos (could represent any of the black cockatoo sp.). A total of 42 minutes of Forest Red-tailed Black Cockatoos were collected in audio recordings.	The Development Envelope contains: • 580 potential nesting trees, including 4 suitable nesting trees • 151.75 ha of High quality foraging habitat and 201.71 ha of Moderate quality foraging habitat • Potential roosting habitat within the Marri-Jarrah Peppermint Woodland habitat, Seasonally inundated shrubland wetland and Seasonally inundated paperbark woodland (wetland) habitats. A more detailed habitat assessment for Forest Red-tailed Black Cockatoo is provided in Section 9.3.4.2 and presented in Figure 9-8.
Great Knot (*Calidris tenuirostris*)	Vulnerable/Migratory (EPBC Act) Critically Endangered (BC Act)	Usually occupies sheltered coastal habitats, mudflats and sandflats such as inlets, bays, harbours, estuaries and lagoons. Known to use reefs and rock platforms, as well as shorelines and mangroves. There are also records in swamps	**Possible (rare)** Nearby records. Suitable habitat present. However, mainly occurs in coastal habitats and is uncommon in South West.	The Development Envelope contains 352.33 ha of potentially suitable habitat for the species, comprising the three wetland habitats.

Species	Conservation Status	Habitat Preferences	Likelihood of Occurrence	Suitable Habitat within the Development Envelope
		near the coast, salt lakes and non-tidal lagoons (DAWE 2021a).		
Grey Plover (*Pluvialis fulva*)	Vulnerable (EPBC Act) Migratory (EPBC Act and BC Act)	Inhabits coastal areas, typically those that are sheltered, such as embayments and estuaries, although is also known to occupy rocky coasts and platforms. Occasionally found in inland waterbodies (DCCEEW 2024o).	**Possible (rare)** Nearby record from the Blackwood River but occurs mostly in coastal habitats.	The Development Envelope contains 352.33 ha of potentially suitable habitat for the species comprising the three wetland habitats.
Sharp-tailed Sandpiper (*Calidris acuminata*)	Vulnerable (EPBC Act) Migratory (EPBC Act and BC Act)	Muddy edges of shallow fresh or brackish vegetated wetlands, including lagoons, swamps, lakes and pools near the coast, and dams, waterholes, soaks, bore drains and bore swamps, saltpans and hyper-saline salt lakes inland (DCCEEW 2024b).	**Possible** Nearby record. Suitable habitat present in the seasonally inundated wetland habitats in early spring, coinciding with arrival of the species in the South West. Therefore, may be a temporary, seasonal visitor.	The Development Envelope contains 354.03 ha of potentially suitable habitat for the species, comprising the three wetland habitats and Dam.
Bar-tailed Godwit (*Limosa lapponica*)	Migratory (EPBC Act and BC Act)	Occurs in intertidal sandflats, banks, mudflats, estuaries coastal lagoons and harbours. Has also been found on occasion on inland wetlands or in areas of short grass, such as paddocks (DCCEEW 2024m).	**Possible (rare)** Nearby record. Suitable habitat present but not primary habitat. Potential presence is considered very rare.	The Development Envelope contains 2684.72 ha of potentially suitable habitat for the species (Seasonally inundated sedgeland, Seasonally inundated shrubland, Cleared, Cleared-degraded sumpland).
Black-tailed Godwit (*Limosa limosa*)	Migratory (EPBC Act and BC Act)	Typically found in coastal environments with sheltered bays, estuaries and lagoons, as well as shallow and sparsely vegetated near-coastal wetlands (DCCEEW 2024n). There are a few inland records, around shallow, freshwater and saline lakes, swamps, dams and bore-overflows. Habitat use is dictated by tides.	**Possible (rare)** Old (1980) desktop records <10 km from Development Envelope at a site near artificial wetlands and one near the Blackwood River. All other desktop records, including all recent records, are associated with the Hardy Inlet and coast. Recorded during BBRA survey from Regional reference sites. Occurs almost entirely in coastal habitats such as intertidal sandflats, mudflats and estuaries. It has been observed on occasion on inland wetlands and paddocks but potential	The Development Envelope does not contain any suitable habitat for the Black-tailed Godwit.

Species	Conservation Status	Habitat Preferences	Likelihood of Occurrence	Suitable Habitat within the Development Envelope
			presence in the Development Envelope is considered very rare. The species is only expected to fly over the Development Envelope on occasion.	
Broad-billed Sandpiper (*Calidris falcinellus*)	Migratory (EPBC Act and BC Act)	Found in sheltered coastal environments, mudflats and favours estuarine habitats. Occasionally in saltmarshes, freshwater lagoons, saltworks and sewage farms. Has also been known to occupy creeks, swamps and lakes near the coast, favouring those with mudflats and exposed sands with receding tides (DCCEEW 2024l).	**Possible (rare)** Old (1979 - 80) desktop records <10 km from the Development Envelope from a site near artificial wetlands. All recent desktop records are from the Hardy Inlet. Only occasional records from swamps and lakes. Arrives in South West in September but rare.	The Development Envelope contains 352.33 ha of potentially suitable habitat for the species within the wetland habitats.
Caspian Tern (*Hydroprogne caspia*)	Migratory (EPBC Act and BC Act)	Found in sheltered coastal embayments (such as harbours, lagoons, inlets, bays, estuaries and river deltas). Also occur on near-coastal or inland terrestrial wetlands that are either fresh or saline, but especially lakes, and artificial wetlands and reservoirs and near-coastal terrestrial wetlands (DCCEEW 2024k). Common in the Blackwood River estuary.	**Possible (rare)** Nearby record. Wetlands present are shallow and unlikely to provide the food sources the species requires. The species is only expected to fly over the Development Envelope on occasion.	The Development Envelope does not contain any suitable habitat for the Caspian Tern.
Common Sandpiper (*Actitis hypoleucos*)	Migratory (EPBC Act and BC Act)	Small ponds, large inlets, mudflats where they forage on the shore usually close to the vegetation (DCCEEW 2024f). Uses a wide variety of coastal wetlands and some inland wetlands. Species arrives in the South West in September to October (DCCEEW 2024f).	**Possible** Nearby record. Suitable habitat present within the wetland habitat, but receding as species arrives in the South West in spring, therefore, may be a temporary, seasonal visitor.	The Development Envelope contains 352.33 ha of potentially suitable habitat for the species within the wetland habitats.
Double-banded Plover (*Anarhynchus bicinctus*)	Migratory (EPBC Act and BC Act)	Found on littoral, estuarine and fresh or saline terrestrial wetlands, rivers, saltmarshes, lagoons, grasslands and pasture. Also occurs on muddy, sandy, shingled or rocky beaches, bays and inlets (DCCEEW 2024i).	**Possible (rare)** Previous desktop records <10 km from the Development Envelope but old (1979 - 1980) and from a single site near artificial wetlands. While the species is known to use terrestrial wetlands and pasture near the coast, it only occurs rarely in WA. Therefore,	The Development Envelope contains 2,829.62 ha of potentially suitable habitat for the species (Wetland habitats, Cleared, Cleared-degraded sumpland).

Species	Conservation Status	Habitat Preferences	Likelihood of Occurrence	Suitable Habitat within the Development Envelope
			considered unlikely to occur, except as possibly a very rare visitor.	
Fork-tailed Swift (*Apus pacificus*)	Migratory (EPBC Act and BC Act)	Occurs in a wide range of dry or open habitats, including riparian woodlands, tea tree swamps, low scrub, heathland, saltmarsh, grassland and spinifex sandplains, open farmland and inland and coastal sand dunes (DCCEEW 2021).	**Possible** Within species distribution, but no nearby records. Occupies wide range of habitats. Aerial feeder, may feed on insects over the Development Envelope on occasion.	The Development Envelope contains 3,183.29 ha of potentially suitable habitat for the species (Wetland habitats, Marri-Jarrah-Peppermint woodland, Open woodland of Peppermint trees (degraded), Cleared, Cleared-degraded sumpland, Dam).
Grey-tailed Tattler (*Tringa brevipes*)	Migratory (EPBC Act and BC Act) Priority 4 (DBCA)	Occurs on sheltered coasts with reefs and rock platforms or mudflats and can also be found on reefs or platforms that are exposed at low tide (DCCEEW 2024p). It is occasionally found around near-coastal wetlands, such as lagoons, and lakes and ponds, in sewage farms and saltworks. Inland records for the species are rare (Higgins & Davies 1996).	**Possible (rare)** Nearby record. Inland records for the species are rare. Main habitats not present. The species is only expected to fly over the Development Envelope on occasion.	The Development Envelope does not contain any suitable habitat for the Grey-tailed Tattler.
Grey Wagtail (*Motacilla cinerea*)	Migratory (EPBC Act and BC Act)	Uses a wide array of habitats. A small wagtail that is a vagrant visitor to mainly northern Australia that inhabits fast flowing streams and rivers (IUCN 2019).	**Possible (rare)** Desktop record is projected distribution only. Suitable habitat is present but occurs in a wide range of habitats. Very few records of this species from the region. May occur in on rare occasions only.	The Development Envelope contains 706.01 ha of potentially suitable habitat for the Grey Wagtail (Wetland habitats, Marri-Jarrah-Peppermint woodland, Open woodland of Peppermint trees (degraded), Dam).
Marsh Sandpiper (*Tringa stagnatilis*)	Migratory (EPBC Act and BC Act)	Lives in permanent or ephemeral wetlands of varying salinity (DCCEEW 2023b). In WA they prefer freshwater to marine environments. Does not breed in Australia. Breeding occurs in east Europe, southern Siberia and northern China.	**Possible** No previous desktop records <10 km of study area, last record in December 2000 at the Hardy Inlet. Suitable habitat present when species arrives in South West during September and early October when the wetland habitats are still inundated.	The Development Envelope contains 354.03 ha of potentially suitable habitat for the species (Wetland habitats, Dam).

Species	Conservation Status	Habitat Preferences	Likelihood of Occurrence	Suitable Habitat within the Development Envelope
Osprey (*Pandion haliaetus*)	Migratory (EPBC Act and BC Act)	The species is distributed along Australia's northern coastline, from south-west WA to south-east New South Wales (DCCEEW 2025b). Habitat includes coastal habitat and terrestrial wetlands of tropical and temperate Australia and offshore islands. Foraging requires the presence of extensive areas of saline, brackish or fresh water. Breeding in Australia occurs from Albany in WA's south and around the northern coastline to southern New South Wales.	**Recorded** One individual was recorded within the Development Envelope. There are no sites of International or National Importance within proximity to the Development Envelope. The wetland habitat types within the Development Envelope provide minor foraging habitat for the species (Phoenix 2025a).	The Development Envelope contains 352.33 ha of minor foraging habitat for the species (Wetland habitats).
Pacific Golden Plover (*Pluvialis fulva*)	Migratory (EPBC Act and BC Act)	Usually inhabits coastal habitats (e.g. beaches, mudflats and sandflats, harbours, estuaries and lagoons), but will use inland wetlands, such as fresh, brackish or saline lakes, billabongs, pools, swamps and wet claypans, especially those with muddy margins and often with submerged vegetation or short emergent grass. It may even use other terrestrial habitats such as short grass in paddocks (DAWE 2021b).	**Possible** Nearby record. Suitable habitat present. May occur on occasion when they arrive in spring, before the ephemeral wetlands dry for the summer.	The Development Envelope contains 2,829.62 ha of potentially suitable habitat for the species (Wetland habitats, Cleared, Cleared-degraded sumpland).
Pectoral Sandpiper (*Calidris melanotos*)	Migratory (EPBC Act and BC Act)	Utilises shallow fresh to saline wetlands such as coastal lagoons, estuaries, bays, swamps, lakes, inundated grasslands, saltmarshes, river pools, creeks, floodplains and artificial wetlands (DCCEEW 2023c).	**Possible** Nearby record. Suitable habitat present. Arrives in South West in spring; therefore. may be a temporary, seasonal visitor.	The Development Envelope contains 2,829.62 ha of potentially suitable habitat for the species (Wetland habitats, Cleared, Cleared-degraded sumpland)
Red-necked Stint (*Calidris ruficollis*)	Migratory (EPBC Act and BC Act)	Found across a wide range of open mudflat-like habitats in salt and freshwater systems (DCCEEW 2024h).	**Possible** Old (1979-80) desktop records within 10 km of Development from a site near artificial wetlands. All recent desktop records are from the Hardy Inlet. Prefers sheltered coastal habitats with large intertidal flats. Rarely uses swamps near the coast and salt lakes. Uncommon in the South West.	The Development Envelope contains 2,831.32 ha of potentially suitable habitat for the species (Wetland habitats, Cleared, Cleared-degraded sumpland, Dam)

Species	Conservation Status	Habitat Preferences	Likelihood of Occurrence	Suitable Habitat within the Development Envelope
Wood Sandpiper (*Tringa glareola*)	Migratory (EPBC Act and BC Act)	Recorded in largest numbers in north-western Australia, although also distributed throughout Queensland, Vitoria, New South Wales and South Australia (DCCEEW 2025b). The species occurrence in Western Australia is widespread but scattered. Typically inhabits shallow freshwater wetlands well-vegetated with emergent reeds and grass, surrounded by tall plants and dead trees. Foraging occurs in wet or dry mud at the edges of wetlands (Higgins and Davies 1996). Does not breed in Australia, with breeding occurring throughout Eurasia.	**Recorded** Three individuals were recorded from a single observation within the Seasonally inundated paperbark woodland habitat within the Development Envelope.	The Development Envelope contains 352.33 ha of potentially suitable habitat for the species, comprising the three wetland habitats (Phoenix 2025a).
Masked Owl (southwest) (*Tyto novaehollandiae novaehollandiae*)	Priority 3 (DBCA)	This species roosts and nests in heavy forest; hunts over open woodland and farmland (Morcombe and Stewart 2021). It has also been recorded roosting in plantations.	**Likely** Two audio records outside the Development Envelope (Phoenix 2025a). Suitable habitat present. Given the lack of large suitable hollows present, the species is unlikely to breed within the Development Envelope.	The Development Envelope contains 764.26 ha of potentially suitable habitat for the species (Marri-Jarrah-Peppermint woodland, Open woodland of Peppermint trees (degraded), Bluegum plantation).
Blue-billed Duck (*Oxyura australis*)	Priority 4 (DBCA)	This species is almost entirely aquatic, favouring deep water, and is rarely seen on land (Birdlife Australia 2025a).	**Likely** Records <1 km from the Development Envelope. Suitable habitat present.	The species is considered likely to utilise the open water present within the 144.89 ha of Seasonally inundated paperbark woodland (wetland) habitat within the Development Envelope.
Peregrine Falcon (*Falco peregrinus*)	Other Specially Protected Fauna (BC Act)	This species occurs in most habitats, from the arid zone to rainforests (Birdlife Australia 2025b). The Peregrine Falcon prefers open woodlands near water, or coastal and inland cliffs. It is widespread, and hunts over rainforests, estuaries and offshore island seabird colonies.	**Likely** One individual was recorded directly adjacent to the Development Envelope during the BBRA survey. Suitable habitat present. The habitats within the Development Envelope provide ample hunting grounds for the species. Unlikely to nest within the Development Envelope.	A total of 3,451.96 ha of suitable foraging habitat for a resident individual/pair occurs within the Development Envelope, within all habitats except the Seasonally inundated paperbark woodland.

Species	Conservation Status	Habitat Preferences	Likelihood of Occurrence	Suitable Habitat within the Development Envelope
Mammals				
Western Ringtail Possum (*Pseudocheirus occidentalis*)	Critically Endangered (EPBC Act and BC Act)	Preferred habitat for this species includes Peppermint forests, woodlands, and Eucalyptus forests, usually with a Peppermint understorey, where the species feeds exclusively in the dominant or co-dominant upper and mid-storey (DPaW 2017).	**Recorded** Five individuals were recorded from two observations. Three of these records were from road intersection areas and two were within the Development Envelope. The records included one female with a juvenile.	The Development Envelope contains: • 91.85 ha of High quality habitat. • 26.73 ha of Moderate quality habitat • 539.28 ha of Low quality habitat. A more detailed habitat assessment for Western Ringtail Possum is provided in Section 9.3.4.1 and presented in Figure 9-5.
Chuditch (*Dasyurus geoffroii*)	Vulnerable (EPBC Act and BC Act)	Confined to south-WA, occurring in only 5% of its former range. Mostly found in Jarrah Forest and woodland of the south-west or heath and mallee habitats along the south coast. Uses horizontal hollow logs or earth burrows as refugia and dens (DEC 2012b).	**Possible** One nearby record. While Chuditch will disperse long distances the closest records are old, pre-dating 1934. Suitable habitat is present, though somewhat marginal. Numerous unexpected sightings in the South West in recent years. Potential for presence therefore cannot be discounted.	The Development Envelope contains 1,116.59 ha of potentially suitable habitat (Wetland habitats, Marri-Jarrah-Peppermint woodland, Open woodland of peppermint trees (degraded), Bluegum plantation).
Quenda (*Isoodon fusciventer)*	Priority 4 (DBCA)	This species typically occurs in dense shrubland and in understorey of adjacent forest.	**Likely** Three records from just outside the Development Envelope (Phoenix 2025a). Suitable habitat present but is unlikely to constitute critical habitat given the abundance of higher quality intact habitat to the south-west, east and north of the Development Envelope.	The Development Envelope contains 605.26 ha of potentially suitable habitat for the species (Wetland habitats, Marri-Jarrah-Peppermint woodland).
Western Brush Wallaby (*Notamacropus irma*)	Priority 4 (DBCA)	Grazing species, occurs in open forest or woodland with low grasses and scrubby thickets, and also found in some areas of mallee and heathland (DEC 2012c).	**Possible** Only a dew desktop records, but this includes some relatively close and recent records. Suitable habitat present, particularly in the large	The Development Envelope contains 252.93 ha of potentially suitable habitat for the species (Marri-Jarrah-Peppermint Woodland).

Species	Conservation Status	Habitat Preferences	Likelihood of Occurrence	Suitable Habitat within the Development Envelope
			remnant bushland on the northern-central boundary of the Development Envelope.	
Western False Pipistrelle (*Falsistrellus mackenziei)*	Priority 4 (DBCA)	This species typically occurs within mature or even old-growth forest where nesting and roosting hollows are more plentiful (Churchill 2008).	**Recorded** Recorded via audio recordings from seven locations on ten occasions, within and outside of the Development Envelope. Suitable habitat present but provides limited roosting and breeding value for the species.	The Development Envelope contains 351.97 ha of potentially suitable habitat for the species (Marri-Jarrah-Peppermint woodland, Open woodland of Peppermint trees (degraded).
South-western Brush-tailed Phascogale (*Phascogale tapoatafa wambenger)*	Conservation Dependent Fauna (BC Act)	This species has been observed in dry sclerophyll forest and open woodlands with hollow-bearing trees (DEC 2012a). Prefers open forest with sparse groundcover but uses habitats ranging from mallee to rainforest. Highly arboreal, typically on rough-barked trees, and seldom forages on the ground.	**Likely** A few records close to the Development envelope including a recent record (2014) within 10 km. Suitable habitat present. The species is most likely to utilise the large woodland - wetland mosaic remnant on the northern boundary of the Development Envelope where it is close to other remnants that may act as linkages to the conservation reserves to the north. Habitat within the Development Envelope is unlikely to constitute critical habitat given the abundance of higher quality intact habitat to the south-west, east and north of the Development Envelope.	The Development Envelope contains 252.93 ha of potentially suitable habitat for the species (Marri-Jarrah-Peppermint woodland).
Reptiles				
Short-nosed Snake (*Elapognathus minor)*	Priority 2 (DBCA)	Prefers heathlands at swamp margins, in sedgelands, and wet sclerophyll forests (Cogger 2014).	**Likely** One record <500 m south of the Development Envelope. Suitable habitat present.	The Development Envelope contains 605.26 ha of potentially suitable habitat for the species (Wetland habitats, Marri-Jarrah-Peppermint woodland).

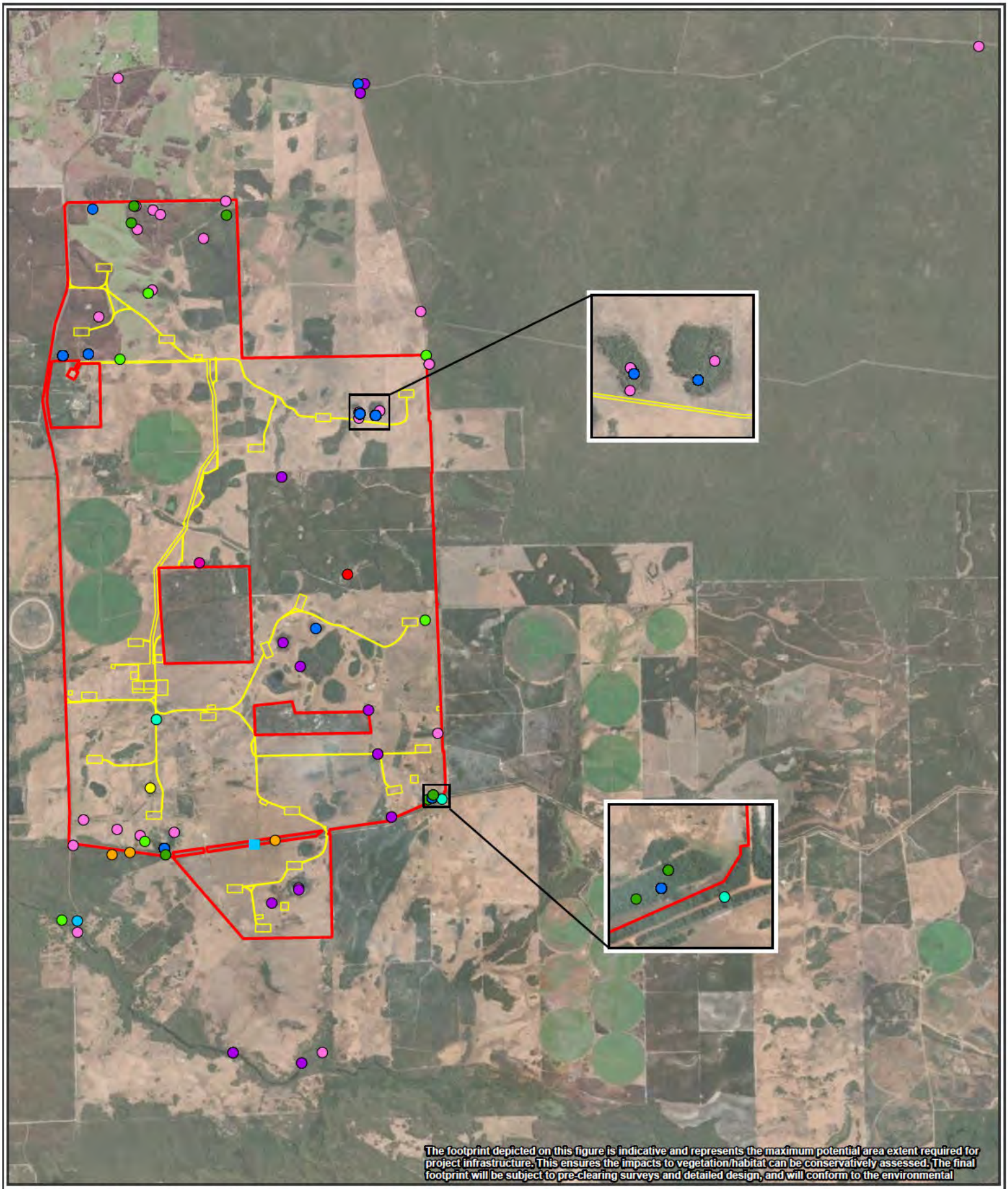


Figure 9-4: Conservation Significant Fauna Records

Indicative Disturbance Footprint
Development Envelope

Conservation Significant Fauna Records (Phoenix 2025a, Phoenix 2025b)

- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*; VU)
- Western False Pipistrelle (*Falsistrellus mackenziei*; P4)
- Quenda (*Isoodon fusciventer*; P4)
- Osprey (*Pandion haliaetus*; MI)
- Western Ringtail Possum (*Pseudocheirus occidentalis*; CR)
- Wood Sandpiper (*Tringa glareola*; MI)
- Masked Owl (southwest) (*Tyto novaehollandiae novaehollandiae*; P3)
- Baudin's Cockatoo (*Zanda baudinii*; EN)
- Carnaby's Cockatoo (*Zanda latirostris*; EN)
- Zanda sp.
- Calyptorhynchus/Zanda sp.
- Peregrine Falcon (*Falco peregrinus*; OS)

0 0.5 1 2
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/24/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

9.3.4.1. Western Ringtail Possum Habitat

The Western Ringtail Possum (*Pseudocheirus occidentalis*) is listed as Critically Endangered (CR) under the EPBC Act and the BC Act.

Habitat quality for Western Ringtail Possum was assessed based on habitat suitability, site context and species stocking rate. Each fauna habitat type was assigned a habitat quality category of None, Low, Moderate or High. The Western Ringtail Possum (*Pseudocheirus occidentalis*) Recovery Plan defines critical habitat as 'any habitat where Western Ringtail Possums occur naturally', which generally comprises 'long unburnt mature remnants of peppermint (*Agonis flexuosa*) woodlands with high canopy continuity and high foliage nutrients (high in nitrogen and low toxin levels); jarrah (*Eucalyptus marginata*)/marri (*Corymbia calophylla*) forests and woodlands' (DPaW 2017). In accordance with the Recovery Plan, linkages between suitable habitat patches are also considered critical to the species survival (DPaW 2017). The Recovery Plan has identified three key management zones for Western Ringtail Possum within Western Australia, namely the Swan Coastal Plain, Southern Forest and South Coast. The Development Envelope is not located within a management zone; however, the Swan Coastal Plain Management Zone is in proximity, to the east; therefore, the management priorities and actions assigned to this zone have been applied to the population within the Development Envelope.

A total of 91.30 ha of High quality and 26.84 ha of Moderate quality habitat for Western Ringtail Possum occurs within the Development Envelope (Table 9-5; Figure 9-5). High and Moderate quality foraging habitat was solely represented by Marri-Jarrah-Peppermint woodland. This High and Moderate value habitat occurs typically in the larger remnants on the extremities of the Development Envelope adjoining or near contiguous vegetation adjacent to the Development Envelope.

Low value habitat was associated with Bluegum plantation, Open woodland of Peppermint trees (degraded), Seasonally inundated paperbark woodland (wetland), Seasonally inundated sedgeland (wetland), Seasonally inundated shrubland (wetland) and poor condition, isolated or low density (reduced canopy cover) Marri-Jarrah-Peppermint woodland.

While the open woodland of Peppermint trees habitat is dominated by peppermint trees and widespread throughout the Development Envelope, this habitat type was mapped as low quality within the Development Envelope due to their degraded condition (i.e. lacking midstory and understorey and reduced canopy cover) and fragmentation (i.e. separated by open paddock by more than 50 m) with consideration for the arboreal nature of this species (Phoenix 2025a).

Table 9-5: Quality and Extent of Western Ringtail Possum Habitat within the Development Envelope

Habitat Quality Score	Extent within Survey Area (ha)	Extent within Development Envelope (ha)
None (0)	2,767.21	2,560.51
Low (0.5-4.5)	924.90	918.20
Moderate (5-7.5)	103.22	26.84
High (8-10)	98.00	91.30
Total	3,893.33	3,596.85

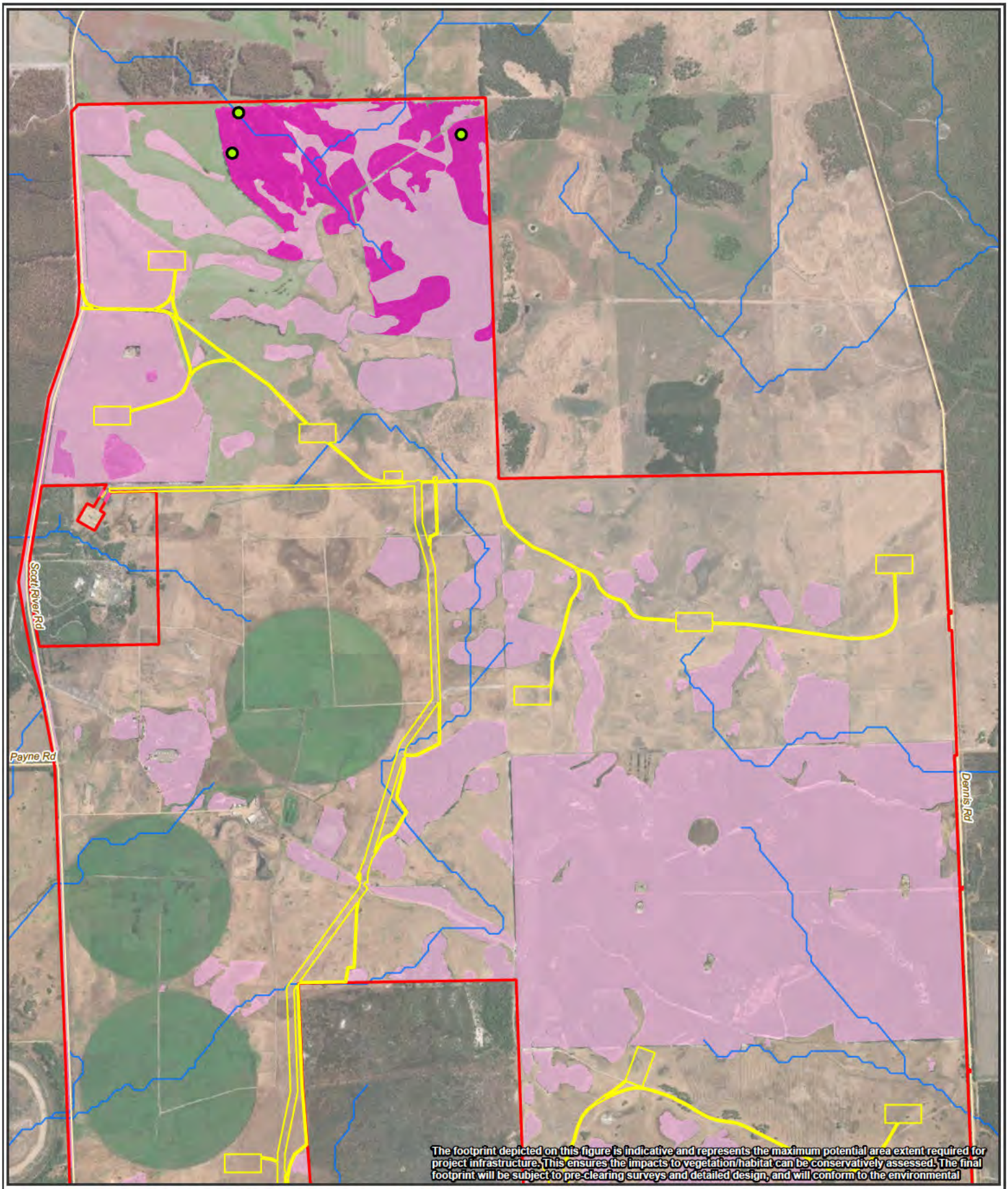
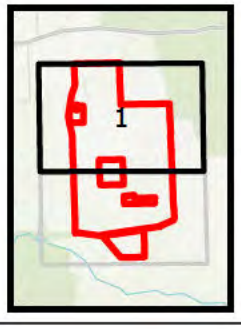


Figure 9-5: Western Ringtail Possum Habitat (Page 1 of 2)

- Western Ringtail Possum (*Pseudocheirus occidentalis*; CR)
- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Western Ringtail Possum Habitat Quality Score (Phoenix 2025a)

- Low
- Moderate
- High



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/16/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

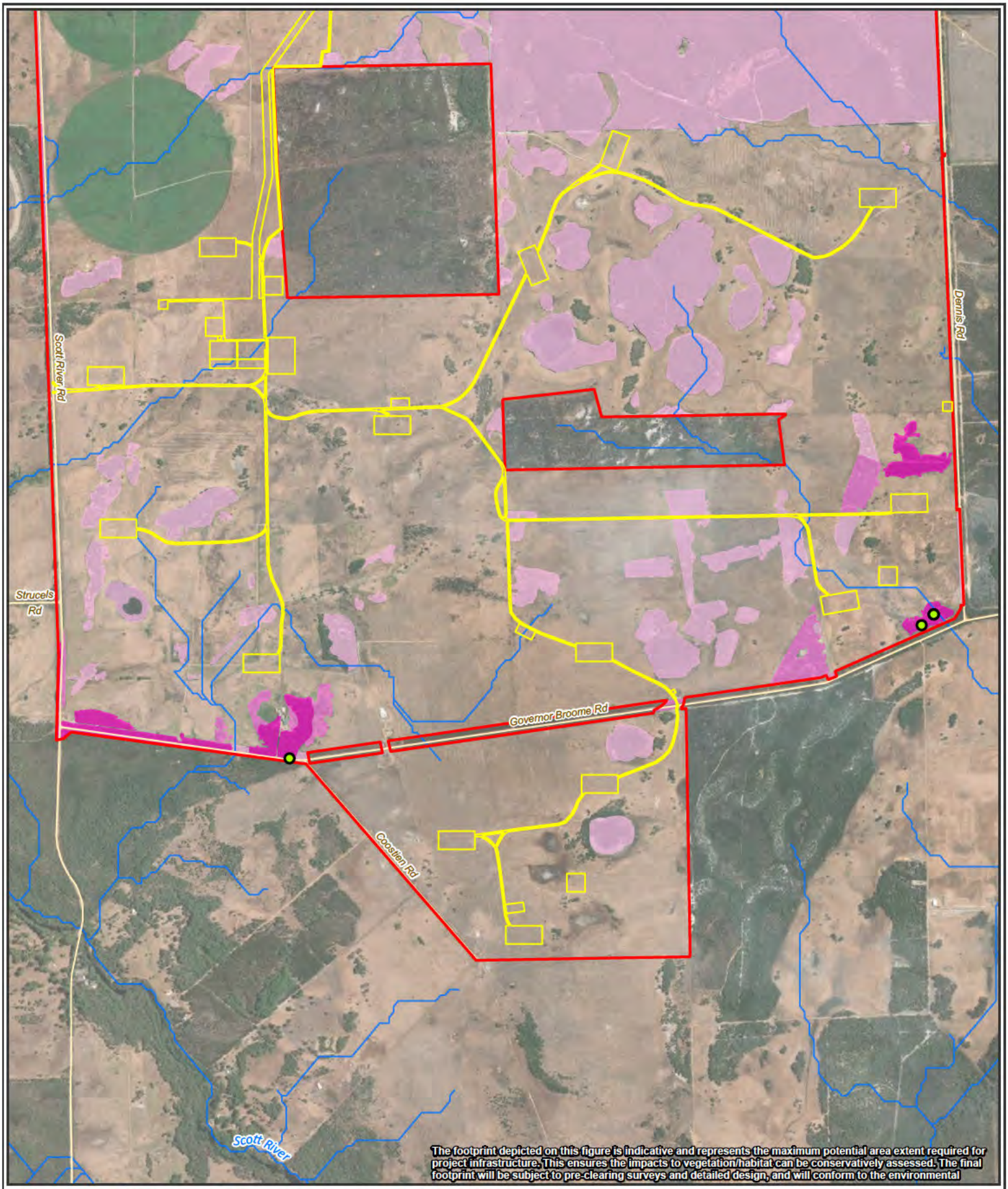
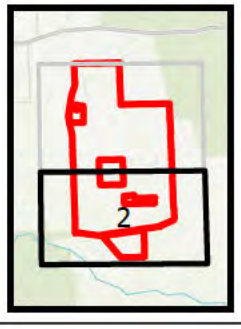


Figure 9-5: Western Ringtail Possum Habitat (Page 2 of 2)

- Western Ringtail Possum (*Pseudocheirus occidentalis*; CR)
- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Western Ringtail Possum Habitat Quality Score (Phoenix 2025a)

- Low
- Moderate
- High



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/15/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

9.3.4.2. Black Cockatoo Habitat

9.3.4.2.1. Breeding Habitat

Black cockatoo breeding habitat is defined in DAWE (2022) as 'trees of species known to support breeding within the range of the species which either have a suitable nest hollow or are of a suitable diameter at breast height (DBH) to develop a nest hollow'. For most species of trees, suitable breeding hollows are found in trees with a DBH of at least 500 mm (or 300 mm for Salmon Gum and Wandoo; DAWE 2022). It should be noted that the breeding habitat present within the Development Envelope is relevant only to Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo, as the Development envelope is outside the breeding range for Carnaby's Cockatoo (DAWE 2022). Potential nesting trees were classified according to the following parameters, which largely align with the definition in DAWE (2022):

- Known breeding tree – trees which contain a hollow where a black cockatoo has been directly recorded breeding, or has evidence of use
- Suitable breeding tree – trees with suitable DBH for the species, containing a suitable hollow (a hollow in a live tree with a near vertical alignment, >300 mm in internal diameter and >5 m above the ground) but with no evidence of use
- Potential breeding tree – any tree with DBH >500 mm that do not currently contain a suitable hollow.

Potential nesting trees recorded within the Development Envelope include Jarrah (*Eucalyptus marginata* subsp. *marginata*), Flooded Gum (*Eucalyptus rudis*), Marri (*Corymbia calophylla*), and dead unidentifiable *Eucalyptus* spp. Each of these species has a minimum DBH requirement of 500 mm to meet the criteria of potential nesting tree for black cockatoos.

A total of 580 potential nesting trees were recorded within the Development Envelope (Phoenix 2025a; Table 9-6; Figure 9-7; Figure 9-8). These trees were recorded within the Marri-Jarrah-Peppermint woodland, Seasonally inundated shrubland (wetland) and Seasonally inundated paperbark woodland (wetland) habitats.

Of these 580 nesting trees recorded within the Development Envelope, 116 contained hollows, with no tree bearing more than a single hollow. None of these hollow bearing trees were known breeding trees and only four were considered suitable for breeding, with the remainder considered Potential breeding trees, with no suitable hollows (Table 9-6).

Table 9-6: Black Cockatoo Potential Nesting Trees within the Development Envelope

Potential Nesting Trees	No. within Survey Area	No. within Development Envelope
Known breeding tree	0	0
Suitable breeding tree	4	4
Potential breeding tree	766	576
Total	770	580

9.3.4.2.2. Roosting Habitat

There are no known roosting sites within the Development Envelope (DBCA 2023), and after 34 hours of night roosting/breeding surveillance (Phoenix 2025a) and 278 nights of audio recordings (Phoenix 2025a); Phoenix 2025b), no evidence of night roosting by black cockatoos was recorded. Tree species that are known to provide roosting habitat that are present within the Development Envelope include several *Eucalyptus* spp., *Corymbia calophylla* and *Pinus* spp. (the latter for Carnaby's Cockatoo only). Habitats that provide suitable roosting trees include Marri-Jarrah-Peppermint woodland, as well as Seasonally inundated shrubland wetland and Seasonally inundated paperbark woodland (wetland) and Pine plantation (Carnaby's Cockatoo only). Given the presence of suitable roosting trees and availability of water nearby there is potential for black cockatoos to roost within the Development Envelope.

9.3.4.2.3. Foraging Habitat

The foraging values of each broad fauna habitat type were assessed for Carnaby's Cockatoo, Baudin's Cockatoo and Forest Red-tailed Black Cockatoo based on site condition, site context and species stocking rate (Bamford 2021). Vegetation within each broad fauna habitat type has been assessed and assigned a foraging value of None, Low, Moderate and High.

Carnaby's Cockatoo

Carnaby's Cockatoo (*Zanda latirostris*) is listed as Endangered under the EPBC Act and BC Act. A total of 28.91 ha of High quality Carnaby's Cockatoo foraging habitat occurs within the Development Envelope, solely represented by the Marri-Jarrah-Peppermint woodland habitat type (Table 9-7; Figure 9-6). A further 497.78 ha was classified as Moderate quality habitat, whilst the majority (approximately 85%) of the Development Envelope provides Low (3,065.94 ha [2,880.88 ha non-native, 185.06 ha native]) to no (4.23 ha) foraging value for the species. The majority of the Development Envelope is considered to provide some foraging value to Carnaby's Cockatoo as this species is known to forage on a small variety of paddock grasses (e.g. *Erodium* spp., *Arctotheca calendula*) and melons, as was observed during fauna surveys.

Table 9-7: Carnaby's Cockatoo Foraging Habitat within the Development Envelope

Habitat Quality	Extent within Survey Area (ha)	Extent within Development Envelope (ha)
None (0)	3.04	4.23
Low (non-native habitat) (1 - 4)	3,083.00	2,880.88
Low (native habitat) (1 - 4)	107.00	185.06
Moderate (5 - 7)	620.77	497.78
High (8 - 10)	79.52	28.91
Total	3,893.33	3,596.85

Baudin's Cockatoo

Baudin's Cockatoo (*Zanda baudinii*) is listed as Endangered under the EPBC Act and BC Act. A total of 38.31 ha of High quality Baudin's Cockatoo foraging habitat occurs within the Development Envelope, also occurring solely within Marri-Jarrah-Peppermint woodland (

Table 9-8; Figure 9-7). A further 321.84 ha was classified as Moderate quality. In contrast to Carnaby's Cockatoo, only 246.43 ha provides Low quality foraging value for this species, and 2,990.27 ha provides no foraging value.

Table 9-8: Baudin's Cockatoo Foraging Habitat within the Development Envelope

Habitat Quality	Extent within Survey Area (ha)	Extent within Development Envelope (ha)
None (0)	3,192.94	2,990.27
Low (1 - 4)	261.80	246.43
Moderate (5 - 7)	392.27	321.84
High (8 - 10)	46.32	38.31
Total	3,893.33	3,596.85

Forest Red-tailed Black Cockatoo

The Forest Red-Tailed Black Cockatoo (*Calyptorhynchus banksii naso*) is listed as Vulnerable under the EPBC Act and BC Act. A total of 151.75 ha of High quality Forest Red-tailed Black Cockatoo foraging habitat occurs within the Development Envelope, all within Marri-Jarrah-Peppermint woodland (Table 9-9; Figure 9-8). A further 201.71 ha was classified as Moderate quality. Similarly to Baudin's Cockatoo, the remainder of the Development Envelope provided Low (15.31 ha) to no (3,228.08 ha) foraging value for the species.

Table 9-9: Forest Red-tailed Black Cockatoo Foraging Habitat within the Development Envelope

Habitat Quality	Extent within Survey Area (ha)	Extent within Development Envelope (ha)
None (0)	3,445.11	3228.08
Low (1 - 4)	15.90	15.31
Moderate (5 - 7)	261.6	201.71
High (8 - 10)	170.72	151.75
Total	3,893.33	3,596.85

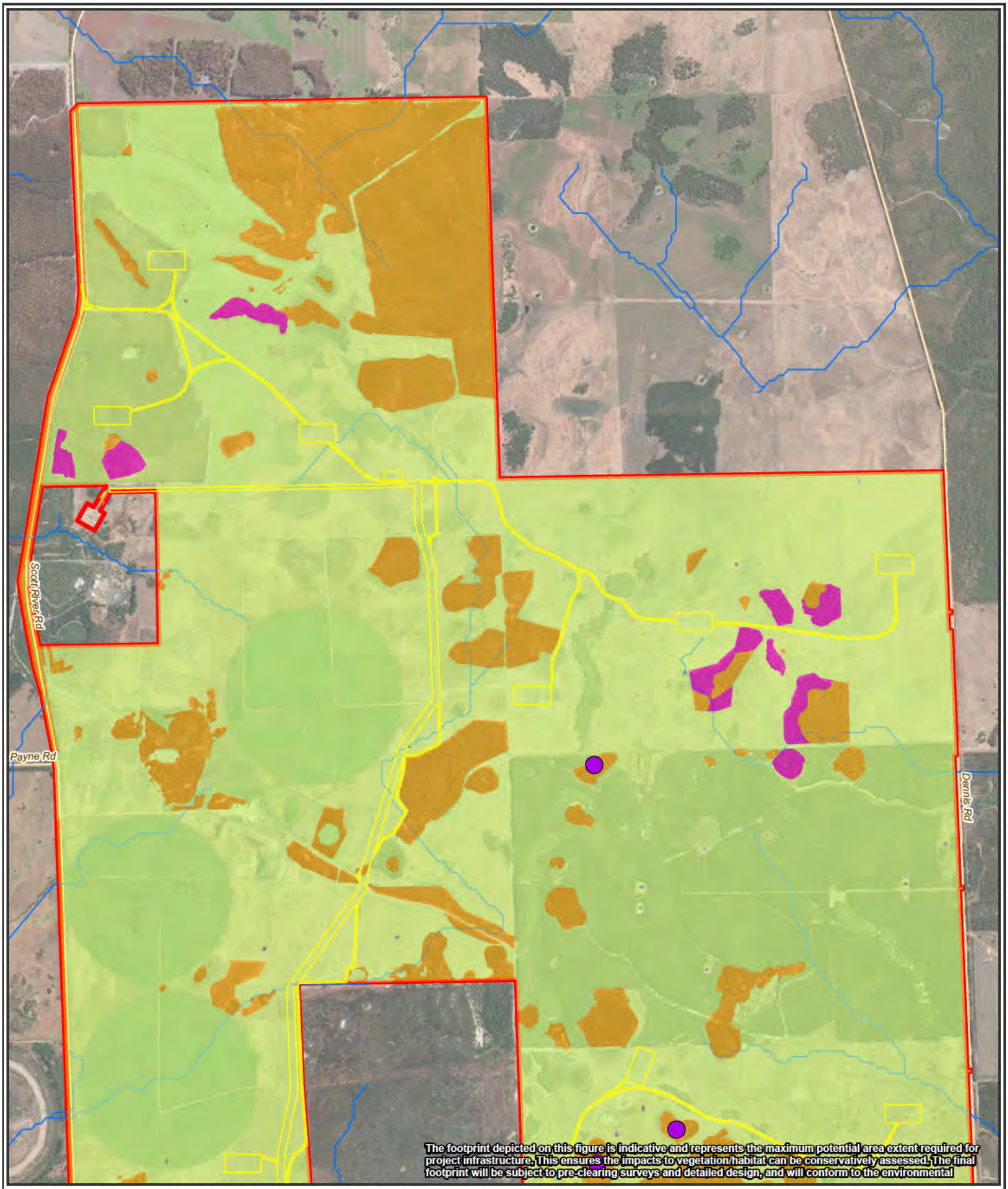


Figure 9-6: Carnaby's Cockatoo Habitat (Page 1 of 2)

Carnaby's Cockatoo (*Zanda latirostris*; EN)

Roads

Rivers and Tributaries

Development Envelope

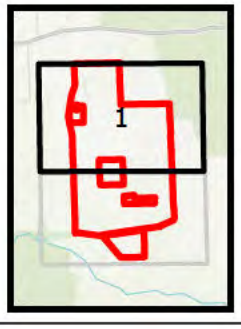
Indicative Disturbance Footprint

Carnaby's Cockatoo Foraging Habitat (Phoenix 2025a)

Low

Moderate

High



0 0.25 0.5 1

Kilometers

Datum/Projection: GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA A TETRA TECH COMPANY

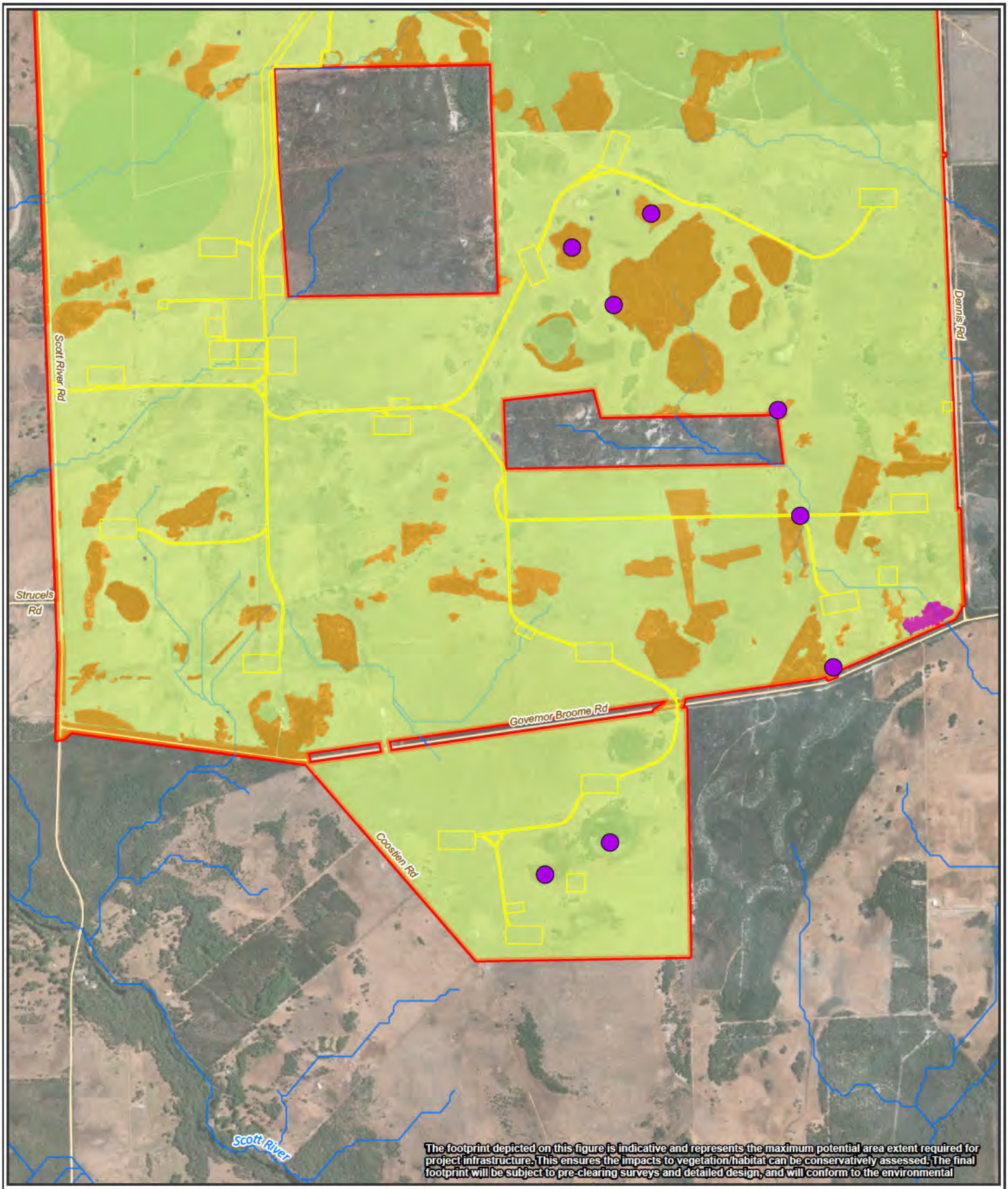


Figure 9-6: Carnaby's Cockatoo Habitat (Page 2 of 2)

Carnaby's Cockatoo (*Zanda latirostris*; EN)

Roads

Rivers and Tributaries

Development Envelope

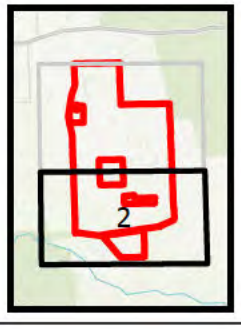
Indicative Disturbance Footprint

Carnaby's Cockatoo Foraging Habitat (Phoenix 2025a)

Low

Moderate

High



0 0.25 0.5 1

Kilometers

Datum/Projection: GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA A TETRA TECH COMPANY

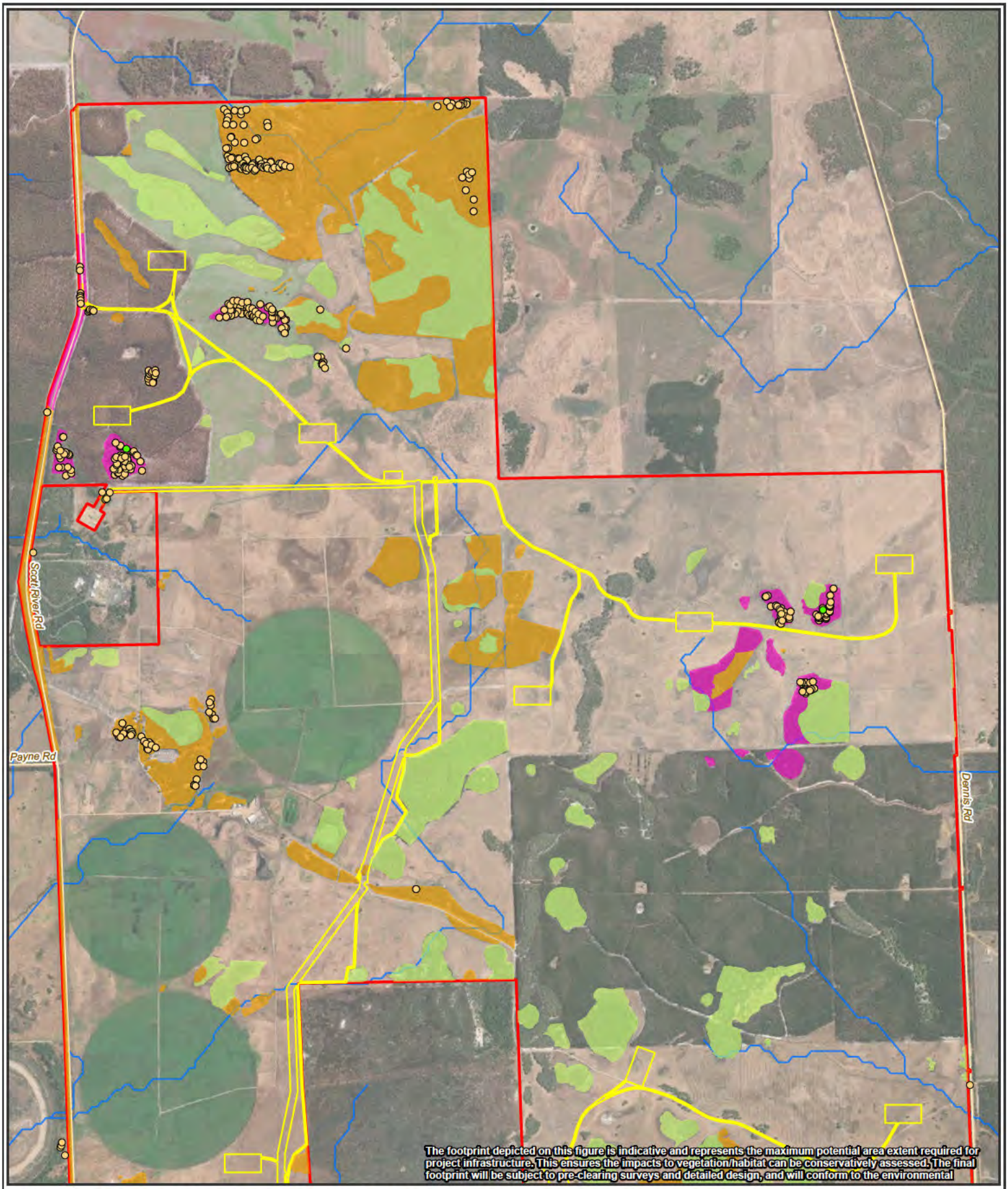


Figure 9-7: Baudin's Cockatoo Habitat (Page 1 of 2)

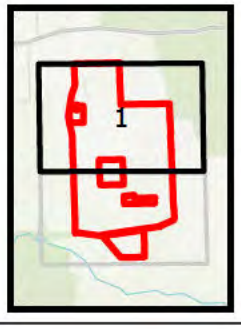
- Baudin's Cockatoo (*Zanda baudinii*; EN)
- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Potential Nesting Trees

- Suitable Breeding Trees
- Potential Breeding Trees

Baudin's Cockatoo Foraging Habitat (Phoenix 2025a)

- Low
- Moderate
- High



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

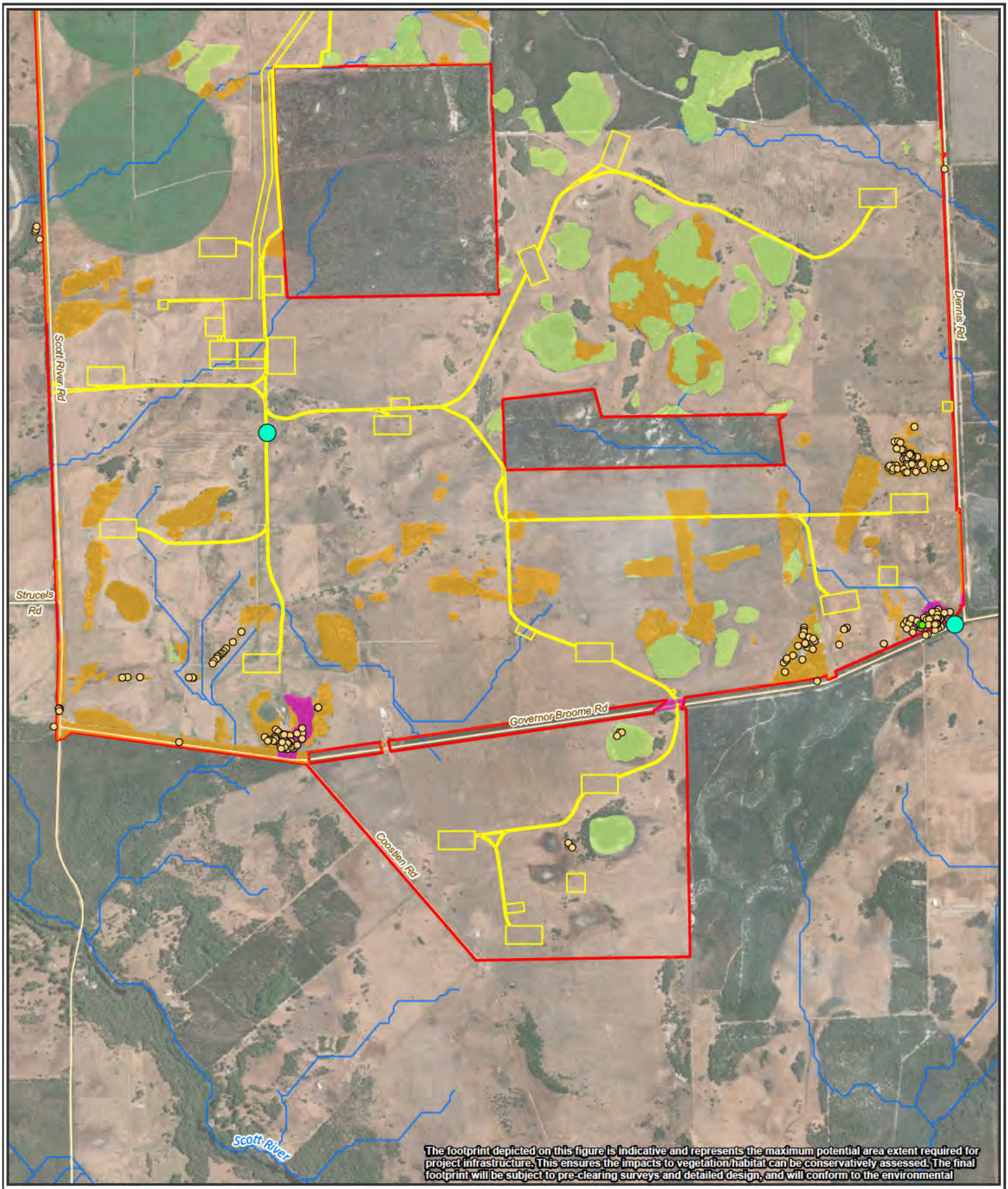


Figure 9-7: Baudin's Cockatoo Habitat (Page 2 of 2)

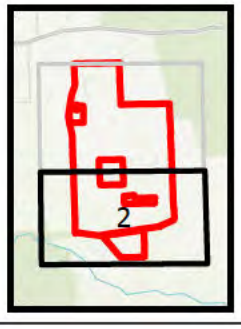
- Baudin's Cockatoo (*Zanda baudinii*; EN)
- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Potential Nesting Trees

- Suitable Breeding Trees
- Potential Breeding Trees

Baudin's Cockatoo Foraging Habitat (Phoenix 2025a)

- Low
- Moderate
- High



0 0.25 0.5 1
Kilometers

Datum/Projection: GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

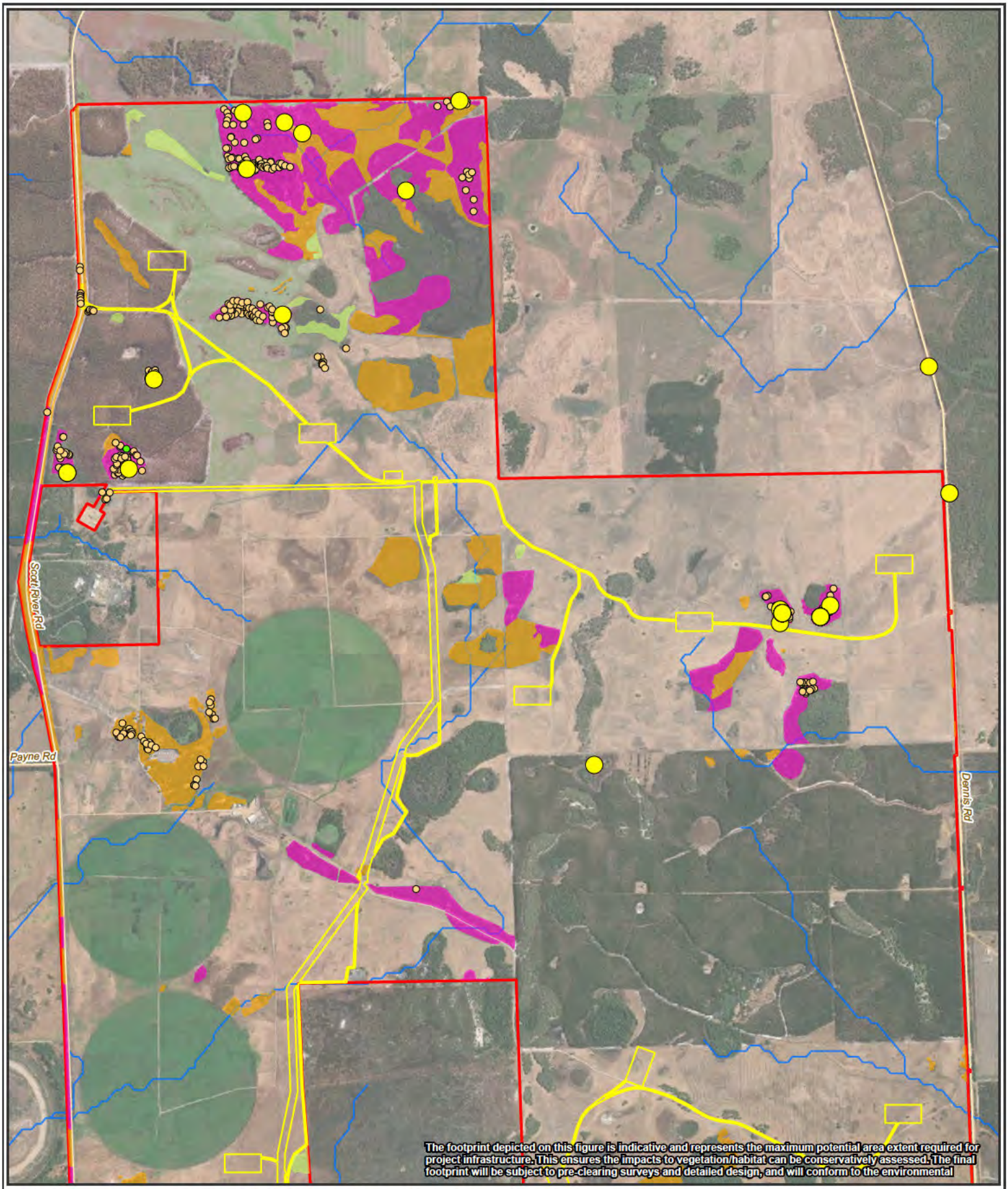


Figure 9-8: Forest Red-tailed Black Cockatoo Habitat (Page 1 of 2)

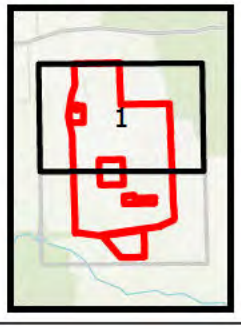
- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*; VU)
- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Potential Nesting Trees

- Suitable Breeding Trees
- Potential Breeding Trees

Forest Red-tailed Black Cockatoo Foraging Habitat (Phoenix 2025a)

- Low
- Moderate
- High



0 0.25 0.5 1
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/24/2025

N

ecological AUSTRALIA
A TETRA TECH COMPANY

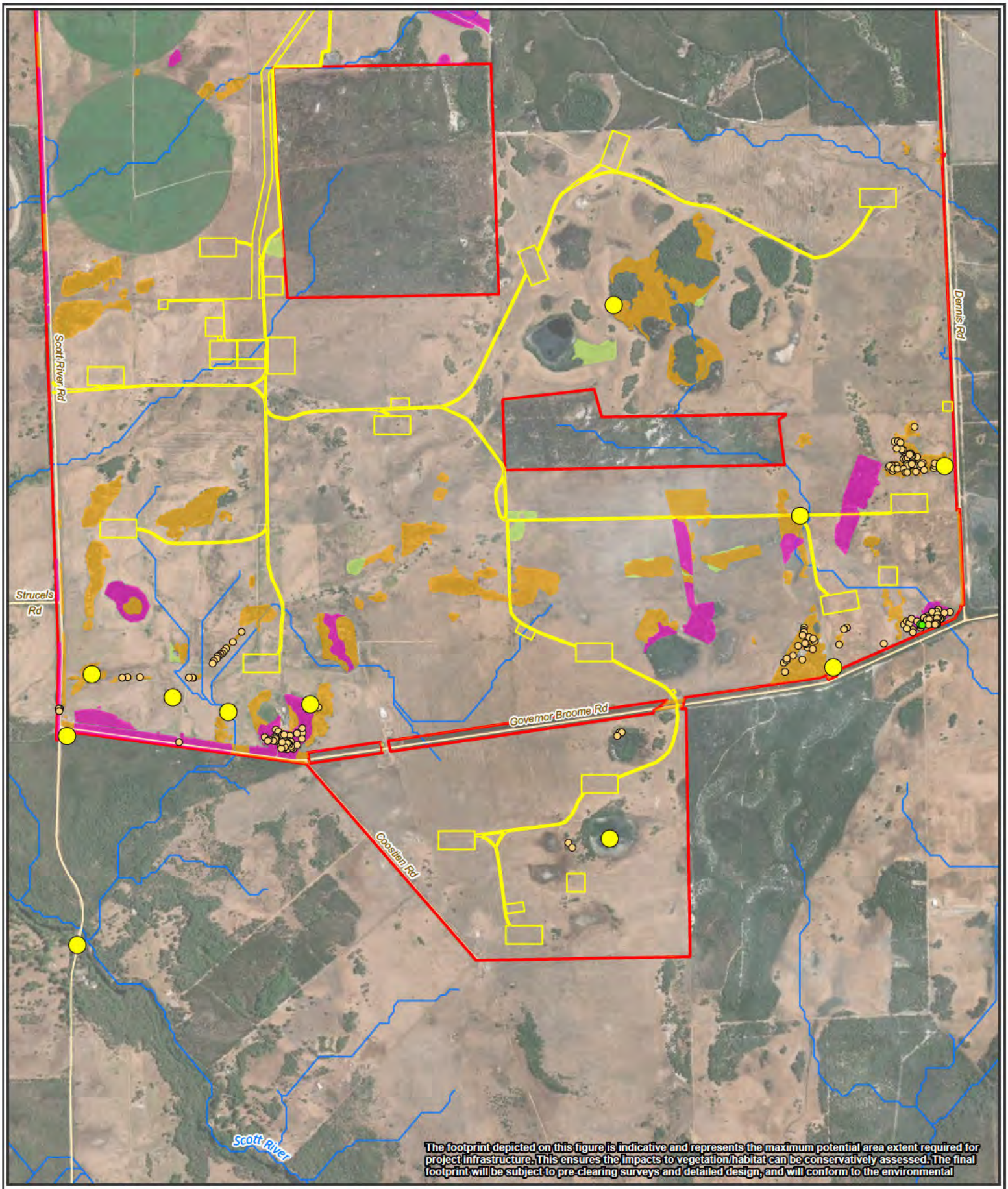


Figure 9-8: Forest Red-tailed Black Cockatoo Habitat (Page 2 of 2)

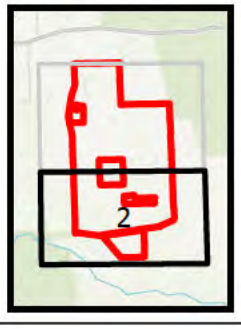
- Forest Red-tailed Black-Cockatoo (*Calyptorhynchus banksii naso*; VU)
- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Potential Nesting Trees

- Suitable Breeding Trees
- Potential Breeding Trees

Forest Red-tailed Black Cockatoo Foraging Habitat (Phoenix 2025a)

- Low
- Moderate
- High



0 0.25 0.5 1
Kilometers

Datum/Projection: GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/24/2025

N

ecological AUSTRALIA A TETRA TECH COMPANY

9.3.5. Short-range Endemic Invertebrate Fauna

SRE invertebrate fauna are invertebrates that, due to evolutionary isolation, have naturally small distribution (below 10,000 km^2) and are often characterised by low fecundity, confinement to disjunct habitats and poor dispersal capabilities (Harvey 2002).

9.3.5.1. SRE Invertebrate Fauna Habitat

The Development Envelope contains five potential SRE habitats (Table 9-10; Figure 9-9)Figure 9-9 Invertebrate Solutions 2024a). These habitats are all continuous in the landscape and do not form habitat isolates present over evolutionary timescale in the regional landscape. As such, they are considered to be of low value for SREs (Figure 9-9). The remainder of the Development Envelope comprises Modified landscapes and Cleared/Degraded areas which provide 'Nil' value for SRE invertebrates.

Table 9-10: SRE Invertebrate Habitats within the Development Envelope

SRE Habitat Suitability	SRE Habitats	Extent within Development Envelope (ha)
Low	Shrublands over sedgelands	698.05
	Mixed shrublands over tall sedgelands	
	Paperbark woodland swamps over sedgelands	
	Jarrah woodlands over shrublands	
	Jarrah-Marri woodlands over shrublands	
Nil	Modified landscapes	2898.80
	Cleared/Degraded	
Total		3596.85

9.3.5.2. SRE Invertebrate Fauna Species Assemblage

Based on the desktop review, seven Confirmed, five Likely and one Possible SRE taxa have been recorded within the Desktop Study Area, although records were all outside the Development Envelope (Invertebrate Solutions 2024a). This includes four conservation significant species:

- Hairy Marron (*Cherax tenuimanus*, listed as CR under the EPBC Act and BC Act)
- Margaret River Burrowing Crayfish (*Engaewa pseudoreducta*, listed as CR under the EPBC Act and BC Act)
- Dunsborough Burrowing Crayfish (*Engaewa reducta*, listed as CR under the EPBC Act and EN under the BC Act)
- Cape Leeuwin Freshwater Snail (*Austroassiminea letha*, listed as VU under the BC Act).

Each of these aquatic invertebrates are discussed further in Section 9.3.6.3. The remaining Confirmed, Likely and Possible SRE taxa are considered to have a Low to Very Low likelihood of occurrence due to an absence of habitat and the proximity to nearby records.

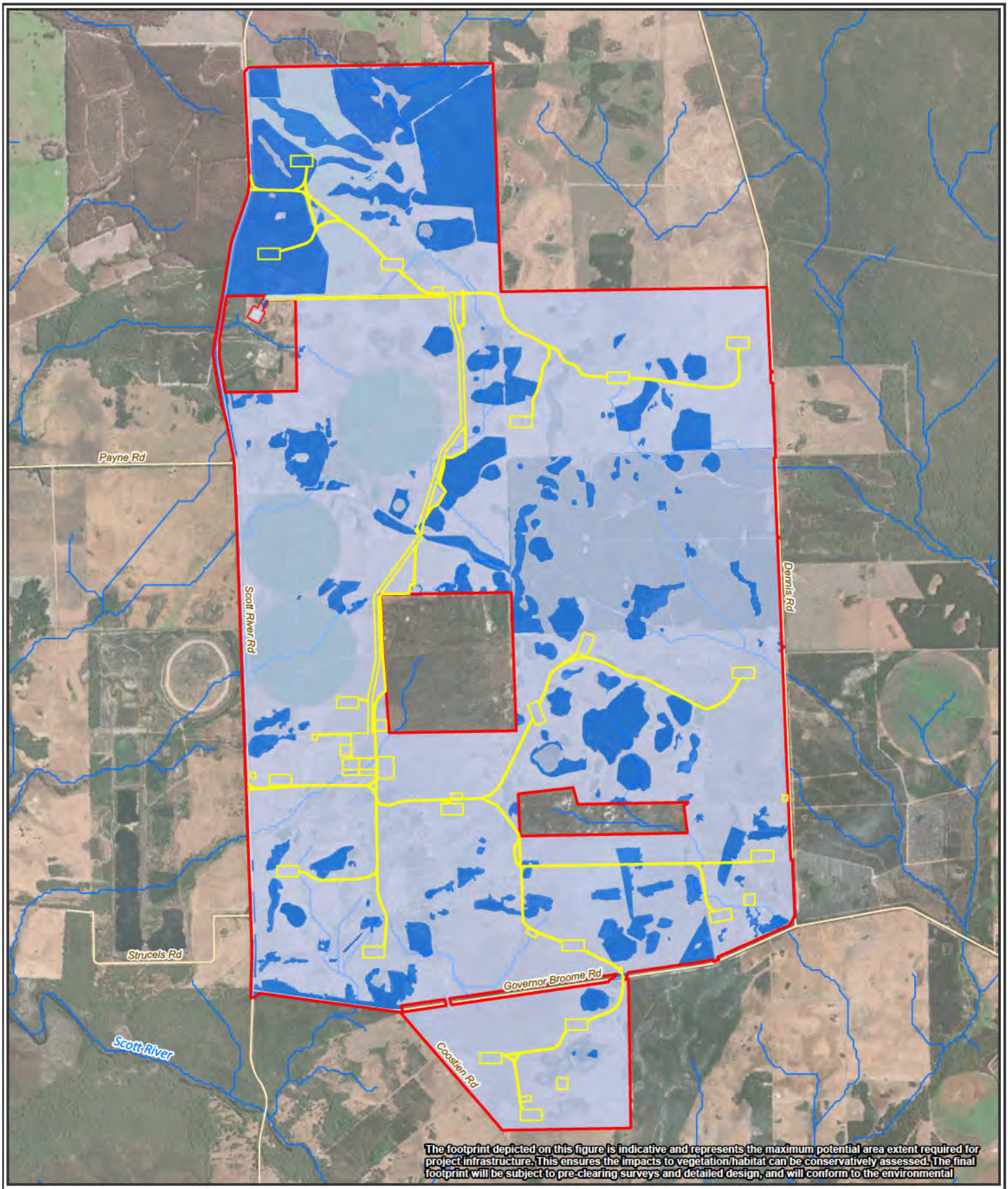


Figure 9-9: Short Range Endemic Invertebrate Potential Habitat

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

SRE Habitat Quality Score

- Low
- Nil

0 0.5 1 2
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/15/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

9.3.6. Aquatic Ecosystems

9.3.6.1. River Systems

The Blackwood River is an important nursery and spawning ground for aquatic and semi-aquatic fauna, with a high species richness and endemism of fish and crayfish, as well as a diverse community of macroinvertebrates (Stantec 2025b). Similarly, the main channel of the Scott River has a diverse fauna assemblage (LBLCDC 2020, cited in Stantec 2025b). Both these are located outside of the Development Envelope.

9.3.6.2. Wetland Habitats

Wetland habitats within the Development Envelope are a mix of seasonally inundated Paperbark woodlands, shrublands and sedgelands (Figure 9-10). These wetlands are patchily distributed, collectively covering 352.33 ha (9.80%) of the Development Envelope.

There is a largely cohesive mosaic of remnant vegetation and wetlands towards the northern boundary of the Development Envelope, while wetlands towards the centre of the Development Envelope are in generally poor condition, separated by paddocks. The southern portion of the Development Envelope contains an isolated group of fenced wetlands and one unfenced, larger wetland to the south (Phoenix 2025a).

Although that larger southern wetland and a cluster of wetlands in the north were observed to persist into summer and are considered to have the potential to be permanently inundated (perennial), wetlands within the Development Envelope are mostly ephemeral and shallow (Section 7.3.4.2). Nonetheless, for the purposes of this assessment, two of the wetland fauna habitat types within the Development Envelope are considered potential GDEs (Section 7.3.5.2), based on the presence of obligate and facultative phreatophyte plant species (Section 8.3.2.7; Phoenix 2025a), these include (Figure 9-3; Figure 9-10):

- Seasonally inundated Paperbark woodland
- Seasonally inundated sedgeland.

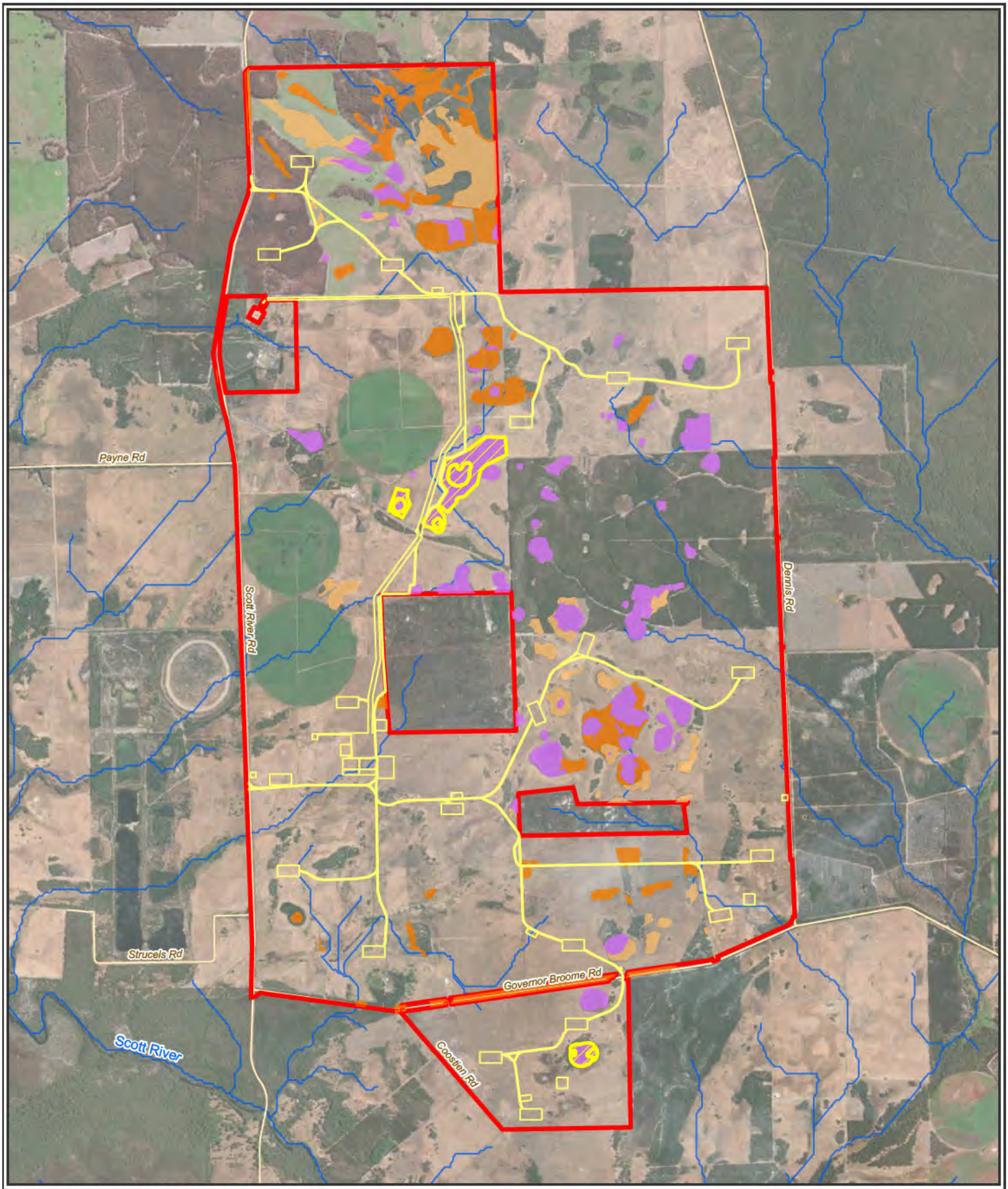


Figure 9-10: Wetland Values within the Development Envelope

- Roads
- Rivers and Tributaries
- Development Envelope
- Indicative Disturbance Footprint

Wetland Values (Phoenix 2025a)

- Seasonally inundated paperbark woodland
- Seasonally inundated sedgeland
- Seasonally inundated shrubland
- Seasonally inundated paperbark woodland (wetland) - potentially permanently inundated

0 0.5 1 2
Kilometers

Datum/Projection: GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

9.3.6.3. Aquatic Fauna

A total of 11 aquatic and semi-aquatic fauna species listed under the EP Act, EPBC Act or as Priority species by DBCA are considered to potentially occur within, or near to, the Development Envelope (Stantec 2025b). This includes three crustaceans, two molluscs, five fish, and two frog species (Table 9-11).

Studies of aquatic fauna of the Blackwood River and its tributaries indicates that, due to salinisation, the forested tributaries of this system are integral to the conservation of aquatic fauna, in particular significant fish species.

All aquatic and semi-aquatic fauna species have the potential to be groundwater-dependent, where wetlands in the Development Envelope are supported by the shallow groundwater aquifer, and where there is connectivity between the Superficial Aquifer and the deeper Leederville Aquifer. The Leederville Aquifer is not expected to be in direct connection to ephemeral surface water features within the Development Envelope (Section 7; Stantec 2025b). Nevertheless, the level of connectivity between surface water and groundwater is currently unknown.

Table 9-11 provides an assessment of the likelihood of occurrence of the listed aquatic fauna species with potential to occur within the Development Envelope. None of the listed species are considered likely to occur within the Development Envelope, and two fish species, Salamanderfish and Black-stripe Minnow, have the potential to occur given their presence in the locality within seasonally inundated wetlands, although the neutral to alkaline conditions of wetlands within the Development Envelope contrast with the low acidity conditions where these species are known to occur.

Table 9-11: Likelihood of Occurrence for Aquatic Fauna with Potential to Occur within the Development Envelope

Species	Status	Habitat and Location	Likelihood of Occurrence and Justification
Crustaceans			
Margaret River Hairy Marron *Cherax tenuimanus*	Critically Endangered (EPBC Act and BC Act)	River habitat. Restricted to the Margaret River, approximately 30 km north of the Development Envelope (TSSC 2006).	**Unlikely** Given their habitat requirements and highly restricted known locations and distance from the Development Envelope, the Proposal is not expected to impact these species.
Margaret River Burrowing Crayfish *Engaewa pseudoreducta*	Critically Endangered (EPBC Act and BC Act)	River habitat. May only live in just two places, in the narrow creek tributaries of the Margaret and Carbunup Rivers, approximately 30 km and 50 km north of the Development Envelope, respectively (DCCEEW 2023b).	
Dunsborough Burrowing Crayfish *Engaewa reducta*	Critically Endangered (EPBC Act) Endangered (BC Act)	River habitat. Known from an area between Dunsborough and the Margaret River, 30 km and more north of the Development Envelope (DEWHA 2009a).	
Molluscs			
Carter's Freshwater Mussel (*Westralunio carteri*)	Vulnerable (EPBC Act and BC Act)	Endemic to the south-west of WA. Known to occur in slow flowing permanent and semi-permanent riverine habitats, pools and dams between Moore River and Esperance. However, its extent of occurrence is estimated to have declined by 49% in the last 50 years. The species has recently been revised into three distinct and separate species - *Westralunio carteri*, *W. inbisi inbisi*, and *W. inbisi meridiemus*. In the vicinity of the Development Envelope, there is potential for both *W. inbisi inbisi*, and *W. inbisi meridiemus* to occur in the Scott River, as well as Chapman Brook and St. John Brook (approximately 11 km north-west and 40 km north-east of the Development Envelope, respectively).	**Unlikely** This species is not expected to occur within the seasonally inundated wetland habitats within the Development Envelope as it relies on permanent and semi-permanent riverine habitats. Note that no impacts on this species' Scott River habitat (e.g. changes to water quality) are expected from indirect downstream effects of the Proposal - refer to Section 7.6.3 and 7.6.6. As such this species is not discussed further.
Cape Leeuwin Freshwater Snail (*Austroassiminea letha*)	Vulnerable (BC Act)	Known from six sites from Cape Leeuwin in the south to Cape Naturaliste in the north (DEC 2009). Inhabits seepage films or splash zones alongside freshwater streams and springs draining from limestone near the coast (DEC 2009).	**Unlikely** Given the species habitat requirements and highly restricted known locations along the coast, the Proposal is not expected to impact these species.

Species	Status	Habitat and Location	Likelihood of Occurrence and Justification
Fish			
Balston's Pygmy Perch *Nannatherina balstoni*	Vulnerable (EPBC Act and BC Act)	Balston's Pygmy Perch is known from the Scott River, restricted to tributaries and/or a perennial section of the main channel of the Blackwood River that receives freshwater baseflow from associated groundwater aquifers.	**Unlikely** This species is not expected to occur within the seasonally inundated wetland habitats within the Development Envelope as it relies on permanent riverine habitats. Note that no potential impacts on this species' habitat (e.g. changes to water quality) are expected from indirect downstream effects of the Proposal, as addressed in Section 7.6.3 and 7.6.6, as such this species is not discussed further.
Salamanderfish *Lepidogalaxias salamandroides*	Endangered (BC Act)	Documented from the Blackwood River catchment in pools across the Scott River floodplain. Primarily found in highly acidic (pH 3.0-6.5)., shallow, temporary (dry out in summer), usually darkly tannin-stained pools and swamps in coastal heathland (DWER 2025b; Australian Museum 2019). Fish survive drying through summer months by burrowing into the substrate where they aestivate. They will remain in the damp sandy soils until rains re-submerge the habitat the following year.	**Possible** It is possible these species occur within the Development Envelope given the presence of seasonally inundated wetlands, and as the species are known to occur in the locality; however, they have not been categorised as Likely to occur as surface water analysis within the Development Envelope indicated neutral to alkaline conditions (pH ranged from 6.7 to 7.5) (Stantec 2025a) in contrast to the low acidity (pH 3.0-6.5) conditions of wetlands in which they have been recorded.
Black-stripe Minnow *Galaxiella nigrostriata*	Endangered (EPBC Act and BC Act)	Occupies the same ephemeral habitats as the salamanderfish and, like that species, is also capable of burrowing and aestivating (DWER 2025a). Documented from the Blackwood River catchment in pools across the Scott River floodplain. Generally restricted to ephemeral pools during dry conditions, burrowing into the substrate when pools dry out in warmer months.	
Western Dwarf Galaxias *Galaxiella munda*	Vulnerable (BC Act)	Documented from the local catchment. It typically occurs in the headwaters and tributaries of flowing rivers within peat flats and forested areas, as well as in pools of various depths connected to streams (DCCEEW 2025a).	**Unlikely** This species is not expected to occur within the seasonally inundated wetland habitats within the Development Envelope as it relies on flowing rivers within peat flats and forested areas.
Pouched Lamprey *Geotria australis*	Priority 3 (DBCA)	The Pouched Lamprey occurs in many of the rivers of the south-west coast from Perth through to Albany however records are sporadic – particularly outside of the south-west corner (Capel to Denmark). It inhabits marine, estuarine or freshwater environments depending on its life stage (ALA n.d.; DWER n.d.).	**Unlikely** This species is not expected to occur within the seasonally inundated wetland habitats within the Development Envelope as it relies on permanent riverine habitats.

Species	Status	Habitat and Location	Likelihood of Occurrence and Justification
Frogs			
White-bellied Frog *Anstisia alba* (formerly *Geocrinia alba*)	Critically Endangered (EPBC Act and BC Act)	Areas north of the Brockman Highway are known to support both frog species, that have extremely restricted and fragmented distribution within their area of occurrence. The White-bellied Frog occurs within an area north and west of the Blackwood River between Margaret River and Augusta (approximately 6 km or more west of the Development Envelope) and the Orange-bellied Frog is largely confined to an area within the Blackwood River National Park (approximately 9 km north of the Development Envelope). The White-bellied Frog occurs in permanently moist sites in relatively dry and seasonal climatic zones. The Orange-bellied Frog is known from the lower reaches of six waterways that drain south into the Blackwood River. It is considered unlikely that many additional undetected populations exist due to the high survey effort undertaken prior to, and within the first two years of, the implementation of the Orange-bellied and White-bellied Frogs Recovery Plan (DPaW 2015 cited in Stantec 2025b). The Orange-bellied Frog occurs in permanently moist sites within six unconnected and undisturbed areas of riparian vegetation.	**Unlikely** Given their highly restricted known locations and distance from the Development Envelope, the Proposal is not expected to impact these species.
Orange-bellied Frog *Anstisia vitellina* (formerly *Geocrinia vitellina*)	Vulnerable (EPBC Act and BC Act)		

Source: Stantec 20259(127), Phoenix 2025a), Invertebrate Solutions 2024a

9.4. Potential Environmental Impacts

The potential direct and indirect impacts of the Proposal on terrestrial fauna prior to mitigation being applied have been identified as:

- Loss of vertebrate fauna habitat
- Increased fragmentation of vertebrate fauna habitat
- Loss or injury to fauna individuals through turbine strike, barotrauma or collision with transmission infrastructure
- Loss or injury to fauna individuals through vehicle/machinery movements
- Loss or injury to fauna individuals through entrapment in excavations, dams, basins and borrow pits during construction.
- Disturbance to fauna movement patterns and behaviour from wind turbine movement, light, noise and/or vibration
- Increased competition or predation by feral fauna
- Groundwater drawdown associated with construction dewatering potentially reducing the hydroperiod and health of GDEs (wetland habitats and aquatic fauna habitat)
- Degradation of fauna habitat as a result of:
    - Increased dust deposition
    - Introduction and/or spread of weeds and/or dieback
    - Increased risk of bushfires
    - Altered hydrological regimes.

9.5. Mitigation

The Proponent is committed to conducting all activities in a manner that respects and protects the environment, meets compliance obligations, and manages the impacts of climate change to achieve net zero emissions by 2050.

The Proponent has applied the mitigation hierarchy during the design of the Proposal to reduce the potential impacts to any terrestrial fauna within and surrounding the Development Envelope as far as practicable. Potential impacts have primarily been avoided or minimised through the design of the Proposal during the planning phase. The specific mitigation and management measures proposed to be implemented by the Proponent have been detailed in Table 9-12 and key mitigation measures are discussed below.

A CEMP has been prepared to manage potential environmental impacts during the construction phase. Management and mitigation measures used to minimise the impacts to terrestrial fauna during construction are detailed in the CEMP (Appendix H).

A preliminary Bird and Bat Adaptive Management Plan (BBAMP) has also been prepared to monitor and manage potential environmental impacts to bird and bat species arising from the operation of the Proposal (ELA 2025a Appendix N).

Table 9-12: Proposed Terrestrial Fauna mitigation measures

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Loss of vertebrate fauna habitat	• Clearing of the following habitat values has been avoided through the refinement of the Indicative Disturbance Footprint: - Wetland habitats and contiguous* native vegetation within 50 m - Suitable and potential breeding trees for black cockatoos and contiguous* native vegetation within 10 m.	• The Indicative Disturbance Footprint has been designed to utilise existing cleared areas and tracks as much as practicable to reduce clearing and fragmentation of native vegetation/habitat. • All temporary construction infrastructure (e.g., laydown areas and concrete batching plant) will be located within areas of existing disturbance, reducing clearing. • Fragmentation associated with clearing of the ecological linkage at the southern site entrance (0.01 ha; Figure 8-8) will be minimised by limiting the clearing width at this location to 5 m. • A CEMP (Appendix H) will be implemented during construction. This will include the following key management measures to minimise fragmentation and loss of fauna habitat: - Requiring all site personnel and contractors to undertake site-specific environmental induction to ensure they are aware of native vegetation clearing requirements and locations of suitable and potential nesting trees and wetlands prior to commencement of works. - Requiring all clearing and ground disturbance activities to have an active ground and vegetation disturbance permit. - Requiring all areas to be cleared to be clearly pegged and demarcated by a qualified surveyor. - Undertaking routine inspections of the disturbance demarcation to ensure no disturbance outside of the designated area and records of land disturbance will be kept in a register to support compliance audits and reporting.	Areas that are cleared in support of the Proposal will be rehabilitated during decommissioning in accordance with the Preliminary Decommissioning Plan (Appendix C).	Based on the mitigation proposed the Proposal will result in the clearing of a maximum of 1.00 ha of fauna habitat represented by native vegetation, including: • No more than 0.5 ha of habitat for Western Ringtail Possum, including a maximum of 0.03 ha of Moderate to High quality habitat • No more than 1.0 ha of black cockatoo foraging habitat, including a maximum of 0.5 ha of Moderate to High quality black cockatoo foraging habitat The Proposal will also result in impacts to fauna habitat not represented by native vegetation (i.e. Cleared areas). The assessment and significance of this residual impact is discussed in Section 9.6.1.
Increased fragmentation of vertebrate fauna habitat	N/A			Based on the mitigation proposed minor increase in fragmentation of fauna habitat is considered likely. The assessment and significance of this residual impact is discussed in Section 9.6.2.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Loss or injury to fauna individuals through turbine strike, barotrauma or collision with transmission infrastructure	• The wind farm layout has been designed to avoid the placement of wind turbines in proximity (minimum of 100 m from the centre point of the turbine) to remnant native vegetation/habitat to prevent blade overhang.	• The minimum blade height has been increased from 25 m to 40 m above ground level to minimise impacts to low flying bird and bat species. • The number of turbines has been reduced from 30 to 20 turbines during the design phase, minimising the potential impacts to at-risk bird and bat species. • A CEMP (Appendix H) will be implemented during construction of the Proposal and a BBAMP (Appendix N) will be implemented during commissioning and operation. These will include the following key management measures to minimise loss or injury to fauna: - Lighting will be kept to a minimum to avoid attracting birds, bats, and insects to Proposal infrastructure. Specific measures to reduce potential impacts of lighting will include the use of directional lighting, hoods, sensor lighting and red lights as opposed to white or yellow lights, where practicable. - Assessments to date do not indicate that lighting on the wind turbines will be required. Aviation lighting will only be installed on wind turbines where required by CASA/emergency services. In this instance, if lighting is required by the approving authorities, the Proponent will work with aviation and emergency services to assess lighting solutions. - Carrion (e.g. dead livestock, birds, bats, native mammals and rabbits) removal will occur, where required, to reduce the risk of raptors colliding with turbine blades. - Where there is a measurable increase in observations of European Rabbits and raptor collision, a feral fauna control program will be undertaken within the Development Envelope in accordance with the BBAMP.	N/A	Based on the mitigation proposed there is the potential for loss or injury to fauna individuals through turbine strike, barotrauma or collision with transmission infrastructure. The assessment and significance of this residual impact is discussed in Section 9.6.3.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
		- The final turbine design will minimise the availability of raptor perches through the use of smooth and round surfaces where possible. - Visual bird diverters will be installed along the Proposal's transmission line and guy wires of permanent met masts. - Where possible, and agreed to by landholders, grain feeding of stock will be restricted to paddocks more than 200 m from operational turbines to reduce the risk of birds being attracted to the area - Regular and opportunistic monitoring of bird and bat injury and mortality - Where injury or mortality results , or is likely to result, in a significant impact to a species in response to trigger criteria having been met, appropriate adaptive mitigation strategies will be developed and implemented (e.g. deterrents).		
Loss or injury to fauna individuals through vehicle/machinery movements and habitat clearing	• No suitable or potential breeding tree for black cockatoos will be cleared including contiguous native vegetation within 10 m.	• A CEMP (Appendix H) will be implemented during construction. This will include the following key management measures to minimise loss or injury to fauna individuals: - During clearing of the 0.03 ha of Moderate quality Western Ringtail Possum habitat, a fauna spotter will be available on-site to spot and respond to any Western Ringtail Possum individuals encountered within the clearing area. - Clearing will occur in a slow, progressive manner, towards native vegetation to allow fauna to move into adjacent habitat. - If native fauna is found on site, works in the immediate vicinity will cease until the individual moves or can be safely relocated by a fauna handler.	N/A	Based on the mitigation proposed there is the potential for injury or mortality of fauna from vehicle/machinery interaction. The assessment and significance of this residual impact is discussed in Section 9.6.4.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
		- Vehicle movement will be restricted to existing access tracks. - Speed limits on access tracks will be limited to 50 km/hr. - Nighttime construction activities will be avoided where practicable. - If any native fauna is injured during works the Wildcare Helpline (9474 9955) will be contacted for advice and rehabilitation. - Carrion (e.g. dead livestock, birds, bats, native mammals and rabbits) removal will occur, where required to avoid attracting other individuals to roads.		
Loss or injury to fauna individuals through entrapment in excavations, dams, basins and borrow pits during construction	N/A	• A CEMP (Appendix H) will be implemented during construction. This will include the following key management measures to prevent fauna entrapment: - Excavations will be kept open for the minimum time required to enable construction activities - Excavations deeper than 500 mm and open for more than 24 hours will be inspected twice daily - Borrow pits will be designed and constructed to permit egress of fauna - If any native fauna is trapped during works the Wildcare Helpline (9474 9955) will be contacted for advice and rehabilitation - Water storage dams and dewater treatment and settlement basins will be fenced and constructed to ensure point of fauna egress - Infiltration basins will be shallow and low profile.	N/A	Based on the mitigation proposed there is the potential for loss or injury to fauna individuals from entrapment in excavations, dams, basins and borrow pits during construction of the Proposal. The assessment and significance of this residual impact is discussed in Section 9.6.5.
Disturbance to fauna movement patterns and behaviour from wind turbine	• The wind farm layout has been designed to avoid the placement of wind turbine infrastructure in proximity (minimum of 100 m from the centre point of the turbine) to	• The minimum blade height has been increased from 25 m to 40 m above ground level to minimise impacts to low flying bird and bat species.	N/A	Based on the mitigation proposed there is the potential for minor alterations to birds and bats movement patterns and behaviour

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
movement, light, noise and/or vibration.	remnant native vegetation/habitat to avoid blade overhang.	• Turbines will be regularly maintained to ensure noise emissions are not adversely impacted by turbine wear. • A CEMP (Appendix H) will be implemented during construction of the Proposal and a BBAMP (Appendix N) will be implemented during commissioning and operation. These will include the following key management measures to minimise disturbance to fauna movement and behaviour: - Nighttime works will be avoided where practicable. - Lighting will be kept to a minimum to avoid attracting birds, bats, and insects to Proposal infrastructure. Specific measures to reduce potential impacts of lighting will include the use of directional lighting, hoods, sensor lighting and red lights as opposed to white or yellow lights, where practicable. - Assessments to date do not indicate that lighting on the wind turbines will be required. Aviation lighting will only be installed on wind turbines where required by CASA/emergency services. In this instance, if lighting is required by the approving authorities, the Proponent will work with aviation and emergency services to assess lighting solutions. - Ensure vehicles and machinery are serviced and maintained to minimise machinery noise - Regular and opportunistic monitoring of bird and bat behaviour and strikes.		from wind turbine, light, noise and/or vibration. The assessment and significance of this residual impact is discussed in Section 9.6.6.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Increased competition or predation by feral fauna	N/A	• The following measures will be implemented as part of the CEMP (for construction) and/or BBAMP (for operation) to minimise attraction of feral fauna to the Development Envelope: - Appropriate storage of food wastes in sealed bins - Prompt carrion removal to minimise the attraction of feral predators such as Red Foxes and Feral Cats - Record all introduced fauna sightings. • Where there is a measurable increase in observations of European Rabbits and raptor collision, a feral fauna control program will be undertaken within the Development Envelope in accordance with the BBAMP.	N/A	Based on the mitigation proposed there is the potential for the Proposal to support an increased abundance of feral animals which may increase competition for resources and/or predation. The assessment and significance of this residual impact is discussed in Section 9.6.7.
Degradation of fauna habitat as a result of increased dust deposition	N/A	• A CEMP (Appendix H) will be implemented during construction. This will include the following key management measures to minimise impacts from dust: - Dust suppression techniques during construction, such as water carts - Speed limits on unsealed roads/tracks - Progressive clearing, and rehabilitation of temporary disturbance areas.	• Land temporarily disturbed during construction (e.g. for laydown areas and concrete batching plant) will be rehabilitated to the original land use or to a post closure land use agreed with the landowners.	Based on the mitigation proposed the Proposal will result in a localised short-term increase in fugitive dust during construction. The assessment and significance of this residual impact is discussed in Section 9.6.8
Degradation of fauna habitat as a result of introduction and/or spread of weeds and/or dieback	N/A	• Preparation and Implementation of the CEMP (Appendix H) to minimise impacts from weeds, which will include: - Limiting access points to only those necessary - Ensuring all vehicles, equipment machinery and personnel (including footwear) arriving to the proposal site are clean of plant material, seeds and soil	N/A	Based on the mitigation proposed the Proposal will result in the potential introduction and/or spread of weeds and/or dieback The assessment and significance of this residual impact is detailed in Section 9.6.9.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
		- The Vehicle-Machinery Hygiene Checklist shall be completed for all vehicles, equipment and machinery arriving onsite - Ensuring any vegetation or soil that is infested with weeds or pathogens is handled, stored and disposed of as pest contaminated material (e.g. covered during transport, contained) - Undertake a risk assessment to identify potential spread of weeds associated with planned activities. - Conduct a pre and post construction weed survey to validate controls and provide a baseline • Completion of a *Phytophthora* dieback survey prior to construction • Develop and implement a Dieback Management Plan to minimise the risks related to the introduction and/or spread of dieback, where required		
Degradation of fauna habitat as a result of increased risk of bushfires	N/A	• A BMP (Linfire 2025a) and BRMP (Linfire 2025b) will be implemented during construction and operation of the Proposal. This will include the following key management measures: - Establishment of non-vegetation and asset protection zones - All wind turbines will be fitted with an automatic fire detection and alarm system, as well as an automatic fire suppression system - All buildings and vehicles will be fitted with first response fire equipment - Adhering to local government fire restrictions, including daily checks of fire danger ratings • Emergency services will have full access to the Development Envelope and water tanks for emergency response inside or outside of the Development Envelope.	N/A	Based on the mitigation proposed, the Proposal will result in a minor increase in risk of accidental bushfires. The assessment and significance of this residual impact is discussed in Section 9.6.10.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Groundwater drawdown from dewatering during construction potentially reducing the hydroperiod and health of GDEs (wetlands and aquatic fauna habitat)	• Borrow pits will be constructed above watertable • Transmission poles and towers will utilise concrete caisson (bored concrete) foundation.	• Civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable • Dewatering will be managed and monitored in accordance with a detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix B]), to ensure that drawdown does not present an unacceptable impact on the environment. This will be achieved through: - Application of the following drawdown limits: - Maximum drawdown of 2.0 mbgl at the perimeter of each foundation - Drawdown will not exceed 0.1 m beyond 100 m from any dewatering location. - Drawdown will not exceed natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at GDE. • Use of alternative turbine foundations (Section 2.2.1.1). • Strategic disposal of dewater to, and location of, infiltration basins around the point of extraction to minimise the cone of depression. • Application of alternative management strategies as required (e.g., sheet piling).	N/A	Based on the mitigation proposed the Proposal is not anticipated to impact health of GDEs as a result of dewatering during construction. The assessment and significance of this residual impact is detailed in Section 9.6.11.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impacts
Degradation of fauna habitat as a result of changes to hydrological regimes	N/A	• Civil infrastructure will be located and designed to ensure specific risk-based flood vulnerability requirements have been addressed and will be located outside of the 1% AEP flood extent, where practicable. • Modification of existing drainage infrastructure will be avoided, where possible, unless the proposed modification will improve drainage and not lead to any detrimental impacts to downstream receptors. • Drainage controls (e.g. drains and culverts) will be appropriately located, designed, constructed and maintained to maintain surface water flow regimes and minimise erosion. • Flow velocities will be maintained below 2 m/s upstream and downstream of disturbance areas, including at culvert inlet and outlets. • Design and construction works will ensure that local grading and excavation areas do not create areas of pooled water. • Exposed soils will be vegetated or covered (e.g. with rock or synthetic liners) in disturbed areas where surface water flow velocities exceed 1 m/s and remain below 2 m/s.	N/A	Potential for minor changes to surface water flow that could have minor impacts on fauna habitat. The assessment and significance of this residual impact is detailed in Section 9.6.12.

*Contiguous native vegetation is defined as remnant native vegetation not separated by more than 5 m of cleared land.

9.6. Assessment and Significance of Residual Impacts

9.6.1. Loss of Vertebrate Fauna Habitat

The Proposal has been designed to avoid areas of high value fauna habitat as much as possible by preferentially locating the Development Envelope in a highly disturbed landscape with much of the native vegetation having already been cleared for agricultural use. The Development Envelope has reduced from approximately 5,600 ha to 3,597 ha to remove areas of conservation estate, high value habitat and increased the separation distance from the Scott River and South Blackwood State Forest (see Section 2.4.3).

Table 9-13 presents the approximate loss of vertebrate fauna habitat based on the Indicative Disturbance Footprint. The Indicative Disturbance Footprint represents the maximum potential extent required for the Proposal of which currently only 0.71 ha (0.66%) is located within areas mapped as fauna habitat represented by native vegetation (Figure 9-11; Table 9-13). However, the Proposal allows for clearing of up to 1.00 ha of habitat represented by native vegetation to provide flexibility to refine the Indicative Disturbance Footprint within the Development Envelope during detailed design (Table 9-13).

Clearing of fauna habitat represented by native vegetation will be restricted to small areas to facilitate ingress of turbine components, upgrades to the existing Beenup to Manjimup 132 kV transmission line, and where an alternative layout was not possible due to the avoidance of other significant receptors. Specifically, the clearing of fauna habitat represented by native vegetation is considered unavoidable at the following sites (Figure 9-11; Table 9-14):

- Area 1: Clearing of approximately 0.19 ha of fauna habitat represented by native vegetation at the northern main site entrance, required for ingress of the turbine components. This vegetation has been mapped as Moderate-High quality black cockatoo and Low quality Western Ringtail Possum habitat represented by the Marri-Jarrah-Peppermint woodland habitat type. However, review of aerial imagery and a subsequent site visit by Phoenix (G Wells, personal communication, 22 November 2025) confirmed that this area will only require the removal of an isolated number of sedges, so is unlikely to impact black cockatoos or Western Ringtail Possum. This location was selected to utilise existing farm track and minimise clearing requirement.
- Area 2: Clearing of approximately 0.02 ha of native vegetation, classified as Moderate-High quality black cockatoo habitat and Moderate quality Western Ringtail Possum habitat. This is required for the new transmission line to connect the Proposal to the existing Beenup substation and was located to avoid potential nesting trees for black cockatoos and to be as close as possible to the existing transmission line to reduce clearing requirements.
- Area 3: Clearing of approximately 0.14 ha of native vegetation, classified as Moderate quality Black Cockatoo habitat and Low quality Western Ringtail Possum habitat, required for the Proposal transmission line. This transmission line route was selected to avoid impacts to the adjacent Conservation Covenant Area.
- Area 4: Clearing of approximately 0.01 ha of native vegetation, classified as Moderate-High quality black cockatoo habitat and Moderate quality Western Ringtail Possum habitat. This clearing is required to facilitate transport of turbine components south of Governor Broome Road. This location was selected to minimise Western Ringtail Possum habitat clearing requirements by utilising the existing farm access point in the southern road reserve and to

avoid impacts to other sensitive environmental values, including TEC, a lodged Aboriginal Heritage site, potential nesting trees for black cockatoos, conservation significant flora and higher quality Western Ringtail Possum and black cockatoo habitat.

The impacts on individual habitats are expected to be minimal, given the maximum clearing allowance and the linear configuration of the Indicative Disturbance Footprint allows for clearing to be distributed across a range of habitat types and patches, with no single habitat being substantially disturbed. The three wetland habitats (Seasonally inundated paperbark woodland, Seasonally inundated sedgeland and Seasonally inundated shrubland) will be completely avoided during clearing, including any contiguous native vegetation within 50 m of wetland habitats, along with the plantations, which will only be developed if the trees have been harvested by the plantation operator prior.

In addition to this, there is also a substantial amount of more suitable native fauna habitat present within adjacent expansive, intact conservation reserves including the Scott National Park, Pagett Nature Reserve, Chester Nature Reserve, and the directly adjacent Un-named Nature Reserve (Figure 1-1; Phoenix 2025a). Given this, and the highly modified nature of the Development Envelope and relatively small amount of habitat to be cleared in comparison to the overall extent of the Development Envelope, the clearing of native vertebrate fauna habitat is not expected to be significant.

Impacts associated with clearing of habitat for specific conservation significant species are discussed further in Section 9.6.13.

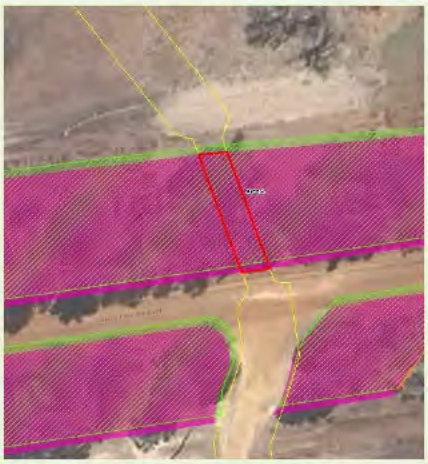
Table 9-13: Fauna Habitat Clearing within the Development Envelope

Habitat Types	Extent within Survey Area (ha)	Extent within Development Envelope (ha)	Extent within Indicative Disturbance Footprint (ha)	Extent within Indicative Disturbance Footprint (%)	Maximum Proposed Clearing of Native Fauna Habitat (ha)**
Native Vegetation					
Seasonally inundated paperbark woodland (wetland)	144.89	144.89	0.22	0.21	0.00
Seasonally inundated sedgeland (wetland)	107.01	90.54	<0.01	<0.01	
Seasonally inundated shrubland (wetland)	126.07	116.90	0.10	0.09	
Marri-Jarrah-Peppermint woodland	322.18	252.93	0.26	0.24	1.00*
Open woodland of Peppermint trees (degraded)	98.90	99.05	0.12	0.12	
Cleared – degraded sumpland	8.23	0.84	0.01	0.01	
Total	807.28	705.15	0.71	0.66	1.00
Non-native Vegetation					
Pine plantation	1.60	1.27	0.00	0.00	0.00
Bluegum plantation	415.43	412.29	4.71	4.42	
Cleared	2,667.32	2476.44	101.20	94.92	1.00*
Dam	1.70	1.70	0.00	0.00	
Total	3086.05	2891.7	105.91	99.34	-
Total (overall)	3,893.33	3,596.85	106.61	100.00	1.00

*The 1.00 ha maximum proposed clearing allowance will also account for any unavoidable removal of unmapped native vegetation from within" Cleared" habitat (e.g., paddock trees).

**Provides maximum limits on how much clearing can occur for each habitat type but total clearing will not exceed 1 ha.

Table 9-14: Unavoidable Areas of Western Ringtail Possum and Black Cockatoo Habitat Clearing

Area	Legend
	Area 1 Indicative Disturbance Footprint Unavoidable Clearing Area Potential Breeding Trees Western Ringtail Possum Habitat Low Quality Black Cockatoo Foraging Habitat High Quality
	Area 2 Indicative Disturbance Footprint Unavoidable Clearing Area Potential Breeding Trees Western Ringtail Possum Habitat Moderate Quality Black Cockatoo Foraging Habitat High Quality Moderate Quality
	Area 3 Indicative Disturbance Footprint Unavoidable Clearing Area Western Ringtail Possum Habitat Low Quality Black Cockatoo Foraging Habitat Moderate Quality
	Area 4 Indicative Disturbance Footprint Unavoidable Clearing Area Western Ringtail Possum Habitat Moderate Quality Black Cockatoo Foraging Habitat High Quality

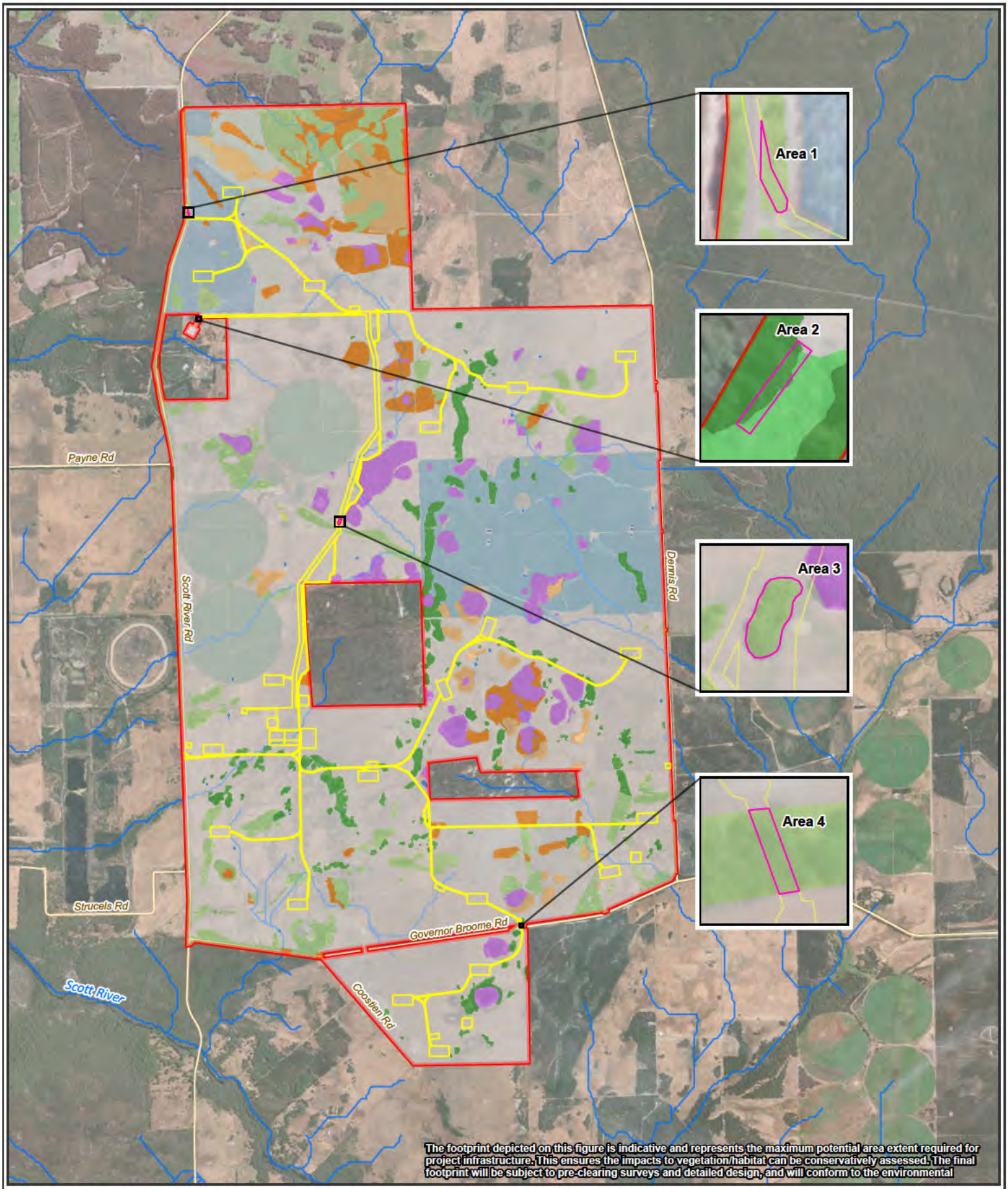


Figure 9-11: Unavoidable Areas of Significant Fauna Habitat Clearing

- Roads
- Rivers and Tributaries
- Unavoidable Clearing Area
- Development Envelope
- Indicative Disturbance Footprint
- Cleared

Terrestrial Fauna Habitat (Phoenix 2025a)

- Bluegum plantation
- Cleared - degraded sumpland
- Marri-Jarrah-Peppermint woodland
- Open woodland of Peppermint trees (degraded)
- Pine plantation
- Seasonally inundated paperbark woodland (wetland)
- Seasonally inundated sedgeland (wetland)
- Seasonally inundated shrubland (wetland)
- Dam

0 0.5 1 2
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/15/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

9.6.2. Increased Fragmentation of Vertebrate Fauna Habitat

The fragmentation of fauna habitat occurs when the continuity of vegetation is disrupted and reduced into several smaller patches. The spatial separation of these patches can potentially lead to the following effects:

- Increased degradation of fauna habitat from 'edge effects' where cleared areas such as road corridors become transmitters for weeds, induce changes to surface drainage and increase the deposition of dust. This degradation may indirectly result in reduction of habitat quality for fauna
- Reduction in the number of corridors that enable fauna individuals to travel between vegetation patches, reducing overall genetic flow and diversity in the ecosystem.

The potential for exacerbating existing fragmentation is low given the landscape in which the Proposal will be constructed is already highly fragmented as a result of land clearing for agricultural use. The potential for fragmentation is further minimised as the internal access roads have been designed to follow existing cleared areas or tracks or occur along the periphery of native vegetation wherever possible, minimising the clearing of fauna habitat represented by native vegetation to a maximum to 1.00 ha. Some minor fragmentation will occur at Governor Broome Road (Figure 9-11 Figure 9-12), where clearing of fauna habitat is required to facilitate the transport of turbine components. This impact is discussed in further detail in Section 9.6.13.1. Given this is the only instance of fragmentation expected to occur, the Proposal is not anticipated to result in significant impacts to terrestrial fauna habitat or fauna dispersal as a result of fragmentation.

9.6.3. Loss or Injury to Fauna Individuals through Turbine Strike, Barotrauma or Collision with Transmission Infrastructure

There is a risk of injury or mortality of bird and bat species from collision with transmission infrastructure and for those that fly within the RSA of the wind turbines. To minimise the risk of collision visual bird diverters will be installed along the Proposal's transmission line and on guy wires of permanent met masts.

The risk of injury or mortality of bird and bat species from wind turbines can occur through direct collision with turbine infrastructure, particularly moving blades, or from barotrauma. Barotrauma occurs when changes in air pressure expand or compress gas contained within an individual's body. Wind turbine blades can create zones of low pressure as air flows over them and individuals that enter these low-pressure zones may suffer barotrauma. Bats are believed to be more susceptible to barotrauma than birds due to differences in their respiratory anatomy (Baerwald et al. 2008).

The Proposal has been designed to avoid areas of high value fauna habitat where risk of turbine strike is greatest by preferentially locating the Development Envelope in a highly disturbed landscape with much of the native vegetation having already been cleared for agricultural use. In addition, during the design phase of the Proposal the number of turbines has been reduced from 30 to 20, and based on the results of the initial BBRA (Phoenix 2025b) the RSA was amended from 25–250 m to 40–250 m above ground level to minimise potential impacts to low flying bird and bat species such as black cockatoos.

The preliminary bird and bat risk assessment (Phoenix 2025b) was revised as part of the BBAMP (ELA 2025a; Appendix N), with consideration of the proposed mitigation measures (Section 9.5), including the adjusted RSA, as well as technical advice provided by Johnstone (2025) (Table 9-14). Of the 47 Threatened, Migratory and at-risk bird and bat species assessed:

- 35 species recorded a Negligible risk level

- 11 species recorded a Low risk level
- One species recorded a Moderate risk level.

Mitigation measures have been proposed within the BBAMP (Appendix N) to manage the risk of turbine collision and barotrauma from the operation of the Proposal. The BBAMP also includes provisions for carcass monitoring during and after commissioning to determine the direct impact of turbine strike/barotrauma, as well as mitigation strategies proposed in response to increased mortality or injury to ensure no significant impacts to bird and bat species as a result of turbine strike/barotrauma.

With these proposed measures, and by implementing an adaptive management approach as detailed in the BBAMP, the operation of the turbines and placement of the transmission lines is not expected to significantly impact populations of non-conservation significant bird and bat species. Turbine strike/barotrauma impacts to conservation significant bird and bat species are discussed further in Section 9.6.13.

Table 9-15: Risk Assessment for Potential Species of Concern

Species	Cons. Status	Potential use in the Development Envelope	No. Records/ Individuals (birds) Activity level (bats)	Rec. Flight Height Range (m) (No. records)* [No. individuals]*	Potential impact	Likelhd.	Conseq.	Risk Rating	Justification
Calyptorhynchus banksii naso (Forest Red-tailed Black Cockatoo)	VU (EPBC & BC Acts)	Roosting Foraging Breeding	48 (206)	0-24 (3) [54] 25-50 (2) [11]	Direct collision/ barotrauma Displacement Habitat loss	Potential	Medium	Moderate	Recorded frequently in the Development Envelope, generally in low numbers (mostly singles). A large flock (>30 individuals) was recorded south of the Development Envelope. Heights were not recorded for many observations, and it was mostly observed at or below tree height. There were five flight height records for this species; three were below 24 m and two were within 25-50 m and therefore potentially within the RSA. In addition, flight height data was collected for black cockatoos which could not be identified to a species level, comprising 15 records of *Calyptorhynchus/Zanda* sp. Of these records, one was recorded within the adjusted RSA at 40 m. There has been no recorded wind farm mortality of black cockatoos in Australia (Phoenix 2025b; Johnstone 2025). Recognising the paucity of wind farm mortality data in Western Australia, consideration was given to *Zanda funerea* (Yellow-tailed Black Cockatoo), a surrogate species native to the south-east of Australia, with no recorded wind farm mortality (Phoenix 2025b). High and moderate quality foraging habitat is present within the Development Envelope. Foraging habitat also likely to be present in the (excised) conservation reserve and covenant areas in the centre of the Development Envelope. The Proposal includes only minor loss of native foraging habitat (1 ha, including no more than 0.5 ha of Moderate – High quality). While suitable habitat is present within the Development Envelope, there is extensive habitat present within adjacent conservation areas such as national parks. The presence of these habitat values in the vicinity likely encourages black cockatoo flights across the Development Envelope, stopping to forage as needed (Phoenix 2025a). As such, it is considered that the Development Envelope contains habitats that are unlikely to be critical but rather provide supplementary foraging habitat for Forest Red-tailed Black Cockatoo (Phoenix 2025a). No known breeding or roost sites within the Development Envelope. This species is known to mainly forage in the canopy and lower levels of Jarrah-Marri forests, and when moving from site-to-site generally flies just above the canopy (Johnstone 2025), as was supported by most of the flight observations within the BBUS, which were below 25 m. The average and maximum recorded canopy height for Marri trees, the tallest species within the Development Envelope, is 17.3 m and 28 m respectively, which is well below the RSA. However, this species is generally a poorer flier and less agile than Carnaby's and Baudin's cockatoos and therefore potentially more susceptible to turbine collision (Johnstone 2025). Therefore, a likelihood of impact rating of Potential was considered appropriate. Forest Red-tailed Black Cockatoo has a small total population, pair bonding and slow breeding (Phoenix 2025b). Loss in numbers of individuals may lead to minor reduction in population viability for between one and 5 years. Based on the above the risk to this species from the operation of the Proposal is considered Moderate. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Zanda baudinii (Baudin's Cockatoo)	EN (EPBC & BC Acts)	Roosting Foraging Breeding	7 (57)	0-24 (3) [11]	Direct collision/ barotrauma Displacement Habitat loss	Unlikely	Medium	Low	Recorded frequently in the Development Envelope, generally in low numbers (mostly singles, small flocks). All recorded flight heights were below RSA (0-24m). In addition, flight height data was collected for black cockatoos which could not be identified to a species level, including 15 records of *Calyptorhynchus/Zanda* sp. and two records of white-tailed black cockatoos (*Zanda* sp.). Of these records, all but one (*Calyptorhynchus/Zanda* sp.) were below the adjusted RSA, with the single record at 40 m. There has been no recorded wind farm mortality of black cockatoos in Australia (Phoenix 2025b; Johnstone 2025). Recognising the paucity of wind farm mortality data in Western Australia, consideration was given to *Zanda funerea* (Yellow-tailed Black Cockatoo), a surrogate species native to the south-east of Australia, with no recorded wind farm mortality (Phoenix 2025b). High and moderate quality foraging habitat is present within the Development Envelope. Foraging habitat also likely to be present in the (excised) conservation reserve and covenant areas in the centre of the Development Envelope. The Proposal includes only minor loss of foraging habitat (1 ha, including no more than 0.5 ha of Moderate – High quality)). While suitable habitat is present within the Development Envelope, there is extensive habitat present within adjacent conservation areas such as national parks. The presence of these habitat values in the vicinity likely encourages black cockatoo flights across the Development Envelope, stopping to forage as needed (Phoenix 2025a). As such, it is considered that the Development Envelope contains habitats that are unlikely to be critical but rather provide supplementary foraging habitat for Baudin's Cockatoo (Phoenix 2025a).

Species	Cons. Status	Potential use in the Development Envelope	No. Records/ Individuals (birds) Activity level (bats)	Rec. Flight Height Range (m) (No. records)* [No. individuals]*	Potential impact	Likelhd.	Conseq.	Risk Rating	Justification
									No known breeding sites within the Development Envelope, but two known *Zanda* spp. roosts located within 12 km of the Development Envelope. Black cockatoos are known to forage in areas up to 20 km from night roosting habitat during the non-breeding season (Phoenix 2025b). The species generally flies at about 5 to 15 m above the ground (Johnstone 2025), which was confirmed by the results of the BBUS. Therefore, this species is most likely to fly below the RSA. It may occasionally fly above canopy height and therefore potentially within the RSA; however, it is considered a very competent flyer with excellent vision at night and in poor light and is therefore capable of avoiding wind turbines on the rare occasions that it flies within the RSA (Johnstone 2025). The average and maximum recorded canopy height for Marri trees, the tallest species within the Development Envelope, is 17.3 m and 28 m respectively, which is well below the RSA. Therefore, the likelihood of impact is considered unlikely. Baudin's Cockatoo has a small total population, pair bonding and slow breeding (Phoenix 2025b). Loss in numbers of individuals may lead to minor reduction in population viability for between one and 5 years. Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Zanda latirostris (Carnaby's Cockatoo)	EN (EPBC & BC Acts)	Roosting Foraging	38 (154)	0-24 (22) [97] 30 (2) [2]	Direct collision/ barotrauma Displacement Habitat loss	Unlikely	Medium	Low	Recorded frequently in the Development Envelope, generally in low numbers (mostly singles, small flocks). All recorded flights were below RSA, with 92% of recorded flights below 25 m, and two records (8% of flights) at flight height of 30 m. In addition, flight height data was collected for black cockatoos which could not be identified to a species level, including 15 records of *Calyptorhynchus/Zanda* sp. and two records of white-tailed black cockatoos (*Zanda* sp.). Of these records, one (*Calyptorhynchus/Zanda* sp.) was recorded within the adjusted RSA at 40 m. Cataby is one of the few areas where there is an operating wind farm (Yandin) close to a small breeding population of Carnaby's Cockatoo which has been monitored for over 20 years (Johnstone 2025). Foraging habitat is present within a few hundred metres of turbines and breeding habitat as close as 3.5-4 km. This small breeding population has remained stable since the wind farm was commissioned in 2021. Further, during the monitoring of this population no Carnaby's Cockatoo were anecdotally observed flying towards the wind turbines (Johnstone 2025). There has been no recorded wind farm mortality of black cockatoos in Australia (Phoenix 2025b; Johnstone 2025). Recognising the paucity of wind farm mortality data in Western Australia, consideration was given to *Zanda funerea* (Yellow-tailed Black Cockatoo), a surrogate species native to the south-east of Australia, with no recorded wind farm mortality (Phoenix 2025b). High and moderate quality foraging habitat is present within the Development Envelope. Foraging habitat also likely to be present in the (excised) conservation reserve and covenant areas in the centre of the Development Envelope. The Proposal includes minor loss of foraging habitat (1 ha, including no more than 0.5 ha of Moderate – High quality). While suitable habitat is present within the Development Envelope, there is extensive habitat present within adjacent conservation areas such as national parks. The presence of these habitat values in the vicinity likely encourages black cockatoo flights across the Development Envelope, stopping to forage as needed (Phoenix 2025a). As such, it is considered that the Development Envelope contains habitats that are unlikely to be critical but rather provide supplementary foraging habitat for Carnaby's Cockatoo (Phoenix 2025a). No known roosting sites within the Development Envelope but two known *Zanda* sp. roosts located within 12 km of the Development Envelope. Black cockatoos are known to forage in areas up to 20 km from night roosting habitat during the non-breeding season (Phoenix 2025b). The species generally flies at about at about 5 to 15 m above the ground (Johnstone 2025), which was confirmed by the results of the BBUS and therefore is most likely to fly below the RSA. It may occasionally fly above canopy height and therefore potentially within the RSA; however, it is considered a very competent flyer with excellent vision at night and in poor light and is therefore capable of avoiding wind turbines on the rare occasions that it flies within the RSA (Johnstone 2025). The average and maximum recorded canopy height for Marri trees, the tallest species within the Development Envelope, is 17.3 m and 28 m respectively, which is well below the RSA. Therefore, the likelihood of impact is considered unlikely. Carnaby's Cockatoo has a small total population, pair bonding and slow breeding (Phoenix 2025b). Loss in numbers of individuals may lead to minor reduction in population viability for between one and 5 years.

Species	Cons. Status	Potential use in the Development Envelope	No. Records/ Individuals (birds) Activity level (bats)	Rec. Flight Height Range (m) (No. records)* [No. individuals]*	Potential impact	Likelhd.	Conseq.	Risk Rating	Justification
									Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Falsistrellus mackenziei (Western False Pipistrelle)	P4 (DBCA list)	Roosting Foraging Breeding	Low	NR[3]	Direct collision/ barotrauma	Potential	Minor	Low	Infrequently detected in the Development Envelope but low number of calls (one mean detection per night). Suspected to fly at heights within RSA. No mortality monitoring data available for this species but there are recorded moderate mortalities (10–100) in carcass monitoring for closely related species *Falsistrellus tasmaniensis*. Consistent single detections suggest rare/occasional movement through cleared habitats between remnant patches, and thus foraging typically close to vegetation, rather than open paddocks. Some limited roosting opportunities within the Development Envelope (Phoenix 2025a). May breed in best examples of Marri-Jarrah-Peppermint woodland, where the potential breeding tree assessment (Phoenix 2025a) recorded the most trees with hollows, many of which would be considered suitably sized to support the species. Occasional loss of small numbers of individuals possible but unlikely to lead to reduction in local population viability. Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Botaurus poiciloptilus (Australasian Bittern)	EN (EPBC & BC Acts)	Roosting Foraging Breeding	-	-	Direct collision/ barotrauma	Unlikely	Medium	Low	No record from surveys, nor desktop records within 10 km of the Development Envelope. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Known from Hardy Inlet ~12 km south-west of the Development Envelope and the Gingilup/Quitchup/Jasper wetlands ~30 km south-east (dates of records unknown). The latter is an important wetland suite for the species. Potential for occasional use of the larger wetlands in the Development Envelope but unlikely a regular visitor or regularly transit through the Development Envelope. WA population is very small therefore any loss of individuals may have temporary impact on local population viability. Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Pandion haliaetus (Osprey)	MI (EPBC & BC Acts)	Occasional foraging	7 (7)	0-24 (2) [2] 25-50 (3) [6] 51-75 (1)[1]	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Recorded only once in the Development Envelope across all surveys. Only recorded flying within RSA heights at regional reference sites. No mortalities recorded in carcass monitoring from reviewed sources at Australian sites, but collision deaths have been reported overseas. Common and widely distributed in coastal regions across most of the country. Many individual Osprey are known in the Busselton to Augusta region (B. Wykes pers. comm. cited in Phoenix 2025b). The population is limited by viable nest sites, not biological factors. Desktop records are nearly all south-west of the Development Envelope associated with Hardy Inlet, Augusta beaches, Scott and Blackwood Rivers. Sampling at the Regional reference sites supports this, with several records made during the Year 2 surveys at the Hardy Inlet coastal sites. Unlikely to utilise habitats in study area regularly because it primarily feeds on fish, though may be an occasional foraging site. Potential for rare loss of individuals but no reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Oxyura australis (Blue-billed Duck)	P4 (DBCA list)	Roosting Foraging Breeding	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys; however, desktop records within 10 km of the Development Envelope. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Potential for occasional use of the open water present within wetlands in the Development Envelope but unlikely to be a regular visitor. A few records from the artificial wetlands west of the Development Envelope but limited desktop records returned within 10 km, and all from 2010 or older. Potential for rare loss of individuals but no reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Apus pacificus (Fork-tailed Swift)	MI (EPBC & BC Acts)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys, nor desktop records within 10 km of the Development Envelope. Suspected to fly at heights within RSA. Only one mortality recorded in carcass monitoring from reviewed sources. Common species, considered to possibly occur on occasion. Potential for rare loss of individuals but undetectable loss of East Asian-Australasian Flyway (EAAF) population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.

Species	Cons. Status	Potential use in the Development Envelope	No. Records/ Individuals (birds) Activity level (bats)	Rec. Flight Height Range (m) (No. records)* [No. individuals]*	Potential impact	Likelhd.	Conseq.	Risk Rating	Justification
Tyto novaehollandiae novaehollandiae (Masked Owl (southwest))	P3 (DBCA list)	Roosting Foraging Breeding	2 (2)	NR[3]	Direct collision/ barotrauma Displacement	Unlikely	Insignificant	Negligible	Recorded at two locations outside the Development Envelope, as singles. Only likely to fly at RSA heights when displaying courtship over a prospective nest site of which none are present in study area. Unlikely to fly within RSA while hunting. No mortality monitoring data available for this species. No other Masked Owl mortalities from reviewed sources. May hunt in woodland habitats of the Development Envelope and transit through but not likely to utilise extensively. Potential for rare loss of individuals but unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Pluvialis fulva (Pacific Golden Plover)	MI (EPBC & BC Acts)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys; however, desktop records <10 km of the Development Envelope. Desktop records all south-west of the Development Envelope associated with the Hardy Inlet and Scott River. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Mainly uses coastal habitats. Potential for occasional use of paddocks and the larger wetlands in the Development Envelope but unlikely a regular visitor to the Development Envelope when present in the region, noting very limited overlap between species arrival in region (December) and persistence of suitable foraging habitat in the Development Envelope. Potential for rare loss of individuals but undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Anarhynchus bicinctus (Double-banded Plover)	MI (EPBC & BC Acts)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys, although may possibly occur within the Development on very rare occasion. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Utilises terrestrial wetlands and pasture near the coast but rarely occurs in WA. Previous desktop records within 10 km of Development Envelope but old (1979-80). Potential for rare loss of individuals/undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Anarhynchus mongolus (Siberian Sand Plover)	EN/MI (EPBC Act); EN (BC Act)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys, although may possibly occur within the Development Envelope on rare occasion. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Utilises terrestrial wetlands and pasture near the coast but rarely occurs in WA. Previous old (1980) desktop record within 10 km of Development Envelope but mainly uses coastal habitats such as beaches, mudflats and sandflats. Potential for rare loss of individuals/undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Pluvialis squatarola (Grey Plover)	VU/MI (EPBC Act); MI (BC Acts)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys, although may possibly occur within the Development Envelope on rare occasion. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Mainly utilises coastal habitats but potential for rare use of wetlands in Development Envelope. Potential for rare loss of individuals/undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Hydroprogne caspia (Caspian Tern)	MI (EPBC & BC Acts)	None	6 (62)	0-24 (4) [59] 25-50 (2) [3]	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	Recorded at Hardy Inlet during surveys however no records within the Development Envelope, although may possibly occur within the Development Envelope on rare occasions. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Previous desktop record within 10 km of Development Envelope. Known to utilise near-coastal terrestrial wetlands. May occur as a visitor but the wetlands present in the Development Envelope are too shallow to provide the species' preferred food source (fish). Potential for rare loss of individuals/undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Calidris tenuirostris (Great Knot)	VU/MI (EPBC Act); CR (BC Act)	Foraging	-	-	Direct collision/ barotrauma	Potential	Insignificant	Negligible	No record from surveys, although may possibly occur within the Development Envelope on very rare occasion. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Old (1980) desktop records within 10 km of the Development Envelope from near artificial wetlands. Occurs mostly in coastal intertidal habitats, but rare use of swamps. Potential presence in the Development Envelope is considered likely very rare. Potential for rare loss of individuals/undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Motacilla cinerea (Grey Wagtail)	MI (EPBC & BC Acts)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys, although may possibly occur within the Development Envelope on rare occasion. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed

Species	Cons. Status	Potential use in the Development Envelope	No. Records/ Individuals (birds) Activity level (bats)	Rec. Flight Height Range (m) (No. records)* [No. individuals]*	Potential impact	Likelhd.	Conseq.	Risk Rating	Justification
									sources. No previous desktop records within 10 km of Development Envelope. Occurs in a wide range of habitats. Potential for rare loss of individuals but no reduction in population viability.
Calidris falcinellus (Broad-billed Sandpiper)	MI (EPBC & BC Acts)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys, although may possibly occur within the Development Envelope on rare occasion. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Mainly utilises coastal habitats but occasional records from swamps and lakes so potential for rare use of wetlands in Development Envelope. Potential for rare loss of individuals/undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Falco peregrinus (Peregrine Falcon)	OS (BC Act)	Foraging	1 (1)	25-50 (1) [1]	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	Recorded in the Development Envelope only once across all surveys. Recorded flying at height between 26-50 m above ground level. Recorded mortalities in carcass monitoring from reviewed sources. The Development Envelope considered foraging habitat within a resident bird's home range. Unlikely to nest in the Development Envelope. Several desktop records, nearly all south-west of the Development Envelope, mainly associated with the Hardy Inlet and Scott River. Individuals/pairs may hunt in the Development Envelope on occasion as part of their large home range, and or transit through. Potential for rare loss of individuals but unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Actitis hypoleucos (Common Sandpiper)	MI (EPBC & BC Acts)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys; however, desktop records within 10 km of the Development Envelope. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Most desktop records associated with the Hardy Inlet south-west of the study area. Does not form large flocks (mainly occurs singly or in pairs). Potential for occasional use of the larger wetlands in the Development Envelope, but unlikely a regular visitor or regular transit through the Development Envelope when present in the region. Limited overlap between species arrival (September-October) and when wetlands in the Development Envelope have suitable foraging habitat. Potential for rare loss of individuals but undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Calidris acuminata (Sharp-tailed Sandpiper)	VU/MI (EPBC Act); MI. (BC Act)	Foraging	1 (40)	0-24 (1) [40]	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	Recorded in survey only from a regional site. Record is from Hardy Inlet in much more suitable and extensive habitat than the Development Envelope. Desktop records all south-west of the Development Envelope associated with Hardy Inlet and Scott River, with one record from artificial wetlands west of the Development Envelope. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. May arrive in Augusta area from September. Potential for occasional occurrence in the Development Envelope, but unlikely a regular visitor or regular transit through the Development Envelope when present in the region. Limited overlap between species arrival and when wetlands/dams in the Development Envelope have suitable foraging habitat. Potential for rare loss of individuals but undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Calidris ferruginea (Curlew Sandpiper)	CR/MI (EPBC Act); CR (BC Act)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys; however, desktop records within 10 km of the Development Envelope. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Desktop records nearly all south-west of the Development Envelope associated with Hardy Inlet, which aligns with its preferred foraging habitats. Desktop records indicate arrival from September. Potential for occasional use of paddocks, wetland habitats and dams in the Development Envelope, but unlikely a regular visitor or regular transit through the Development Envelope when present in the region. Limited overlap between species arrival and when wetlands/paddocks in the Development Envelope have suitable foraging habitat. Potential for rare loss of individuals but undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Calidris melanotos (Pectoral Sandpiper)	MI (EPBC & BC Acts)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys; however, desktop record just outside the Development Envelope, on the Hardy Inlet. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Arrives in the southwest in spring. Potential for occasional use of paddocks and in the Development Envelope, but unlikely a regular visitor or regular transit through the Development Envelope when present in the region. Potential for rare loss of individuals but undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.

Species	Cons. Status	Potential use in the Development Envelope	No. Records/ Individuals (birds) Activity level (bats)	Rec. Flight Height Range (m) (No. records)* [No. individuals]*	Potential impact	Likelhd.	Conseq.	Risk Rating	Justification
Limosa lapponica (Bar-tailed Godwit)	MI (EPBC & BC Acts)	Foraging	1 (1)	0-24 (1) [1]	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	One record within the during the surveys at Hardy Inlet, although may possibly occur within the Development Envelope on very rare occasion . Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Old (1980) desktop records within 10 km of the Development Envelope from near artificial wetlands and at Blackwood River. Occurs mostly in coastal habitats but occasionally observed at inland wetlands and paddocks. Potential presence in the Development Envelope is considered likely very rare. Potential for rare loss of individuals/undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Limosa limosa (Black-tailed Godwit)	EN/MI. (EPBC Act); MI (BC Act)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys, although may possibly occur within the Development Envelope on very rare occasion. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Old (1980) desktop records within 10 km of the Development Envelope from artificial wetlands. Occurs mostly in coastal habitats but occasionally uses near-coastal wetlands and floodplains. Potential for rare loss of individuals/undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Tringa brevipes (Grey-tailed Tattler)	MI (EPBC and BC Acts); P4 (DBCA list)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No record from surveys, although may possibly occur within the Development Envelope on very rare occasion. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Old (1981) desktop records within 10 km of the Development Envelope. Occurs mostly in coastal habitats but occasionally observed at near-coastal wetlands. Potential presence in the Development Envelope is considered likely very rare. Potential for rare loss of individuals/undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Calidris ruficollis (Red-necked Stint)	MI (EPBC & BC Acts)	Foraging	2 (72)	0-24 (2) [72]	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	Recorded in survey only from regional sites. Records are from Hardy Inlet in much more suitable and extensive habitat than the Development Envelope. Desktop records also mainly south-west of the Development Envelope, associated with Hardy Inlet. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Arrives in the South West in spring. Potential for occasional use of paddocks, wetland habitats and dams in the Development Envelope, but unlikely a regular visitor or regular transit through the Development Envelope when present in the region. Potential for rare loss of individuals but undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Tringa glareola (Wood Sandpiper)	MI (EPBC & BC Acts)	Foraging	1 (3)	0-24 (1) [3]	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Three individuals recorded in a single observation within the Development Envelope, across all surveys. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Limited desktop records (only two just west of the Development Envelope). Mainly occurs singly, in pairs or small flocks. Arrives in southwest in spring, though more common from summer to autumn when habitat in the Development Envelope mainly unsuitable (largely dried out). Occasional use of wetlands in the Development Envelope and transit through the Development Envelope by small numbers of birds. Potential for rare loss of individuals but undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Tringa nebularia (Common Greenshank)	EN/MI(EPBC Act) MI (BC Act)	Foraging	-	-	Direct collision/ barotrauma	Potential	Insignificant	Negligible	No record from surveys; however, desktop records within 10 km of the Development Envelope. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Desktop records all south-west of the Development Envelope, mainly associated with Hardy Inlet, Scott River, but also recorded from artificial wetlands directly west of the Development Envelope. Arrives in the southwest in early spring. Occasional use of the paddocks/ wetland habitats in the Development Envelope. Potential for rare loss of individuals but undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Tringa stagnatilis (Marsh Sandpiper)	MI (EPBC & BC Acts)	Foraging	-	-	Direct collision/ barotrauma	Unlikely	Insignificant	Negligible	No records from surveys, nor recorded within 10 km of the Development Envelope but suitable habitat present in the Development Envelope when they arrive in early spring. Suspected to fly at heights within RSA. No mortalities recorded in carcass monitoring from reviewed sources. Limited desktop records, south-west of the Development Envelope at Augusta. Occasional use of paddocks, wetland habitats in the Development Envelope. Potential for rare loss of individuals but undetectable loss of EAAF population over 10 years (<0.005%). Based on the above the risk to this species from the operation of the Proposal is considered Negligible.

Species	Cons. Status	Potential use in the Development Envelope	No. Records/ Individuals (birds) Activity level (bats)	Rec. Flight Height Range (m) (No. records)* [No. individuals]*	Potential impact	Likelhd.	Conseq.	Risk Rating	Justification
Aquila audax (Wedge-tailed Eagle)	-	Foraging Roosting Breeding	37 (50)	0-24 (2) [3] 25-50 (12) [15] 51-75 (3) [3] 76-150 (11) [17] >150 (7) [10]	Direct collision/ barotrauma	Almost certain	Minor	Low	Frequently recorded in the Development Envelope, as singles/pairs. Frequently recorded flying at RSA heights. Recorded moderate mortalities (10–100) in carcass monitoring from reviewed sources. Likely uses the Development Envelope regularly for foraging. Potential for breeding but no known nest sites in the Development Envelope. Occasional loss of individuals likely but is a widespread, abundant species, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Circus approximans (Swamp Harrier)	-	Foraging Roosting Breeding	57 (66)	0-24 (33) [37] 25-50 (12) [12] 51-75 (3) [4] 76-150 (3) [6]	Direct collision/ barotrauma	Almost certain	Minor	Low	Frequently recorded in the Development Envelope, as singles/pairs. Frequently recorded flying at RSA heights. Recorded moderate mortalities (10–100) in carcass monitoring from reviewed sources. Likely uses the Development Envelope regularly for foraging. Potential for breeding but no known nest sites in the Development Envelope. Occasional loss of individuals likely but is a widespread, abundant species, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Elanus axillaris (Black-shouldered Kite)	-	Foraging Roosting Breeding	4 (4)	0-24 (1) [1] 25-50 (1) [1]	Direct collision/ barotrauma	Potential	Minor	Low	Infrequently recorded in the Development Envelope, as singles. Recorded flying at RSA height. Recorded moderate mortalities (10–100) in carcass monitoring from reviewed sources. Likely to forage in the Development Envelope. Potential for breeding but no known nest sites in the Development Envelope. Widespread, abundant species. Occasional loss of individuals likely but is a widespread, abundant species, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Haliaeetus leucogaster (White-bellied Sea-Eagle)	-	Foraging	2 (2)	76-150 (2) [2]	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Only one record in the Development Envelope of a bird flying over. Recorded flying at RSA height. Only one recorded mortality in carcass monitoring from reviewed sources. Mostly occurs in coastal habitats. May hunt for waterbirds in the Development Envelope on occasion, or transit through but no breeding and unlikely to be a regular visitor. Territorial and occur sparsely across their range. Rare loss of individuals possible but reduction in population viability unlikely. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Haliastur sphenurus (Whistling Kite)	-	Foraging Roosting Breeding	8 (9)	25-50 (3) [3] 51-75 (1) [1] 76-150 (2) [2]	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Infrequently recorded in the Development Envelope, as singles, one pair. Recorded flying at heights within RSA. Recorded low mortalities (<10) in carcass monitoring from reviewed sources. Likely to forage in the Development Envelope. Potential for breeding but no known nest sites in the Development Envelope. Rare loss of individuals possible but is a widespread, abundant species, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Hieraaetus morphnoides (Little Eagle)	-	Foraging Roosting Breeding	3 (3)	76-150 (2) [2]	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Infrequently recorded in the Development Envelope, as singles recorded flying at RSA height. Recorded low mortalities (<10) in carcass monitoring from reviewed sources. Likely to forage in the Development Envelope. Potential for breeding but no known nest sites in the Development Envelope. Rare loss of individuals possible but is a widespread, abundant species, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Tachyspiza cirrocephala (Collared Sparrowhawk)	-	Foraging Roosting Breeding	4 (4)	0-24 (2) [2] 25-50 (1) [1] 76-150 (1) [1]	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Infrequently recorded in the Development Envelope, as singles. Recorded flying at heights within RSA. Recorded low mortalities (<10) in carcass monitoring from reviewed sources. Highly manoeuvrable species. Likely to forage in the Development Envelope. Potential for breeding but no known nest sites in the Development Envelope. Rare loss of individuals possible but is a widespread, abundant species, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.

Species	Cons. Status	Potential use in the Development Envelope	No. Records/ Individuals (birds) Activity level (bats)	Rec. Flight Height Range (m) (No. records)* [No. individuals]*	Potential impact	Likelhd.	Conseq.	Risk Rating	Justification
Tachyspiza fasciata (Brown Goshawk)	-	Foraging Roosting Breeding	6 (7)	0-24 (1) [2] 51-75 (1) [1] 76-150 (2) [2]	Direct collision/ barotrauma	Potential	Minor	Negligible	Infrequently recorded in the Development Envelope, as singles, one pair. Recorded flying at heights within RSA. Recorded moderate mortalities (10–100) in carcass monitoring from reviewed sources. Likely to forage in the Development Envelope. Potential for breeding but no known nest sites in the Development Envelope. Occasional loss of individuals possible but is a widespread, abundant species, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Falco berigora (Brown Falcon)	-	Foraging Roosting Breeding	17 (21)	0-24 (8) [9] 25-50 (4) [6] 51-75 (1) [1] 76-150 (1) [1]	Direct collision/ barotrauma	Almost certain	Minor	Low	Frequently recorded in the Development Envelope, as singles, pairs. Recorded flying at heights within RSA. Recorded high mortalities (>100) in carcass monitoring from reviewed sources. Relatively heavy slow flight. Likely to forage in the Development Envelope regularly. Potential for breeding but no known nest sites in the Development Envelope. Occasional loss of individuals likely but is a widespread, abundant species, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Falco cenchroides (Australian Kestrel)	-	Foraging Roosting Breeding	47 (58)	0-24 (34) [44] 25-50 (8) [9] 76-150 (3) [3]	Direct collision/ barotrauma	Almost certain	Minor	Low	Frequently recorded in the Development Envelope, as singles, pairs. Recorded flying at heights within RSA. Recorded high mortalities (>100) in carcass monitoring from reviewed sources. Observed foraging in the Development Envelope and likely to hunt there regularly. Potential for breeding but no known nest sites in the Development Envelope. Loss of individuals likely but is a widespread, abundant species, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Falco longipennis (Australian Hobby)	-	Foraging Roosting Breeding	3 (4)	0-24 (2) [2] 51-75 (1) [2]	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Infrequently recorded in the Development Envelope, as singles, one pair. Recorded flying at height within RSA. Only one mortality in carcass monitoring from reviewed sources. Occasional foraging in the Development Envelope likely but not a regular inhabitant. Potential for breeding but no known nest sites in the Development Envelope. Rare loss of individuals possible but is a widespread, abundant species, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Austronomus australis (White-striped Free-tailed Bat)	-	Foraging Roosting Breeding	High	NR	Direct collision/ barotrauma	Almost certain	Minor	Low	Activity levels highest within the Development Envelope. Second highest total number of calls recorded, overall. Largely absent in winter and autumn. Suspected to fly at heights within RSA. Recorded high mortalities (>100) in carcass monitoring from reviewed sources. Often represents the species with highest documented mortality. Loss in numbers of individuals likely but is a widespread and relatively abundant species in the Development Envelope and surrounds, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.
Chalinolobus gouldii (Gould's Wattled Bat)	-	Foraging Roosting Breeding	Low	NR	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Low activity levels in the Development Envelope all year. Suspected to fly at heights within RSA. Recorded moderate mortalities (10–100) in carcass monitoring from reviewed sources. Rare loss of individuals due to low activity in the Development Envelope, reduction in population viability unlikely. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Chalinolobus morio (Chocolate Wattled Bat)	-	Foraging Roosting Breeding	Low	NR	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Low activity levels in the Development Envelope. Far more active in summer by a factor of 10-20 compared with other seasons. Suspected to fly at heights within RSA. Recorded moderate mortalities (10–100) in carcass monitoring from reviewed sources. Rare loss of individuals due to low activity in the Development Envelope, reduction in population viability unlikely. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Nyctophilus geoffroyi (Lesser Long-eared Bat)	-	Foraging Roosting Breeding	Low	NR	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Low activity levels in the Development Envelope all year. Suspected to fly at heights within RSA. Recorded moderate mortalities (10–100) in carcass monitoring from reviewed sources. Rare loss of individuals due to low activity in the Development Envelope, reduction in population viability unlikely. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.

Species	Cons. Status	Potential use in the Development Envelope	No. Records/ Individuals (birds) Activity level (bats)	Rec. Flight Height Range (m) (No. records)* [No. individuals]*	Potential impact	Likelhd.	Conseq.	Risk Rating	Justification
Nyctophilus holtorum (Holt's Long-eared Bat)	-	Foraging Roosting Breeding	Low	NR	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Low activity levels in the Development Envelope and present in summer and autumn only. Suspected to fly at heights within RSA. No data found on wind farm mortalities but was previously classified within *C. gouldii* (ref Parnaby), therefore assume similar mortality risk to this species (moderate mortalities). Rare loss of individuals due to low activity in the Development Envelope, reduction in population viability unlikely. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Nyctophilus major (Greater Long-eared Bat)	-	Foraging Roosting Breeding	Low	NR	Direct collision/ barotrauma	Potential	Insignificant	Negligible	Low activity levels in the Development Envelope, all year, almost absent in winter. Suspected to fly at heights within RSA. No data found on wind farm mortalities. Rare loss of individuals due to low activity in the Development Envelope, reduction in population viability unlikely. Based on the above the risk to this species from the operation of the Proposal is considered Negligible.
Vespadelus regulus (Southern Forest Bat)	-	Foraging Roosting Breeding	Moderate	NR	Direct collision/ barotrauma	Almost certain	Minor	Low	Moderate activity levels in the Development Envelope and high activity levels within the 10 km buffer. Active all seasons. Suspected to fly at heights within RSA. Recorded moderate mortalities (10–100) in carcass monitoring from reviewed sources. Loss in numbers of individuals likely but is a widespread and relatively abundant species in the Development Envelope and surrounds, therefore unlikely to lead to reduction in population viability. Based on the above the risk to this species from the operation of the Proposal is considered Low. Potential impacts to this species from the operation of the Proposal will be managed through the BBAMP to ensure no significant impacts to this species.

*Not all records included flight details; therefore the no. of flight height records does not necessarily match the number of records/individuals for all bird species.

9.6.4. Loss or Injury to Fauna Individuals through Clearing, Vehicle and Machinery Movements

Construction and operational activities within the Development Envelope such as vegetation clearing and vehicle and machinery movements could result in collision with fauna, leading to mortality or injury. Mitigation measures, including restricting vehicle movements to existing tracks and implementing speed limits, will be implemented in accordance with the CEMP (Appendix H), minimising the potential for vehicle strike. Nighttime construction activities will be avoided where practicable to avoid interactions with nocturnal species. Measures will also be implemented in accordance with the CEMP to minimise the risk of loss or injury to fauna associated with clearing.

By implementing management measures to mitigate the loss of fauna individuals, clearing, vehicle and machinery movements are not expected to significantly impact populations of fauna species.

9.6.5. Loss or Injury to Fauna Individuals through Entrapment in Excavations, Borrow Pits, Dams and Basins during Construction

Fauna individuals may fall into and become trapped in open excavations and borrow pits during construction. Excavations will be required to facilitate construction and installation of underground infrastructure (e.g. wind turbine/mast/tower foundations and underground cabling). Settlement basins and infiltration basins/trenches will also be present within the Development Envelope and can pose a drowning risk to fauna.

To mitigate the risk of fauna entrapment and mortality, open excavations will not exceed depths capable of being practically inspected and cleared by fauna handlers at the time of excavation and will be kept open for the minimum time required to enable construction activities. In addition, appropriate egress points will be installed at excavations deeper than 500 mm, with two daily inspections to occur in the early morning and late afternoon where open for more than 24 hours. Borrow pits, water storage dams and settlement basins will also provide appropriate egress points and fencing will be installed around water storage dams and dewater settlement basins to prevent fauna access. While infiltration basins/trenches will be shallow and have a low profile, minimising the risk of entrapment and drowning.

Overall, impacts associated with excavation can be appropriately managed and are not anticipated to result in a degree of fauna injury or mortality significant enough to affect local populations.

9.6.6. Disturbance to Fauna Movement Patterns and Behaviour from Wind Turbine Movements, Light, Noise and/or Vibration

Construction and operational activities pose a risk to the movement patterns and the breeding, foraging and migratory behaviour of fauna, particularly birds and bats, through the placement of wind turbines, light, noise and/or vibration. Wind turbines may act as a physical barrier to species movement within their home range, as birds and bats can often exhibit avoidance behaviour around wind turbines. While this avoidance behaviour may reduce collision risk, it can lead to habitat displacement or barrier effects where birds and bats avoid otherwise suitable areas.

Noise and vibration intensity will be highest within construction areas, although these effects will dissipate over greater distances. Noise can cause interruptions in feeding and resting behaviour, reducing reproductive success and resulting in abandonment of an area (Newport et al. 2014). Meanwhile, vibration has the potential to temporarily interfere with the ability of some species to detect prey or predators.

Artificial lights can disrupt the behaviour of nocturnal species, such as the Western Ringtail Possum, by interrupting nocturnal foraging behaviour, forcing them to leave their habitat which may increase

species interactions with vehicles, machinery or feral predators. Conversely, lighting on turbines may also attract fauna, particularly insectivorous birds and bats, placing them at risk of turbine collision.

The Proposal has been designed to avoid areas of high value fauna habitat by preferentially locating the Development Envelope in a highly disturbed landscape with much of the native vegetation having already been cleared for agricultural use. The Development Envelope has been reduced from approximately 5,600 ha to 3,597 ha to remove areas of conservation estate and high value fauna habitat and increased the separation distance -from the Scott River and South Blackwood State Forest (Section 2.4.3). In addition, ecological linkages associated with remnant vegetation and rivers surrounding the Development Envelope are likely to support ongoing bird and bat movement through the landscape (WALGA 2009).

Given the short construction period (18-24 months) impacts that may occur during construction would be relatively short in duration and restricted to the areas of construction and access roads. Mitigation measures will be implemented in accordance with the CEMP (Appendix H) to manage disturbances associated with light, noise and vibration during construction of the Proposal. All facilities will be designed to comply with the Environment Protection (Noise) Regulations 1997 and lighting will be kept to a minimum to avoid attracting birds, bats and insects to Proposal infrastructure. Assessments to date do not indicate that lighting on the wind turbines will be required. Aviation lighting will only be installed on wind turbines where required by CASA/emergency services. In this instance, if lighting is required by the approving authorities, the Proponent will work with aviation and emergency services to assess lighting solutions.. Nighttime construction activities will be avoided where possible, and lighting will be limited to that required for safety purposes.

The abundance and species richness of bird and bat species of concern will be monitored during the operational bird and bat monitoring program, to determine whether species are exhibiting avoidance behaviours, as detailed within the BBAMP (Appendix N).

Overall, the Proposal is not anticipated to substantially alter the movement or behaviour of fauna species and impacts can be appropriately managed to ensure local populations are not significantly impacted. A detailed assessment of the impacts to conservation significant species recorded or likely to occur is discussed further in Section 9.6.13.

9.6.7. Increased Abundance, Competition or Predation by Feral Fauna

A total of seven introduced fauna species have been recorded within the Development Envelope. Vegetation clearing creates corridors that enable feral predators to move more freely through the landscape. Clearing for construction of the Proposal may force native fauna to traverse these cleared corridors to reach suitable habitats, leaving them susceptible to predation. In addition, food and water availability may increase from the Proposal through the production of food waste and water required for construction activities, increasing the presence of feral predators and competitors. An increased abundance in small feral mammals, such as rabbits, may also attract raptors of concern to the Development Envelope, increasing the risk of turbine strike.

Given the Development Envelope has been preferentially located within a highly disturbed landscape, with clearing of native vegetation only expected to be required at four locations (Section 9.6.1), the Proposal is unlikely to create additional corridors for feral fauna dispersal, nor result in significant increase in food/resource availability. The attraction of, and potential impacts of increased competition or predation by, feral fauna will be managed through the implementation of appropriate feral fauna mitigation measures outlined within the CEMP (Appendix H) and the BBAMP (Appendix N). It is

considered that any potential impacts can be managed and given the already disturbed landscape and minimal clearing of high value fauna habitat proposed, increased competition or predation by feral fauna is not expected to significantly impact any native fauna species.

9.6.8. Degradation of Fauna Habitat as a result of Increased Dust Deposition

Localised short-term increases in fugitive dust emissions will occur primarily during the construction phase of the proposal from activities including vegetation clearing, excavations, earthworks and vehicle movements. During construction, dust emissions will be managed through the mitigation measures outlined in the CEMP (Appendix H), as detailed in Section 9.5. Dust emissions may also be generated during the operational phase by infrequent vehicle movements on unsealed internal access roads.

Given the relatively minimal disturbance required (approximately 107 ha within the 3,597 ha Development Envelope) and the short construction phase (18-24 months), impacts that may occur during construction would be relatively short in duration and restricted to the areas of construction and access roads. Once operational, vehicle movement within the Development Envelope will be minimal, with access tracks to be used by approximately five full time staff when undertaking wind farm maintenance activities, landowner liaison, environmental management and safety. Therefore, only minor dust generation would be expected during the operational phase. Moreover, given the location of the Proposal within a mostly cleared, fragmented landscape, it is not expected that fauna habitat represented by native vegetation, most of which will not be adjacent to major Proposal activities (e.g. wind turbine construction areas), will be significantly impacted by occasional and temporary potential dust deposition occurrences.

The Proposal may result in a minor, temporary increase in dust deposition on fauna habitat during construction; however, through the implementation of dust management and mitigation measures, impacts associated with increased dust emissions are expected to be localised and temporary. Therefore, impacts are not expected to be significant.

9.6.9. Degradation of Fauna Habitat as a result of Introduction and/or Spread of Weeds and/or Dieback

Clearing, vehicle and machinery movements have the potential to spread and/or introduce weed species and pathogens such as *Phytophthora cinnamomi*. The landscape in which the Proposal occurs is largely cleared and weed species are common throughout the agricultural land of the local area. A total of 70 weed species were recorded during the survey, none of which are listed as a Declared Pest or WoNS under the BAM Act. Given the existing presence of weeds throughout the Development Envelope, the Proposal is unlikely to introduce or spread weeds that will further degrade fauna habitats.

Phytophthora cinnamomi infestation is a threatening process affecting the viability and genetic diversity of the native flora of south-western Australia. The pathogen is recognised in the EPBC Act as one of five key threatening processes affecting biodiversity in Australian ecosystems (Dunstan et al. 2008). The pathogen can spread through soil, water or infected plant material, where moist or wet conditions favour dispersal of the pathogen. Hygiene measures such as Clean on Entry procedures and vehicle checks will be implemented in accordance with the CEMP (Appendix H) to limit the potential for the introduction and/or spread of weeds and dieback. To assess and mitigate the potential impacts of dieback within the Development Envelope, a formal dieback assessment will be undertaken, and a subsequent Dieback Management Plan developed prior to construction of the Proposal, where required.

As native vegetation clearing will be limited to a maximum of 1.00 ha, clearing activities are not anticipated to spread and/or introduce weed species and pathogens. Given this, the existing presence of weeds throughout the degraded landscape and that weed and pathogen management measures will

be implemented, no significant residual impacts on fauna habitat from the introduction or spread of weeds and/or pathogens are anticipated from the Proposal.

9.6.10. Degradation of Fauna Habitat as a result of Increased Risk of Bushfires

Construction activities, particularly clearing of native vegetation, welding and the movement of vehicles and heavy machinery have the potential to result in a bushfire that could degrade fauna habitat. In addition, fire hazards specific to wind farms can include electrical hazards (power surges, hot surfaces, lightning strike), chemical hazards (leakage of oils and other flammables), increased fire spread due to air flow or falling debris (including turbine blades), obstruction of aerial firefighting access and landscape hazards (ignition within the wind farm facility or external ignition of infrastructure from radiant heat or embers) (Linfire 2025b). The Development Envelope is designated as a bushfire prone area (DFES 2024), with the continuous native vegetation in the surrounding forests presenting the highest bushfire risk in the local area (Linfire 2025b).

However, as noted by the Australasian Fire and Emergency Services Authorities Council, the likelihood of turbine fires is considered to be low given appropriate protection measures are applied (Linfire 2025b). Furthermore, wind farms can reduce bushfire risk through:

- Improved private access roads, allowing better access for emergency services in case of fire and providing additional firebreaks
- Attracting lightning strikes during thunderstorms (rather than hitting the ground and vegetation), with strikes safely managed by their built-in protection systems (AFESCA 2018)
- Having full time operational staff on site, meaning more eyes and ears on the ground to spot bush fires early
- Installing remote monitoring systems to notify personnel if a fire is detected
- Providing dedicated water tanks at the wind farm which can be used in the event of a fire.

The risk of fire associated with the Proposal will be managed through the implementation of a BMP (Linfire 2025a) and BRMP (Linfire 2025b). Vegetation will be maintained around all infrastructure to reduce bushfire risk, including the implementation of NVZ and APZ around the base of each wind turbine. All wind turbines will be fitted with an automatic fire detection and alarm system, as well as an automatic fire suppression system. In the event of a turbine fire, the affected turbine will automatically shut down. Turbines will also have the capability to be remotely shut down and de-energised in the event of bushfire. The fire detection and alarm system will include notification to relevant personnel, such as wind farm staff, DFES, the local fire brigade and/or neighbouring landowners.

In accordance with the BMP (Linfire 2025a), the Proposal will be:

- Equipped with a mobile fire trailer (or similar approved device) which the Proponent must ensure is maintained and ready for use at all times during bushfire season, including ensuring a full water tank and pump fuel tank
- Provide water for managing fire, currently proposed to be stored in three clearly signposted 45 kL firewater tanks across the site.

The Proponent will ensure that access to the Development Envelope and water tanks is available to emergency services at any time.

On the basis of the above, the Proposal is not expected to increase the risk of bushfires.

9.6.11. Groundwater Drawdown Potentially Reducing the Hydroperiod and Health of GDEs (Wetland Habitats and Aquatic Fauna Habitat)

Temporary reductions in the groundwater level within the Superficial Aquifer from dewatering may result in impacts to the inundation period of groundwater dependent wetland values, that may also support aquatic fauna. Section 7.6.1 describes the modelling assessment undertaken to predict the extent of groundwater drawdown during construction. As discussed in this Section, the:

- Proponent will ensure that dewatering does not exceed the natural seasonal variation of drawdown at groundwater dependent wetland values
- Below ground foundations (Section 2.2.1.1) will only be used where it is confirmed prior to construction that dewatering would not be required.

Based on the modelled drawdown less than 0.04 ha of wetland habitat (approximately 0.01% of the extent of the wetlands within the Development Envelope) occurs within an area modelled to experience less than 0.5 m dewatering, which is well within the anticipated levels of natural seasonal variation of 1-2 m (Table 9-16; Figure 9-12;Stantec 2025b). Furthermore, this modelled impact is expected to be conservative based on the conservative nature of the drawdown modelling (i.e. assumes groundwater at surface and does not account for recharge associated with infiltration of dewater).

Table 9-16: Predicted Drawdown Interaction with Groundwater Dependent Wetlands

GDE Category	GDE Subcategory	Extent within Development Envelope (ha)	Area within Drawdown Extents (ha) (% of Extent within Development Envelope)		
			>2 m	1–2 m	0.5–1 m
Confirmed GDE	Seasonally Inundated Sedgeland wetland*	90.54	0 (0)	0 (0)	0.03 (0.03)
Potential GDE	Seasonally Inundated Paperbark Woodland	144.89	0 (0)	0 (0)	<0.01 (<0.01)
Total		315.55	0 (0)	0 (0)	<0.04 (0.01)

*Coincides with GDV (Section 8): Scott River Ironstone TEC ^Coincides with GDV (Section 8): Vegetation types dominated by *Melaleuca rhaphiophylla* and *Melaleuca preissiana* (MrCh). Source: Stantec 2025b

To further minimise the extent of drawdown at wetland habitats the Proponent commits to:

- Scheduling civil construction activities, specifically activities that require excavation, to occur during the dry season, where practicable
- Managing dewatering so that drawdown does not exceed 0.1 m beyond 100 m from any dewatering location or natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at GDE.
- Discharge of dewater to strategically placed infiltration basins to further minimise drawdown
- Utilisation of alternative management measures if required (e.g. reduced dewatering rates, use of above ground foundation option, sheet piling based on detailed site investigation and revised modelling)
- Implementation of a detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix B).

These wetland habitats do have the potential to support Salamanderfish and Black-stripe Minnow; however, no significant impact to these species is anticipated given:

- The wetlands within the Development Envelope are more neutral to alkaline, in contrast to these species' known occurrence in low acidity conditions
- The fish are adapted to ephemeral wetlands that are subject to seasonal wetting and drying
- Less than 0.04 ha of the wetlands intersect the 0.5-1 m drawdown contour, within natural seasonal variation, and representing approximately 0.01% of the extent of the wetlands within the Development Envelope.
- Implementation of the above commitments, including drawdown limits.

Given the temporary and spatially constrained nature of the proposed dewatering for the Proposal and the implementation of the ASSDMP, the Proponent considers that the predicted drawdown of groundwater is not expected to significantly impact confirmed and potential groundwater dependent wetlands and the communities they support within and surrounding the Development Envelope.

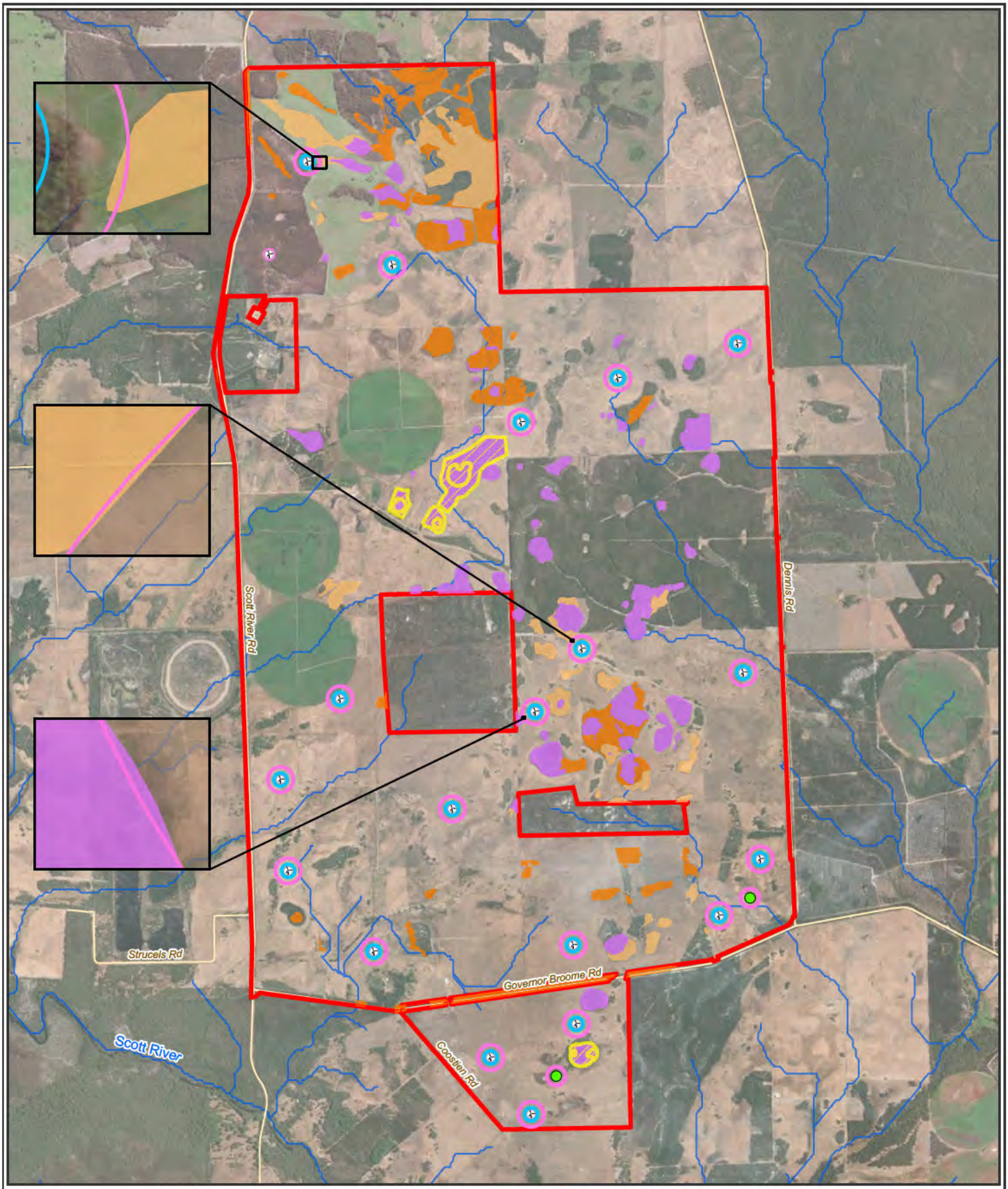


Figure 9-12: Predicted Groundwater Drawdown and Groundwater Dependent Wetlands within the Development Envelope

- Met Masts
- Wind Turbine
- Rivers and Tributaries
- Roads
- Development Envelope

Predicted Drawdown (m)

- 0.5
- 1
- 1.5
- 2
- 2.5
- 3

Wetland Values (Phoenix 2025a)

- Seasonally inundated paperbark woodland
- Seasonally inundated sedgeland
- Seasonally inundated shrubland
- Seasonally inundated paperbark woodland (wetland) - potentially permanently inundated

0 0.5 1 2

Kilometers

Datum/Projection: GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA A TETRA TECH COMPANY

9.6.12. Degradation of Fauna Habitat as a result of Altered Hydrological Regimes

Proposal infrastructure has the potential to interfere with existing surface water flow patterns resulting in decreased downstream flow, upstream waterlogging, or increased erosion and sedimentation (Section 7.6.3), which has the potential to degrade or alter fauna habitats.

As outlined in Section 7.6.3, changes to surface water flow and depth as a result of Proposal infrastructure are expected to be minimal given that key infrastructure is not proposed to be located within any potential waterways, inundation zones greater than 0.3 m or high velocity areas exceeding 2 m/s. Furthermore, a CEMP (Appendix H) will be implemented during construction of the Proposal to minimise the potential for impacts to surface hydrological regimes and flow patterns, in turn ensuring minimal impact to relevant existing habitat.

Through the implementation of mitigation measures within the CEMP and considered Proposal design, the Proposal is not expected to result in significant impacts to surface hydrological regimes including flow regimes such that fauna habitat may in turn be significantly impacted.

9.6.13. Conservation Significant Species-Specific Impacts

Species specific impacts to conservation significant fauna recorded or those considered likely to occur within the Development Envelope are discussed in the following sections.

9.6.13.1. Western Ringtail Possum

Habitat Loss

Table 9-17 presents the approximate loss of Western Ringtail Possum habitat based on the Indicative Disturbance Footprint. However, the Proposal includes flexibility to alter the alignment of the Indicative Disturbance Footprint within the Development Envelope if wind turbine locations and associated infrastructure change during detailed design. The Indicative Disturbance Footprint represents the maximum potential extent required for the Proposal. However, regardless of any refinement of the Indicative Disturbance Footprint, the Proposal will only result in the maximum clearing of up to 1.00 ha of fauna habitat that is represented by native vegetation within the Development Envelope (Section 9.6.1).

The Proposal has principally been designed to utilise previously cleared agricultural land and existing farm tracks as much as is practicable and is committed to avoiding the clearing of High quality Western Ringtail Possum habitat and minimising impacts on Moderate and Low quality Western Ringtail Possum habitat wherever possible and will address this further through detailed design (e.g. limiting widening of existing tracks to 6 m where necessary). As a result, the Proposal commits to no clearing of High quality, and a maximum of 0.5 ha of clearing of native Moderate to Low quality Western Ringtail Habitat, including a maximum of 0.03 ha of native Moderate quality Western Ringtail Possum habitat which includes the four small areas of unavoidable clearing discussed in Section 9.6.1. The clearing of the Bluegum Plantation (low quality habitat) will be avoided as part of the Proposal, as this area will only be developed if the plantation is harvested by the landowner prior to construction occurring in this area.

Table 9-17: Western Ringtail Possum Habitat Clearing within the Development Envelope

Habitat Quality Score	Extent within Development Envelope (ha)	Extent within Indicative Disturbance Footprint (ha)	Maximum Proposed Clearing of Native Fauna Habitat (ha)**
None (0)	2,560.51	101.33	-
Low (0.5-4.5)	918.20	5.24*	0.50
Moderate (5-7.5)	26.84	0.04	0.03
High (8-10)	91.30	0.00	0.00
Total	3596.85	106.61	0.50

*This includes 4.71 ha associated within non-native Bluegum Plantation habitat which will not be cleared as part of this Proposal.
** Provides maximum limits on how much clearing can occur for each habitat quality score but the total clearing of native Moderate to Low Quality Western Ringtail Habitat will not exceed 0.50 ha.

In considering whether the proposed habitat loss presents the possibility of a significant impact to Western Ringtail Possum, the Proposal has given consideration to the *EPBC Act Policy Statement 3.10* (DEWHA 2009b; Table 9-18).

Table 9-18: Western Ringtail Possum Significant Impact Criteria Considerations

Significant Impact Criteria Relating to Clearing*	Proposal Considerations
Clearing in a remnant habitat patch that is greater than 0.5 ha in size for core and primary habitat	• No clearing of High value Western Ringtail Possum habitat. • Clearing of no more than 0.5 ha of native Moderate to Low quality Western Ringtail Habitat, including a maximum of 0.03 ha of native Moderate quality Western Ringtail Possum habitat. Given the maximum area of disturbance and linear nature of the development no single patch of Moderate quality habitat will be substantially disturbed. • Clearing will occur within one remnant habitat patch (with Moderate habitat value) that is greater than 0.5 ha in size at Area 4 (0.01 ha of clearing; Table 9-14 and Figure 9-11). However, given the minor nature of the proposed clearing and presence of large areas of High-quality habitat directly adjacent to the Development Envelope this clearing is unlikely to significantly impact this patch.
Clearing in a remnant habitat patch that is greater than 0.5 ha in size for supporting habitat	• Clearing no more than 0.5 ha of Low quality native Western Ringtail Possum habitat to facilitate the Proposal. • Clearing will occur within a remnant habitat patch (with Low habitat value) that is greater than 0.5 ha in size at Area 1 (0.19 ha of clearing). However, given this habitat is unlikely to represent Western Ringtail Possum habitat (Section 9.6.1), the clearing is unlikely to significantly impact Western Ringtail Possum.
Clearing of more than 50% of a remnant habitat patch that is between 0.1 and 0.5 ha in size for core and primary habitat	• No more than 50% of a Western Ringtail Possum habitat patch (with Moderate habitat value) that is between 0.1 ha and 0.5 ha in size will be cleared.
Clearing of more than 50% of a remnant habitat patch that is between 0.2 and 0.5 ha for supporting habitat.	• No more than 50% of a Western Ringtail Possum habitat patch (with Low habitat value) that is between 0.2 ha and 0.5 ha low value habitat will be cleared.

*DEWHA 2009b

Given the above, the retention of higher value habitat within the Development Envelope and the presence of large areas of High quality habitat directly adjacent to the Development Envelope, the loss of a maximum of 0.5 ha of Low to Moderate quality habitat is not expected to significantly impact the local population.

Habitat Fragmentation

According to the Western Ringtail Possum Recovery Plan (DPaW 2017), habitat fragmentation is considered a key threatening process to Western Ringtail Possum populations in coastal and near coastal zones. This is attributed to their dependency on midstorey and overstorey vegetation for food, shelter and protection, with individuals rarely traversing the ground.

According to the *EPBC Act Policy Statement 3.10* (DEWHA 2009b) there is the possibility of a significant impact to Western Ringtail Possum from the fragmentation of habitat linkages if habitat trees become separated by more than 6 m.

The potential for exacerbating existing fragmentation within the Development Envelope is low, given the:

- Landscape in which the Proposal will be constructed is already highly fragmented
- Proposal utilisation of existing farm tracks
- Small area of clearing of Western Ringtail Possum habitat proposed (0.5 ha).

Some minor habitat fragmentation may occur at Governor Broome Road, where 0.01 ha of unavoidable clearing of Moderate quality Western Ringtail Possum habitat is required to facilitate transport of turbine components, as discussed in Section 9.6.1 (Figure 9-11). This small area of clearing (0.01 ha) is located on the northern road reserve along Governor Broome Road and is bound by low quality Western Ringtail Possum habitat (mid sparse to open shrubland) before linking to other areas of Moderate and High quality Western Ringtail Possum habitat 1.7 km to the west and 450 m to the east (Figure 9-5). A number of existing farm tracks fragment this potential habitat linkage (varying in width between 3.5 m to 50 m wide) and no evidence of occupation (individuals or dreys) was recorded at this location, despite extensive survey effort. The Proponent commits to minimising the clearing width at this location to 5 m to reduce the effect of fragmentation in accordance with *EPBC Act Policy Statement 3.10* (DEWHA 2009b).

The Proponent commits to limiting the width of clearing to 6 m for all other roads that may intersect the remaining 0.49 ha of Western Ringtail Possum habitat proposed to be cleared to ensure habitat connectivity and fauna dispersal is maintained. Through the measures proposed, the Proposal is not anticipated to result in significant impacts to Western Ringtail Possum habitat or movement as a result of fragmentation.

Mortality or Injury

Construction and operational activities within the Development Envelope such as vegetation clearing, vehicle and machinery movements and entrapment in excavations, dams, basins and borrow pits could result in mortality or injury of Western Ringtail Possum individuals.

Mitigation measures will be implemented in accordance with the CEMP (Appendix H) to ensure the risk of mortality or injury is low. During clearing of Moderate quality Western Ringtail Possum habitat, a fauna spotter will be available on-site to spot and respond to any Western Ringtail Possum individuals encountered.

Most major construction activities (e.g. turbines infrastructure) will be situated well away from areas identified as High value Western Ringtail Possum habitat and known possum locations. Given the species small area of occupancy and largely arboreal nature the likelihood of Western Ringtail Possum individuals becoming entrapped in excavations, dams, basins or borrow pits is considered low. Furthermore, construction activities will predominantly occur during daylight hours, with nighttime

works to be avoided where possible. As a result, vehicle traffic during the species active period will be minimal, reducing the risk of vehicle collisions.

On the basis of the above, the Proposal is unlikely to cause mortality or injury to Western Ringtail Possum individuals at levels that would significantly affect the local population.

Indirect Impacts

According to the Western Ringtail Possum Recovery Plan (DPaW 2017), the following indirect impacts are considered key threatening process to Western Ringtail Possum:

- Disturbance to behaviour from light, noise and/or vibration (Section 9.6.6)
- Increased predation by feral fauna, including cats and foxes (Section 9.6.7)
- Degradation of habitat as a result of increased risk of bushfires (Section 9.6.10).

Key mitigation measure that will be applied to manage these impacts are outlined in Section 9.5 and the assessment of the significance of these indirect impacts is described in Section 9.6.6, 9.6.7 and 9.6.10 respectively. Based on this assessment the Proposal is not expected to result in any significant indirect impacts to the Western Ringtail Possum.

9.6.13.2. Black Cockatoos

Species-specific impacts to black cockatoos (Carnaby's Cockatoo, Baudin's Cockatoo and Forest Red-tailed Black Cockatoo) are collectively addressed in this section as the anticipated impacts are largely consistent across all three species.

Habitat Loss & Fragmentation

Table 9-19 to Table 9-21 presents the approximate loss of habitat for each species of black cockatoo based on the Indicative Disturbance Footprint. However, the Proposal includes flexibility to alter the alignment of the Indicative Disturbance Footprint within the Development Envelope if wind turbine locations and associated infrastructure change during detailed design. The Indicative Disturbance Footprint represents the maximum potential extent required for the Proposal. However, regardless of any refinement of the Indicative Disturbance Footprint, the Proposal will only result in the maximum clearing of up to 1.00 ha of fauna habitat that is represented by native vegetation within the Development Envelope (Section 9.6.1).

The Proposal has been designed to utilise previously cleared agricultural land as much as possible, which has no foraging value for Baudin's or Forest Red-Tailed black cockatoos. However, it does provide supplementary non-native foraging habitat for Carnaby's Cockatoo, although this is considered of low value relative to the Marri-Jarrah-Peppermint habitat present within the Development Envelope.

The Proposal is committed to avoiding all 580 potential nesting trees, including any contiguous native vegetation within 10 m, and will clear no more than 1.00 ha of native black cockatoo habitat, including no more than 0.5 ha of Moderate to High quality black cockatoo habitat (Table 9-19 to Table 9-21). This potential clearing represents a small proportion of the available Moderate to High quality black cockatoo habitat within the Development Envelope (0.14% of Baudin's Cockatoo and Forest Red-tailed Black Cockatoo, 0.9% of Carnaby's Cockatoo) and includes the four small areas of unavoidable clearing discussed in Section 9.6.1. The clearing of the Bluegum Plantation (Low quality habitat for Carnaby's Cockatoo) will be avoided as part of the Proposal, as this area will only be developed if the plantation is harvested by the landowner prior to construction occurring in this area.

The Proposal will also disturb approximately 100.72 ha of Low-quality primarily cleared paddocks which are highly modified and do not represent native vegetation but are recognised as having low foraging value for Carnaby's Cockatoos. The impact associated with this clearing is unlikely to be considered significant.

Table 9-19: Carnaby's Cockatoo Foraging Habitat Clearing within the Development Envelope

Habitat Quality	Extent within Development Envelope (ha)	Extent within Indicative Disturbance Footprint (ha)	Maximum Proposed Clearing of Native Fauna Habitat (ha)**
None (0)	4.23	0.49	-
Low (non-native habitat) (1 - 4)	2,880.88	105.42*	-
Low (native habitat) (1 - 4)	185.06	0.24	1.00
Moderate (5 - 7)	497.78	0.44	0.50

Habitat Quality	Extent within Development Envelope (ha)	Extent within Indicative Disturbance Footprint (ha)	Maximum Proposed Clearing of Native Fauna Habitat (ha)**
High (8 - 10)	28.91	0.01	
Total	3,596.85	106.61	1.00

*This includes 100.72 ha associated with cleared areas and 4.71 ha associated with Bluegum Plantations

** Provides maximum limits on how much clearing can occur for each habitat quality score but the total clearing of native Low to High quality Carnaby Cockatoo Habitat will not exceed 1.00 ha.

Table 9-20: Baudin's Cockatoo Foraging Habitat Clearing within the Development Envelope

Habitat Quality	Extent within Development Envelope (ha)	Extent within Indicative Disturbance Footprint (ha)	Maximum Proposed Clearing of Native Fauna Habitat (ha)*
None (0)	2,990.27	106.03	-
Low (1 - 4)	246.43	0.24	1.00
Moderate (5 - 7)	321.84	0.27	0.50
High (8 - 10)	38.31	0.07	
Total	3,596.85	106.61	1.00

* Provides maximum limits on how much clearing can occur for each habitat quality score but the total clearing of native Low to High quality Baudin Cockatoo Habitat will not exceed 1.00 ha.

Table 9-21: Forest Red-tailed Black Cockatoo Habitat Clearing within the Development Envelope

Habitat Quality	Extent within Development Envelope (ha)	Extent within Indicative Disturbance Footprint (ha)	Maximum Proposed Clearing of Native Fauna Habitat (ha)*
None (0)	3,228.08	106.28	-
Low (1 - 4)	15.31	0.03	1.00
Moderate (5 - 7)	201.71	0.26	0.50
High (8 - 10)	151.75	0.04	
Total	3,596.85	106.61	1.00

* Provides maximum limits on how much clearing can occur for each habitat quality score but the total clearing of native Low to High quality Forest Red- Tailed Black Cockatoo Habitat will not exceed 1.00 ha.

In considering whether the proposed habitat loss presents the possibility of a significant impact to black cockatoos, consideration has been given to the *Referral guideline for three WA threatened black cockatoo species* (DAWE 2022 and the significant impact criteria for Endangered and Vulnerable species as outlined in *EPBC Act Policy 1.1 - MNES Significant Impact Guidelines* (DoE 2013). Residual impacts to these species are unlikely to be significant due to:

- No potential nesting trees or contiguous native vegetation within 10 m will be cleared
- No more than 1.00 ha of black cockatoo habitat represented by native vegetation will be cleared, including no more than 0.5 ha of Moderate to High quality foraging habitat
- The Proposal will clear approximately 100.72 ha of Low value non-native Carnaby's Cockatoo habitat, comprising the Cleared habitat type (i.e., pasture)
- No plantations will be cleared as part of the Proposal
- No evidence of night roosting was recorded within the Development Envelope
- The retention of Moderate to High value habitat within the Development Envelope, comprising:

- 526.19 ha (99.91%%) for Carnaby's Cockatoo
- 359.65 ha (99.86%) for Baudin's Cockatoo
- 352.96 ha (99.86%) for Forest Red-tailed Black Cockatoo.

- The presence of extensive higher quality habitat nearby including within conservation areas such as national parks
- The highly mobile natural of black cockatoos, therefore the removal of 1.00 ha of habitat represented by native vegetation is unlikely to fragment the local population.

Turbine Strike, Barotrauma or Collision with Transmission Infrastructure

The potential for collision with turbines or barotrauma within the Development Envelope poses a risk to black cockatoos due to their small population size, slow breeding and pair bonding attributes. Baudin's Cockatoo and Carnaby's Cockatoo were assigned a Low risk rating, and Forest Red-tailed Black Cockatoo was assigned a Moderate risk rating due to it potentially being recorded within the RSA and given that it is generally a poorer flier and less agile than Carnaby's Cockatoo and Baudin's Cockatoo, as detailed in Section 9.6.3. Further detail on how the risk of turbine collision to black cockatoos was calculated is provided in the BBAMP (Appendix N), with key points summarised below:

- Based on the BBUS and assessments completed to date, black cockatoos are unlikely to be present in large populations, given they were rarely observed flying in large flocks within the Development Envelope, with mostly singles recorded.
- Despite extensive survey effort (150 hours for the bird utilisation survey), no records of Carnaby's Cockatoo or Baudin's Cockatoo were recorded flying above the minimum 40 m RSA. Two records of Forest Red-tailed Black Cockatoo were within 25-50 m and therefore potentially within the RSA. Of the 17 records that could not be identified to a species level (*Calyptorhynchus*/*Zanda* sp. and *Zanda* sp.), only one was recorded within the adjusted RSA at 40 m. The number of black cockatoo flights potentially recorded within the RSA represent just 6.12% of all black cockatoo flight height records.
- Carnaby's Cockatoo and Baudin's Cockatoo typically fly 5 to 15 m above the ground, while Forest Red-tailed Black Cockatoos typically fly within the canopy and lower levels while foraging, and at or just above canopy height when in longer-distance transit such as between foraging, roosting and watering areas. It is considered rare that these species fly more than 10 m above canopy height in these instances (Umwelt 2024, Johnstone 2025) The average and maximum recorded canopy height for Marri trees, the tallest species within the Development Envelope, is 17.3 m and 28 m respectively, well below the minimum blade height (40m) proposed for the Proposal.
- EPA (2019) also noted that the Carnaby's Cockatoo tends to follow vegetation corridors, actively avoiding cleared and open areas, which is likely applicable to all black cockatoo species found in south-west WA.
- Monitoring at the Yandin Wind Farm has indicated that the breeding population of Carnaby's Cockatoo as close as 3.5 to 4 km from the site has remained stable (Johnstone 2025).
- Carnaby's Cockatoo and Baudin's Cockatoo are considered very capable fliers and are therefore considered capable of avoiding wind turbines on the rare occasions that it flies within the RSA. Forest Red-tailed Black Cockatoo is generally a poorer flier than Carnaby's and Baudin's cockatoos and; therefore; potentially more susceptible to turbine collision (Johnstone 2025).

- There has been no recorded wind farm mortality of black cockatoos in Australia (Phoenix 2025b; Johnstone 2025). Recognising the paucity of wind farm mortality data in Western Australia, consideration was given to *Zanda funerea* (Yellow-tailed Black Cockatoo), a surrogate species native to the south-east of Australia, which has no recorded wind farm mortality (Phoenix 2025b).

As discussed in Section 9.6.3, the impacts to black cockatoos associated with turbine strike or barotrauma can be appropriately managed through the implementation of the BBAMP (Appendix N). Visual bird diverters will also be placed along transmission lines and guy wires of permanent met masts to minimise the risk of collision with this infrastructure. On this basis, the Proponent considers that the potential impacts to black cockatoos from the operation of the Proposal can be managed to ensure the Proposal has no significant impact on these species.

Indirect Impacts

The following indirect impacts are considered relevant to black cockatoos:

- Disturbance to movement patterns and behaviour from wind turbines, light, noise and/or vibration (Section 9.6.6).
- Increased predation by feral fauna, including cats and foxes (Section 9.6.7)
- Degradation of habitat as a result of introduction and/or spread of weeds and/or dieback (Section 9.6.9)
- Degradation of habitat as a result of increased risk of bushfires (Section 9.6.10).

Key mitigation measure that will be applied to manage these impacts are outlined in Section 9.5 and the assessment of the significance of these indirect impacts is described in Section 9.6.6, 9.6.7, 9.6.9 and 9.6.10 respectively. In addition, evidence suggests that while black cockatoos may avoid wind turbines, they are generally not affected by noise or light emissions, having been recorded roosting and breeding in proximity to loud activities, such as live firing ranges and verges adjacent to highways (Johnstone 2025).

Based on the above the Proposal is not expected to result in any significant indirect impacts to the black cockatoos.

9.6.13.3. Wood Sandpiper

Habitat Loss

The wetland habitats were the only habitats in the Proposal considered suitable for the Wood Sandpiper (Table 9-4). Given these three habitats are to be completely avoided, no clearing impacts to Wood Sandpiper are anticipated to result from the Proposal.

Mortality/Injury and Indirect Impacts

The Proposal is not expected to lead to significant mortality, injury and/or indirect impacts to this species due to the following:

- The Proposal's location within a highly disturbed landscape
- The minimal clearing (1.00 ha) of native vegetation
- Avoidance of wetland habitats and any contiguous native vegetation within 50 m

- The rare/occasional occurrence of this species in the Development Envelope, given it is most common in the South West from summer to autumn when the wetland habitats will be largely dried out
- Turbine collision and barotrauma resulting in significant impacts is not anticipated, as the Wood Sandpiper was assigned a Negligible risk level in the BBRA (Section 9.6.3)
- Avoiding, the placement of wind turbine infrastructure in proximity to remnant patches of native vegetation (minimum of 100 m from the centre point of the turbine) to prevent blade overhang to minimise the risk of collision and disruptions to behaviour
- Visual bird diverters will be installed along the Proposal's transmission line and guys wires of permanent met masts to minimise the risk of collision
- Implementation of a CEMP (Appendix H), a BBAMP (Appendix N), a BMP (Linfire 2025a) and BRMP (Linfire 2025b) as detailed in Section 9.5 to minimise indirect impacts and mortality/injury.

9.6.13.4. Osprey

Habitat Loss

The wetland habitats were the only habitats in the Proposal considered suitable for the Osprey (Table 9-4). Given these three habitats are to be completely avoided, no clearing impacts to Osprey are anticipated to result from the Proposal.

Mortality/Injury and Indirect Impacts

The Proposal is not expected to lead to significant mortality, injury and/or indirect impacts to this species due to the following:

- The Proposal's location within a highly disturbed landscape
- Minimal clearing (1.00 ha) of native vegetation
- Avoidance of wetland habitats and any contiguous native vegetation within 50 m.
- The rare/occasional occurrence of this species in the Development Envelope, given it is unlikely to regularly utilise the supplementary foraging habitat present
- Turbine collision and barotrauma resulting in significant impacts is not anticipated, as the Osprey was assigned a Negligible risk level in the BBRA (Section 9.6.3)
- Avoiding, the placement of wind turbine infrastructure in proximity to remnant patches of native vegetation (minimum of 100 m from the centre point of the turbine) to prevent blade overhang and associated disruptions to behaviour
- Visual bird diverters will be installed along the Proposal's transmission line to minimise the risk of collision
- Implementation of a CEMP (Appendix H), a BBAMP (Appendix N), a BMP (Linfire 2025a) and BRMP (Linfire 2025b) as detailed in Section 9.5 to minimise indirect impacts and mortality/injury.

9.6.13.5. Quenda

Habitat Loss & Fragmentation

The Quenda was considered likely to occur within the Marri-Jarrah-Peppermint woodlands and wetland habitats (Table 9-4). The Proposal will result in the clearing of a maximum of 1.00 ha of Quenda habitat, represented by the Marri-Jarrah-Peppermint habitat, and is committed to avoiding clearing all wetland habitats. Impacts on individual habitat patches are expected to be minimal, as the linear configuration of the Indicative Disturbance Footprint allows for clearing to be distributed across a range of habitat types and fauna habitat patches, with no single habitat or patch of habitat for Quenda being substantially cleared.

Given the above and the retention of 604.26 ha (99.83%) of suitable Quenda habitat across the Development Envelope and the abundance of habitat within adjacent nature reserves, the loss of 1.00 ha of habitat is unlikely to significantly impact the local Quenda population.

Mortality/Injury and Indirect Impacts

The Proposal is not expected to lead to significant mortality, injury and/or indirect impacts to this species due to the following:

- The Proposal's location within a highly disturbed landscape
- Minimal clearing (1.00 ha) of native vegetation
- Avoidance of wetland habitats and any contiguous native vegetation within 50m
- Proposal activities will primarily occur within cleared paddocks away from high value habitat minimising the potential for disturbance from construction and operational activities
- Vehicle movements will be restricted to existing access tracks and speed limits will be implemented to minimise the potential for vehicle strike
- To mitigate the risk of entrapment, excavations will be inspected and appropriate fencing and egress points will be installed as detailed in Section 9.5.
- Implementation of a CEMP (Appendix H), a BMP (Linfire 2025a) and BRMP (Linfire 2025b) as detailed in Section 9.5 to minimise indirect impacts and mortality/injury..

9.6.13.6. Western False Pipistrelle

Habitat Loss

A maximum of 1.00 ha of habitat for the Western False Pipistrelle will be cleared represented by the Marri-Jarrah-Peppermint woodland and/or Open woodland of Peppermint trees (degraded) habitats (Table 9-4). Impacts on individual habitat patches are expected to be minimal, as the linear configuration of the Indicative Disturbance Footprint allows for clearing to be distributed across a range of habitat types and fauna habitat patches, with no single habitat or patch of habitat for Western False Pipistrelle being substantially cleared, except for the unavoidable clearing at Area 3 (0.14 ha of "Degraded" Open woodland of Peppermint tree habitat patch; Figure 9-11).

Given the above, the retention of 350.97 ha (99.71%) of suitable Western False Pipistrelle habitat across the Development Envelope and the abundance of habitat within adjacent nature reserves, the loss of habitat is unlikely to significantly impact the local population.

Turbine Strike and/or Barotrauma

Given its aerial nature, the Western False Pipistrelle is at risk of turbine strike and barotrauma. The species was assigned a Low risk rating in the BBRA (Section 9.6.3). The species was infrequently detected in the Development Envelope, with a low number of calls recorded. While the species' typical flight height was unable to be determined through the desktop assessment, the Western False Pipistrelle is suspected to fly at RSA heights at least occasionally. There is no mortality data available for this species, but there are moderate (10-100) reported mortalities in carcass monitoring at other wind farms for the closely related *Falsistrellus tasmaniensis.*

The BBUS observations suggest that they are typically restricted to remnant vegetation and will only occasionally venture into open paddocks when traversing through remnant patches (Phoenix 2025b). The species is more likely to be abundant in habitat within adjacent nature reserves outside of the Development Envelope. There is the possibility of the occasional loss of individuals; however, this is unlikely to have a significant impact on the local population.

As discussed in Section 9.6.3, the impacts to Western False Pipistrelle associated with turbine strike or barotrauma can be appropriately managed through the implementation of the BBAMP (Appendix N). Key measures will include:

- Lighting will be kept to a minimum to avoid attracting bats and insects to Proposal infrastructure. Specific measures to reduce potential impacts of lighting will include the use of directional lighting, hoods, sensor lighting and red lights as opposed to white or yellow lights, where practicable. Assessments to date do not indicate that lighting on the wind turbines will be required. Aviation lighting will only be installed on wind turbines where required by CASA/emergency services. In this instance, if lighting is required by the approving authorities, the Proponent will work with aviation and emergency services to assess lighting solutions.
- Avoiding the placement of wind turbine infrastructure in proximity to remnant native vegetation (minimum of 100 m from the centre point of the turbine) to prevent blade overhang.

Indirect Impacts

The Proposal is not expected to lead to significant mortality, injury and/or indirect impacts to this species due to the following:

- The Proposal's location within a highly disturbed landscape
- Minimal clearing (1.00 ha) of native vegetation
- Proposal activities will primarily occur within cleared paddocks away from high value habitat minimising the potential for disturbance from construction and operational activities
- Nighttime construction activities will be avoided where practicable.
- Lighting minimisation as discussed above under turbine strike and/or barotrauma.
- Implementation of a CEMP (Appendix H), a BBAMP (Appendix N), a BMP (Linfire 2025a) and BRMP (Linfire 2025b) as detailed in Section 9.5 to minimise indirect impacts and mortality/injury.

9.6.13.7. Masked Owl (southwest)

Habitat Loss

The Masked Owl (southwest) was considered likely to occur within the Marri-Jarrah-Peppermint woodland, Open woodland of Peppermint trees (degraded) and Bluegum plantation habitats (Table 9-4). The Proponent commits to clearing no more than 1.00 ha of habitat for the Masked Owl. The clearing of Bluegum Plantation will be avoided as part of the Proposal (Section 9.6.1). On this basis and given the retention of at least 763.26 ha (99.87%) of habitat within the Development Envelope, the loss of habitat for Masked Owl is not likely to be significant.

Mortality/Injury and Indirect Impacts

The Proposal is not expected to lead to significant mortality, injury and/or indirect impacts to this species due to the following:

- The Proposal's location within a highly disturbed landscape
- Minimal clearing (1.00 ha) of native vegetation
- Proposal activities will primarily occur within cleared paddocks away from high value habitat minimising the potential for disturbance from construction and operational activities
- The species may hunt within the Marri-Jarrah Peppermint woodland and Open woodland of Peppermint trees (Degraded) habitats and may transit across the Development Envelope, but are unlikely to utilise the habitats extensively
- Turbine collision and barotrauma resulting in significant impacts is not anticipated, as the Masked Owl (southwest) was assigned a Negligible risk level in the BBRA (Section 9.6.3)
- Lighting will be kept to a minimum to avoid interrupting the nocturnal foraging and breeding behaviour of the species. Specific measures to reduce potential impacts of lighting will include the use of directional lighting, hoods, sensor lighting and red lights as opposed to white or yellow lights, where practicable. Assessments to date do not indicate that lighting on the wind turbines will be required. Aviation lighting will only be installed on wind turbines where required by CASA/emergency services. In this instance, if lighting is required by the approving authorities, the Proponent will work with aviation and emergency services to assess lighting solutions.
- Avoiding the placement of wind turbine infrastructure in proximity to remnant native vegetation (minimum of 100 m from the centre point of the turbine) to prevent blade overhang and minimise strike and disruptions to behaviour
- Visual bird diverters will be installed along the Proposal's transmission line and guy wires of permanent met masts to minimise the risk of collision
- Implementation of a CEMP (Appendix H), a BBAMP (Appendix N), a BMP (Linfire 2025a) and BRMP (Linfire 2025b) as detailed in Section 9.5 to minimise indirect impacts and mortality/injury.

9.6.13.8. Peregrine Falcon

Habitat Loss

The Peregrine Falcon was considered likely to occur within all habitats except the Seasonally inundated paperbark woodland. The Proposal will result in the removal of a maximum of 1.00 ha of Peregrine

Falcon habitat that is represented by native vegetation (Marri-Jarrah-Peppermint Woodland and/or Open woodland of Peppermint trees [Degraded]). The Proposal has been designed to utilise mostly previously cleared agriculture land, which although considered habitat, is unlikely to be of high value to the species. Given the species is known to utilise a variety of habitats, there is likely to be a substantial amount of habitat present in proximity to the Development Envelope. On this basis, the loss of Peregrine Falcon habitat is not expected to represent a significant impact to this species.

Mortality/Injury and Indirect Impacts

The Proposal is not expected to lead to significant mortality, injury and/or indirect impacts to this species due to the following:

- The Proposal's location within a highly disturbed landscape
- Minimal clearing (1.00 ha) of native vegetation
- Proposal activities will primarily occur within cleared paddocks away from high value habitat minimising the potential for disturbance from construction and operational activities
- Turbine collision and barotrauma resulting in significant impacts is not anticipated, as the Peregrine Falcon was assigned a Negligible risk level in the BBRA (Section 9.6.3)
- Avoiding the placement of wind turbine infrastructure in proximity to remnant native vegetation (minimum of 100 m from the centre point of the turbine) to prevent blade overhang and minimise strike and disruptions to behaviour
- Visual bird diverters will be installed along the Proposal's transmission line and guys wires of permanent met masts to minimise the risk of collision
- Implementation of a CEMP (Appendix H), a BBAMP (Appendix N), a BMP (Linfire 2025a) and BRMP (Linfire 2025b) as detailed in Section 9.5 to minimise indirect impacts and mortality/injury.

9.6.13.9. Common Greenshank

Habitat Loss

The Common Greenshank was considered likely to occur within the wetland habitats, Cleared-degraded sumpland habitat and Dams (Table 9-4). The clearing of wetland habitats will be avoided as part of the Proposal. The Proponent commits to clearing no more than 1.00 ha of the Cleared-degraded sumpland habitat. On this basis, the loss of Common Greenshank habitat is not expected to represent a significant impact to the species.

Mortality/Injury and Indirect Impacts

The Proposal is not expected to lead to significant mortality, injury and/or indirect impacts to this species due to the following:

- The Proposal's location within a highly disturbed landscape
- Minimal clearing (1.00 ha) of native vegetation
- Avoidance of wetlands and any contiguous native vegetation within 50 m
- Proposal activities will primarily occur within cleared paddocks away from high value habitat minimising the potential for disturbance from construction and operational activities

- The likely rare/occasional occurrence of this species in the Development Envelope, given it is only expected to be present within the Development Envelope from late August to September
- Turbine collision and barotrauma resulting in significant impacts is not anticipated, as the Common Greenshank was assigned a Negligible risk level in the BBRA (Section 9.6.3)
- Avoiding the placement of wind turbine infrastructure in proximity to remnant native vegetation (minimum of 100 m from the centre point of the turbine) to prevent blade overhang and associated disruptions to behaviour
- Visual bird diverters will be installed along the Proposal's transmission line and guy wires of permanent met masts to minimise the risk of collision
- Implementation of a CEMP (Appendix H), a BBAMP (Appendix N), BMP (Linfire 2025a) and BRMP (Linfire 2025b) as detailed in Section 9.5 to minimise indirect impacts and mortality/injury.

9.6.13.10. Short-nosed Snake

Habitat Loss

This species was considered likely to occur in dense vegetation within the wetland habitats in the Development Envelope (Table 9-4). Given all disturbance to wetland habitats is to be avoided during construction, no direct clearing impacts to this species are anticipated.

Mortality/Injury and Indirect Impacts

The Proposal is not expected to lead to significant mortality, injury and/or indirect impacts to this species due to the following:

- The Proposal's location within a highly disturbed landscape
- Minimal clearing (1.00 ha) of native vegetation
- Avoidance of any contiguous native vegetation within 50 m of wetland habitats
- Proposal activities will primarily occur within cleared paddocks away from high value habitat minimising the potential for disturbance from construction and operational activities
- Vehicle movements will be restricted to existing access tracks and speed limits will be implemented to minimise the potential for vehicle strike
- To mitigate the risk of entrapment, open excavations will not exceed depths capable of being practically inspected and cleared by fauna handlers at the time of excavation. In addition, excavations will be kept open for minimum time required and inspected twice daily where deeper than 500 mm and open for more than 24 hours. Appropriate fauna egress points will be provided for all borrow pits, water storage dams and dewater settlement basins and fencing will also be installed around water storage dams and dewater settlement basins.
- Implementation of a CEMP (Appendix H, a BMP (Linfire 2025a) and BRMP (Linfire 2025b), as detailed in Section 9.5 to minimise indirect impacts and mortality/injury.

9.6.13.11. Blue-billed Duck

Habitat Loss

This species was considered likely to occur due to the presence of open water within the Seasonally inundated sedgeland (wetland) habitat (Table 9-4). Given all wetland habitats will be avoided, no direct clearing impacts to this species are anticipated.

Mortality/Injury and Indirect Impacts

The Proposal is not expected to lead to significant mortality, injury and/or indirect impacts to this species due to the following:

- The Proposal's location within a highly disturbed landscape
- Minimal clearing (1.00 ha) of native vegetation
- Avoidance of wetlands and any contiguous native vegetation within 50 m.
- Proposal activities will primarily occur within cleared paddocks away from high value habitat minimising the potential for disturbance from construction and operational activities
- The species is likely to only occasionally use the wetlands present within the Development Envelope and is not expected to be a regular visitor
- Turbine collision and barotrauma resulting in significant impacts is not anticipated, as the Blue-billed Duck was assigned a Negligible risk level in the BBRA (Section 9.6.3)
- Avoiding the placement of wind turbine infrastructure in proximity to remnant native vegetation (minimum of 100 m from the centre point of the turbine) to prevent blade overhang and minimise strike and disruptions to behaviour
- Visual bird diverters will be installed along the Proposal's transmission line and guy wires of permanent met masts to minimise the risk of collision
- Implementation of a CEMP (Appendix H), a BBAMP (Appendix N), a BMP (Linfire 2025a) and BRMP (Linfire 2025b) as detailed in Section 9.5. to minimise indirect impacts and mortality/injury.

9.6.13.12. South-western Brush-tailed Phascogale

The South-western Brush-tailed Phascogale was considered likely to occur within the Marri-Jarrah-Peppermint woodland habitat (Table 9-4). A maximum of 1.00 ha of South-western Brush-tailed Phascogale habitat will be cleared to facilitate the Proposal. Impacts on individual habitat patches are expected to be minimal, as the linear configuration of the Indicative Disturbance Footprint allows for clearing to be distributed across a range of habitat types and fauna habitat patches, with no single habitat or patch of habitat for South-western Brush-tailed Phascogale habitat being substantially cleared.

The clearing of 1.00 ha of South-western Brush-tailed Phascogale habitat is unlikely to be considered significant, particularly given the retention of at least 251.93 ha (99.60%) within the Development Envelope and the abundance of suitable dry sclerophyll forest habitat present within adjacent national parks.

Mortality/Injury and Indirect Impacts

The Proposal is not expected to lead to significant mortality, injury and/or indirect impacts to this species due to the following:

- The Proposal's location within a highly disturbed landscape
- Minimal clearing (1.00 ha) of native vegetation
- Given its largely arboreal nature, the species is unlikely to utilise isolated remnants within the Development Envelope, potential for disturbance from construction and operational activities
- Implementation of a CEMP (Appendix H), a BMP (Linfire 2025a), BRMP (Linfire 2025b) as detailed in Section 9.5. to minimise indirect impacts and mortality/injury.

9.7. Environmental Outcomes

The Proposal is not anticipated to have any significant residual impacts on terrestrial fauna due to the following:

- The Proposal will clear no more than 1.00 ha of habitat represented by native vegetation, including the following species-specific habitat values:
    - A maximum of 0.5 ha of native Moderate to Low quality Western Ringtail Habitat, including a maximum of 0.03 ha of native Moderate quality Western Ringtail Possum habitat
    - A maximum of 1.00 ha of native black cockatoo foraging habitat, including maximum of 0.5 ha of Moderate to High quality foraging habitat.
- The Proposal will avoid clearing:
    - All wetland habitat and any contiguous native vegetation within 50 m.
    - All potential and suitable breeding trees for black cockatoos and any contiguous native vegetation within 10 m
    - All High quality Western Ringtail Possum habitat.
- The Proposal will clear approximately 100.72 ha of non-native Low quality foraging habitat (e.g. cleared paddocks/pasture) for Carnaby's Black Cockatoo.
- The potential for fauna habitat fragmentation is minimal given the highly modified nature of the Development Envelope, the utilisation of existing cleared areas and tracks, and the commitment to limit the width of clearing for all internal access roads to 5-6 m, where they pass through a Western Ringtail Possum habitat patch.
- The risk of loss or injury to fauna individuals and degradation of fauna habitat as a result of construction related activities is considered to be minor and will be minimised through the implementation of the Proposal's CEMP (Appendix H), a Dieback Management Plan (where required), an ASSDMP (Appendix B), a BMP (Linfire 2025a) and BRMP (Linfire 2025b).
- While the risk of turbine strike and/or barotrauma on birds and bats was largely assessed as being Negligible to Low for all species, excepting Forest Red-tailed Black Cockatoo assessed as being at Moderate risk, the implementation of adaptive management approach as detailed in the preliminary BBAMP (Appendix N), will ensure that the Proposal does not have a significant impact on any bird and bat species.
- Substantial disturbance to fauna movement patterns and behaviour from wind turbine movement, light, noise and/or vibration is not anticipated and will be minimised through the implementation of the CEMP (Appendix H) and BBAMP (Appendix N).
- There will be negligible impacts to wetland GDEs, and aquatic fauna that may inhabit them, as a result of the minor, localised and temporary construction dewatering, noting drawdown will be managed in accordance with an ASSDMP (Appendix B) so as not to exceed the natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at any GDE location.
- Impacts to fauna habitat due to altered hydrological regimes will be minimal.

The Proponent considers that the Proposal can be implemented to meet the EPA's objective for the Terrestrial Fauna factor to *"protect terrestrial fauna so that biological diversity and ecological integrity are maintained".*

10. Social Surroundings

10.1. EPA Environmental Factor Objective

The EPA's objective for the Social Surroundings environmental factor is *"to protect social surroundings from significant harm"* (EPA 2023a).

Social surroundings are a part of the environment and are considered in EIA where there is a "clear direct link between a proposal or scheme's impact on the physical or biological surroundings and the subsequent effect on a person's aesthetic, cultural, economic or other social surroundings" (EPA 2023a).

10.2. Relevant Policy and Guidance

Relevant policy and guidance documents for Social Surroundings and how they have been considered for this Proposal are summarised in Table 10-1.

Table 10-1: Policy and Guidance for Social Surroundings

Policy / Guidance	Consideration
Aboriginal Heritage Act 1972	This Act has been considered in the development of the Proposal and this RSD.
Environmental Protection (Noise) Regulations 1997	These regulations and guidance have been considered in the impact assessment for noise amenity.
Wind Farms Environmental Noise Guidelines (SA EPA 2021)	
Environmental Factor Guideline: Social Surroundings (EPA 2023a)	The information provided in this section addresses the 'considerations for environmental impact assessment' outlined within the guideline.
Technical Guidance: Environmental Impact Assessment of Social Surroundings – Aboriginal Cultural Heritage (EPA 2023c)	These guidelines have been used to inform the requirements of the impact assessment for Aboriginal cultural heritage.
Cultural Heritage Due Diligence Guidelines (DPLH 2013)	
Visual Landscape Planning in Western Australia: A Manual for Evaluation Assessment, Siting and Design (WAPC 2007)	These guidelines have been used to inform the requirements of the impact assessment for visual and landscape amenity.
Guidelines for Landscape and Visual Impact Assessment, Third Edition (Landscape Institute 2013 as cited in GHD 2025b)	
The Visual Landscape Character Types of Western Australia (CALM 1994)	
Draft National Wind Farm Development Guidelines (EPHC 2010)	This guideline has been used to inform the requirements of the impact assessment for shadow flicker and Electromagnetic Interference (EMI).
Position Statement: Renewable Energy Facilities (WAPC 2020)	This guideline has been used to inform the requirements of the impact assessment for amenity, noise, aviation.
Civil Aviation Safety Regulations 1998	These documents have been used to the inform the requirements of the impact assessment for aviation.
National Airspace Safeguarding Framework Guideline D: Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms)/Wind Monitoring Towers (DITRDCA 2012)	
Social Impact Assessment Guideline (Queensland Government 2018)	These guidelines have been used to inform the requirements of the impact assessment for social values.

Policy / Guidance	Consideration
Social Impact Assessment Guideline and Technical Supplement (DPHI 2023 as cited in Place ID 2025)	
Social Impact Assessment Guidance for Assessing and Managing the Social Impacts of Projects (IAIA 2015)	
Transport Impact Assessment Guidelines Volume 4 – Individual Developments (TIA Guidelines; WAPC 2016)	This guideline has been used to inform the requirements of the impact assessment for traffic.
State Planning Policy 2.0: Environment and Natural Resources Policy (WAPC 2003a)	These State and Local Government planning policies, schemes and strategies have been considered in the impact assessment for social and cultural value relevant to the Proposal.
Government of Western Australia, State Planning Strategy 2050 (WAPC 2014)	
State Planning Policy No 2.6 State Coastal Planning Policy (WAPC 2013)	
Augusta-Walpole Coastal Strategy (WAPC 2009)	
Scott Coastal Plain – A Strategy for a Sustainable Future (DPIRD 2001)	
State Planning Policy 6.1 Leeuwin-Naturaliste Ridge Policy (WAPC 2019b)	
Shire of Augusta Margaret River Local Planning Strategy (DPLH 2022a)	
Shire of Augusta Margaret River Local Planning Scheme 1 (DPLH 2024)	
Draft Shire of Augusta Margaret River Local Planning Scheme No 2 (Shire of AMR 2024)	
Shire of Nannup Local Planning Strategy (Edge Planning & Property 2018)	
Shire of Nannup Local Planning Scheme No 4 (DPLH 2022b)	

10.3. Receiving Environment

10.3.1. Consultation and Studies

The Proponent has undertaken dedicated consultation with relevant stakeholders throughout the design of the Proposal to inform this assessment. The key concerns identified with regard to Social Surroundings are outlined in Table 10-2.

Potential benefits highlighted by the community during engagements include:

- Community benefit fund
- Increased renewable energy in the energy system
- Participation in the energy transition.

Consultation outcomes have been used to inform the studies listed in Table 10-2. Consultation regarding the Proposal more broadly is detailed in Section 4.

Table 10-2: Key Social Surroundings Concerns Identified

Key Issues/Concerns Raised	Relevant Environmental Outcome and Section
Risks to flora, vegetation and fauna.	The potential impacts of the Proposal to these values are described and assessed in Section 7 Inland Waters and Section 8: Flora and Vegetation, Section 9: Terrestrial Fauna including details of the proposed mitigation strategy. Key mitigation measures include: • Clearing of native vegetation will be limited to a maximum extent of 1 ha • All known locations of Threatened and Priority flora individuals will be avoided • All Scott River Ironstone TEC will be avoided • No clearing of potential black cockatoo nesting trees • Clearing of no more than 0.5 ha of native Moderate to Low quality Western Ringtail Habitat, including a maximum of 0.03 ha of native Moderate quality Western Ringtail Possum habitat • Clearing of no more than 1.00 ha of black cockatoo foraging habitat, including a maximum of 0.5 ha of moderate to high quality foraging habitat • Wind turbines will be placed a minimum of 100 m from patches of native vegetation (from the centre point of the turbine) to prevent blade overhang • The minimum lower blade tip height has been increased from 25 m to 40 m above ground level to avoid impacts to low flying bird and bat species • Foundations for turbines, communication towers and meteorological masts will be designed to limit dewatering and excavation requirements by including two primary (partial and above ground) and one secondary (below ground) foundation options (Section 2.2.1) • Dewatering will not exceed natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at GDEs • Drawdown will occur to a maximum of 2 mbgl at the perimeter of each foundation and will not exceed 0.1 m beyond 100 m from any dewatering location • An ASSDMP will be developed to manage the potential impacts to surface water and groundwater during construction of the Proposal • A CEMP (SynergyRED 2025; Appendix H) has been prepared to manage potential environmental impacts during the construction phase of the Proposal • A BBAMP (Appendix N) will be implemented during commissioning and operation of the Proposal to minimise and monitor loss or injury to fauna.
Increased fire risk.	The Proposal is not expected to result in any significant increase in fire risk or restrict access for emergency services (Section 10.6.3.3).
Exposure of ASS.	The Proposal is not expected to result in any significant impacts to environmental or social values as a result of the exposure of PASS (Sections 10.6.1 and 10.6.3.2). Further details are provided in Section 6 (Terrestrial Environmental Quality) and Section 7 (Inland Waters).
Health concerns from exposure to noise, infrasound, shadow flicker and radiation.	The Proposal is not expected to result in any impact from infrasound. The proposal is not expected to result in any significant impact to the local community as a result of exposure to noise or shadow flicker (Section 10.6.4). The NHMRC (NHMRC 2015) concludes there is no consistent evidence that wind farms cause adverse health effects in humans. The evidence that does exist suggests that the level of extremely low-frequency electromagnetic radiation close to wind farms is less than average levels

Key Issues/Concerns Raised	Relevant Environmental Outcome and Section
	measured inside and outside of suburban homes (NHMRC 2015). As such the Proposal is not considered to present an exposure risk to harmful radiation. Low-frequency noise and infrasound from wind farms is similar to noise from many other natural and human-made sources (NHMRC 2015 [153]). It is unlikely that there would be any noise disturbance to people at distances of more than 1,500m from a wind turbine (NHMRC 2015 [153]).
Impacts to the rural amenity of Scott River.	The Proposal will result in changes to the visual amenity of the landscape, although the significance of this change will vary greatly depending on the individual viewer's sensitivity to acceptance of change (Section 10.6.2). No significant impacts as a result of noise, light or shadow flicker are expected (Section 10.6.4).
Impact on tourism.	The Proposal is not expected to result in any significant impacts to tourism (Section 10.6.3.1).
Impacts to property prices.	It is understood that the effect of the Proposal on the value of properties is a key concern for the community. This is not an environmental impact and therefore not addressed within this RSD. However, it is noted that the Proposal will not have an impact to soil fertility or agricultural land use of surrounding properties. Therefore, the impact to property prices will be limited to prospective buyers' sensitivity to and acceptance of visual change relative to ordinary land valuation factors. Factors such as income generating potential, scarcity of available land and location, which the Proposal will not have any detrimental impacts on.
Erosion of turbine blades resulting in microplastic or other contamination of waterways and neighbouring farmland.	Wind turbine blades have the potential to degrade over time and result in the release of materials such as microplastics into the surrounding environment. A study found that the yearly mass of plastic produced from the erosion of wind turbine blades was an order of magnitude lower than that released by footwear, and three orders of magnitude lower than that released by tyres (Mishnaevsky et al. 2024). Given the use of modern turbine design, erosion of blades is not anticipated to result in any significant contamination of the surrounding environment.
Recyclability of wind turbines.	In accordance with the Decommissioning Plan (Appendix C), infrastructure materials and components such as steel, conductors, switches and transformers will be reused, sold as scrap, recycled or repurposed, where possible. The Proponent has observed recent success in the decommissioning of the Ten Mile Lagoon and Nine Mile Beach wind farms in Esperance, where 465 t (97% by weight) of the windfarm was recycled or reused.

Table 10-3: Social Surroundings Studies

Survey	Study Area, Type & Timing*	Consistency with Guidance
Beenup Wind Farm: Shadow Flicker and Blade Glint Assessment (DNV 2025b) **Appendix O**	**Area:** Development Envelope and surrounding sensitive receptor locations **Type:** Desktop shadow flicker assessment **Timing:** April 2025	The assessment was conducted with consideration for the *Draft National Wind Farm Development Guidelines* (Draft National Guidelines; EPHC 2010).
Beenup Wind Farm: EMI Assessment (DNV 2025a) **Appendix P**	**Area:** Development Envelope and dwellings within 5 km **Type:** Desktop Electromagnetic interference (EMI) assessment **Timing:** June 2025	The assessment was conducted with consideration for the *Draft National Wind Farm Development Guidelines* (Draft National Guidelines; EPHC 2010).
Aviation Impact Assessment: Beenup Wind Farm (Aviation Projects 2025) **Appendix Q**	**Area:** Development Envelope and surrounding aerodromes within 30 nm **Type:** Desktop aviation impact assessment **Timing:** April 2025	The assessment was undertaken in accordance with the following: • Civil Aviation Safety Regulations 1998 • National Airspace Safeguarding Framework Guideline D: Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms)/Wind Monitoring Towers (DITRDCA 2012) • Position Statement: Renewable Energy Facilities (DPLH 2020).
SynergyRED Scott River Wind Farm Feasibility: Social Values Assessment (Place.ID 2025) **Appendix R**	**Area:** Local and broader (community) **Type:** Desktop assessment, public digital survey, in-depth interviews and analysis of survey results **Timing:** Digital Survey and interviews - March-April 2024 46% of assessment respondents identified as 'WA/Interstate' residents.	The assessment was undertaken with consideration for the following: • Environmental Factor Guideline: Social Surroundings (EPA 2023a) • Position Statement: Renewable Energy Facilities (DPLH 2020) • *Social Impact Assessment Guideline* (Queensland Government 2018) • Social Impact Assessment Guideline and Technical Supplement (DPHI 2023 as cited in Place.ID 2025) • Social Impact Assessment Guidance for Assessing and Managing the Social Impacts of Projects (IAIA 2015).
Proposed Wind Farm at Scott River: Noise Impact Assessment (GHD 2025a) **Appendix S**	**Area:** Development Envelope and surrounding noise receptor locations **Type:** Baseline noise monitoring, noise modelling and assessment against relevant criteria against State regulations and SA guideline criteria **Timing:** Noise survey – December 2023 – May 2024	The assessment considered the following regulations and guidelines: • Environmental Protection (Noise) Regulations 1997 • Wind Farms Environmental Noise Guidelines (SA EPA 2021) • Position Statement: Renewable Energy Facilities (WAPC 2020).

Survey	Study Area, Type & Timing*	Consistency with Guidance
Proposed Wind Farm – Archaeological and Ethnographic Heritage Survey – Draft Report (AHA Logic 2024)	**Area:** Development Envelope and surrounds **Type:** Desktop assessment and Ethnographic and Archaeological Site Avoidance Heritage Survey **Timing:** Survey - January–February 2024	The survey was undertaken with consideration for the *Cultural Heritage Due Diligence Guidelines* (DPLH 2013) and in general accordance with Noongar Standard Heritage Agreement.
Proposed Wind Farm - Scott River: Landscape and Visual Impact Assessment (GHD 2025b) **Appendix T**	**Area:** Development Envelope and surrounding sensitive receptor locations **Type:** Landscape and visual impact assessment including viewshed analysis and photomontages **Timing:** Site inspection – March and August 2024	There is no Australian guidance specific to the assessment of landscape and visual impacts. The assessment included a review of the following documents: • Visual Landscape Planning in Western Australia: A Manual for Evaluation, Assessment, Siting and Design (WAPC 2007) • Guidelines for Landscape and Visual Impact Assessment, Third Edition (Landscape Institute 2013 as cited in GHD 2025b) • Environmental Factor Guideline: Social Surroundings (EPA 2023a) • Position Statement: Renewable Energy Facilities (WAPC 2020). The assessment also included a review of other State legislation and planning policies and local planning documents.

*Timing refers to the timing of any field work associated with the survey. If no field work was undertaken timing relates to the date of the desktop assessment

10.3.2. Land Use

The Development Envelope occurs on freehold land with multiple landowners and is zoned 'General Agriculture' under LPS1. The majority (2,476 ha, 69%) of the Development Envelope is currently used for agricultural purposes (i.e. cleared areas, roads tracks, farmland etc). The remainder comprises remnant vegetation or water (1,108 ha, 31% and 12 ha, less than 1% respectively). Land use surrounding the Development Envelope includes townsites, agriculture, tourism, national parks, nature reserves and State forests. The Development Envelope is adjacent to Chester and Pagett Nature Reserve to the east and Scott National Park to the west.

Brockman Highway is considered important regional distributor in proximity to the Development Envelope (GHD 2024). Scott River Road is also considered a locally important local distributor road given it is the only road route in and out of East Augusta.

Table 10-4 describes the key land uses and features within 30 km of the Development Envelope (GHD 2025b).

Table 10-4: Key Land Uses and Features Surrounding the Development Envelope

Name	Description	Approximate Distance from Development Envelope
Augusta	The Augusta townsite is located 322 km south of Perth. Population - approximately 6,600 people (ABS 2021a).	15 km south-west
Margaret River	Margaret River is the largest of the Shire of Augusta Margaret River's towns. Population - approximately 10,200 people (ABS 2021c).	30 km north-west
Karridale	A small township on the Bussell Highway, approximately 14 km north of Augusta.	17 km west
Kudardup	This locality includes a small settlement on the Bussell Highway, approximately 6 km north of Augusta.	13 km west
Witchcliffe	A small town on the Bussell Highway, approximately 10 km south of Margaret River.	23 km north-west
Molloy Island	Molloy Island is approximately 320 km south of Perth. Population - approximately 163 people (ABS 2021d).	5 km west
East Augusta	East Augusta is a small townsite located approximately 322 km south of Perth. Population - approximately 41 people (ABS 2021b).	11 km south-west
Blackwood River (Goorbilyup Buerle)	The Blackwood River (Goorbilyup Buerle) is used recreationally for boating, camping, kayaking and bushwalking (GHD 2025b). The river spans from the south-west to the north-east of the Development Envelope. It is a registered Aboriginal heritage site, important and significant for its relationship with ethnographic values (see Section 10.3.3.1).	4 km west
Cape Leeuwin Lighthouse	The Cape Leeuwin Lighthouse occurs at the most south-westerly point of Australia. It was constructed in 1895 and remains a working lighthouse. The lighthouse is a popular tourist attraction, with approximately 120,000 visitors per annum (Sealite 2024).	19 km south-west
Cape to Cape Track	The Cape to Cape Track is a long-distance trail which spans 123 km along the Leeuwin-Naturaliste Ridge from the Cape Naturaliste Lighthouse to the Cape Leeuwin Lighthouse.	19 km west
Caves Road	Caves Road stretches from Cape Naturaliste to Cape Leeuwin. The road is a tourist attraction, providing views of pastureland, vineyards, olive	13 km west

Name	Description	Approximate Distance from Development Envelope
	groves and the Karri trees of Boranup Forest (Tourism Western Australia 2024).	
Ellis Street – Dead Finish Walk Trail	The Dead Finish Walk Trail is located within the town centre of Augusta. The walk includes scenic locations and is a popular whale watching spot given the migration patterns of Humpback whales and the use of Flinders Bay as a nursery ground for Southern Right Whales (Whale Watch Western Australia 2024).	12 km south-west
Farmland and agriculture	Farming and agriculture is a prominent land use within and in proximity of the Development Envelope (GHD 2025b). Land is typically used for dairy, beef, sheep, horticulture, grapes, nuts, avocados and olives (Shire of Augusta Margaret River 2021 as cited in GHD 2025b). The Development Envelope also contains plantations of Pine and Blue Gums.	Within and surrounding
Flinders Bay Settlement and Beach	Flinders Bay is popular for swimming with tourists and local residents (GHD 2025b). Historically, it was a settlement of coastal shacks in the interwar period.	12 km south-west
Hardy Inlet	The Hardy Inlet is considered a key visual feature of Augusta (GHD 2025b). The inlet is a tourist location and used recreationally for fishing, swimming, boating, kayaking, houseboating, bird watching and walking.	9 km south-west
Leeuwin Naturaliste Ridge	The Leeuwin Naturaliste Ridge includes caves formed approximately one million years ago, the Boranup Forest and Hamelin Bay Beach.	19 km west
Scott River	The Scott River is used recreationally. It is a tributary of the Blackwood River (Goorbilyup Buerle). It is a lodged Aboriginal heritage site, important for its ethnographic values and cultural significance.	1 km south

10.3.3. Aboriginal Cultural Heritage

The Development Envelope is located within the South West Boojarah Indigenous Land Use Agreement Area (Figure 10-1). The South West Boojarah group includes Aboriginal people from the Wardandi and Bibulmun/Piblemen Noongar language groups.

The South West Boojarah People are represented by the prescribed body corporate, Karri Karrak Aboriginal Corporation (KKAC). The Proponent has entered into a Noongar Standard Heritage Agreement (NSHA) with KKAC on behalf of South West Boojarah People. The NSHA outlines the processes for conducting Aboriginal heritage surveys and assessments.

An Ethnographic and Archaeological Site Avoidance Heritage Survey has been conducted within areas of potential disturbance (AHA Logic 2024). The scope of this survey was to identify and confirm the presence of any Aboriginal sites and broader cultural values, assess the potential for any harm to such sites and values as a result of the Proposal, and provide recommendations to avoid and minimise any impacts.

10.3.3.1. Aboriginal Heritage Sites

One registered Aboriginal site and one lodged Aboriginal place intersect the Development Envelope, as identified through a search of the DPLH Aboriginal Cultural Heritage Information System database (ACHIS; AHA Logic; Figure 10-1):

- Blackwood River (Registered site ID: 20434): Creation/Dreaming Narrative
- Scott River (Lodged place ID: 22928): Creation/Dreaming Narrative, water source.

The Blackwood River registered site (ID: 20434) is the registration of the Blackwood River / Goorbilyup Buerle waterway, including its bed, banks and tributaries, associated with the activities and residence of the Waugal or Mardjit. The Blackwood River / Goorbilyup Buerle is important and significant for its relationship with ethnographic values (AHA Logic 2024). The Development Envelope intersects three small tributaries of the Blackwood River / Goorbilyup Buerle.

The Scott River lodged place (ID: 22928) is the extent of the Scott River, which shares the same ethnographic values and cultural significance as the Blackwood River / Goorbilyup Buerle (AHA Logic 2024). The Development Envelope intersects with three small tributaries of the Scott River.

The Development Envelope was revised to avoid another lodged place to the south of the Development Envelope, namely the Scott River Road Ochre Deposit lodged place (ID: 22926).

The field survey did not identify any new Aboriginal archaeological or ethnographic sites within the Development Envelope (AHA Logic 2024).

10.3.3.2. Other Cultural Values

An osprey was observed hunting within the Development Envelope during the field survey and the KKAC representatives requested that this species, its habitat and hunting areas be considered during future studies for the Proposal (AHA Logic 2024).

The Ethnographic and Archaeological Site Avoidance Heritage Survey also confirmed that (AHA Logic 2024):

- All country is important to South West Boojarah People in a general sense, and country (in the Aboriginal sense of the word) shares an inseparable connection to culture
- Healthy country is important and impacts to the environment should be avoided and minimised wherever possible
- The Blackwood River / Goorbilyup Buerle and the Scott River are important and significant cultural heritage sites.

10.3.4. European Heritage

The Shire of Augusta Margaret River was one of the first areas in WA settled by Europeans more than 180 years ago (GHD 2025b).

A number of State registered heritage places occur within 30 km of the Development Envelope, including Cape Leeuwin Water Wheel, Cape Leeuwin Lighthouse and Quarters, Memorial HMAS Nizam, Davies Park and Foundry Chimney, Margaret River Hotel, Margaret River Old Hospital Complex, Jalbarragup Bridge (ruin) and Darnell's General Store, Witchcliffe (DPLH 2025). No State registered heritage places are directly adjacent to, or intersect, the Development Envelope.

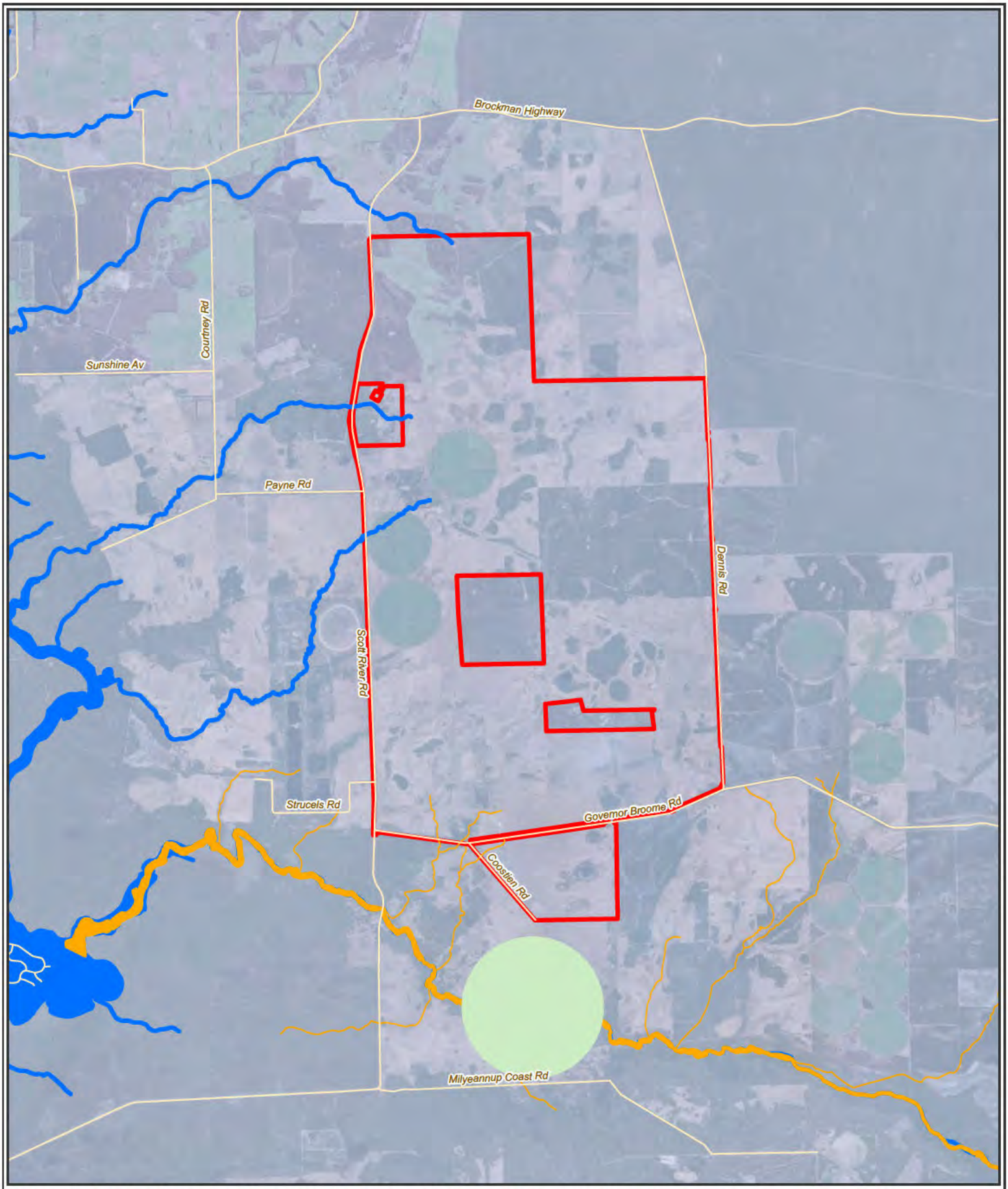


Figure 10-1: Aboriginal Heritage Values within and Surrounding the Development Envelope

Development Envelope

Roads

South West Boojarah #2 Indigenous Land Use Agreement

Aboriginal Heritage Values

Blackwood River (Registered site ID: 20434)

Scott River (Lodged place ID: 22928)

Scott River Road Ochre Deposit (Lodged place ID: 22926)

0 0.5 1 2

Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/25/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

10.3.5. Local Community

The Development Envelope is located within the Shire of Augusta Margaret River. The Shire has a population of approximately 16,791, which is expected to grow to approximately 25,000 people by 2026 (DPLH 2022, as cited in GHD 2025b).

This Shire includes the townsites of Margaret River, Augusta and Cowaramup and the settlements of Gracetown, Karridale, Kudardup and Witchcliffe. The region also includes a number of rural localities; those within 20 km of the Development Envelope include Scott River, Scott River East, Alexandra Bridge, Boranup, Courtenay, Darradup, Deepdene, East Augusta, Forest Grove, Hamelin Bay, Jalbarragup, Leeuwin, Molloy Island, Nillup, Rosa Glen, Schroeder, and Warner Glen.

A Social Values Assessment Report (Place.ID 2025, Appendix R) was undertaken to understand what is important to the community and explore what benefits and impacts the Proposal could have in the surrounding communities. The assessment included stakeholder engagement and a publicly accessible digital survey. Key social values that the local community identified during this assessment and engagement include (Place.ID 2025):

- Water values such as rivers, wetlands and swamps
- Unique bird life
- Forest and national parks
- Environmental conservation and restoration of cleared land
- Peace and quiet
- Visual amenity of the clouds, horizon and sky
- Agricultural production and history
- Aboriginal history and culture
- Access to remote areas, community and networks
- Local employment opportunities
- Tourism and visitor enjoyment.

10.3.6. Visual Amenity

A Landscape and Visual Impact Assessment (LVIA; GHD 2025b; Appendix T) was undertaken to assess the likely impact of the Proposal's wind turbines on landscape character and visual amenity within and surrounding the Development Envelope. The LVIA included the identification of the pre-development character, amenity of landscape and locations of identified sensitive visual receptors relevant to the Proposal.

10.3.7. Existing Landscape and Visual Conditions

10.3.7.1. Landform, Topography and Hydrology

The terrain surrounding the Development Envelope is varied, comprising almost flat to gently undulating plains, rounded hills, valleys, exposed slopes, rugged cliffs and ridges (GHD 2025b). Nearby watercourses include the Blackwood River / Goorbilyup Buerle (approximately 4 km to the west and 9 km north of the Development Envelope), Scott River (approximately 1 km south of the Development Envelope), Margaret River / Wooditjup Bilya (approximately 27 km north of the Development Envelope) and Mowen River (approximately 25 km north of the Development Envelope). Blackwood River / Goorbilyup Buerle and Scott River have tributaries within the Development Envelope (Figure 10-1).

10.3.7.2. Vegetation

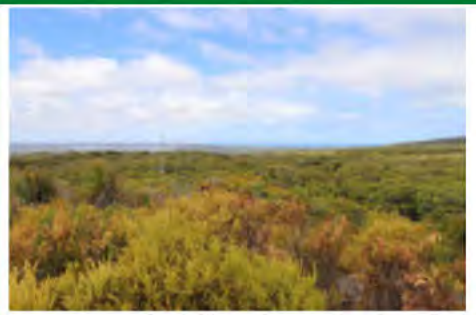
Vegetation surrounding the Development Envelope is varied, with cleared agricultural land (irrigated and unirrigated) interspersed with coastal heathland and rushes, woodland, low forest, open forest and plantations (GHD 2025b). Native vegetation covers approximately 19% of the Development Envelope, occurring mainly as remnant patches within farmland and roadside corridors (Phoenix 2025c). Vegetation within the Development Envelope is described in the LVIA by six broad categories (Phoenix 2025c):

- Myrtaceae dominated shrublands over sedgelands
- Mixed Proteaceae/Fabaceae/Myrtaceae dominated shrublands over tall sedgelands
- Paperbark (*Melaleuca* spp.) woodland swamps over rushlands/sedgelands
- Modified landscapes, including plantations and Peppermint over pastures
- Jarrah (*Eucalyptus marginata* subsp. *marginata*) woodlands and forests over mixed shrublands over tall sedgelands
- Jarrah-Marri (*Corymbia calophylla*) woodlands and forests over mixed shrublands over tall sedgelands.

10.3.7.3. Landscape Character Units

The LVIA included the identification of Landscape Character Units (LCUs) within and surrounding the Development Envelope (GHD 2025b). LCUs are classified based on homogenous patterns of identified characteristics of the landscape such as landform, land use, hydrology and vegetation. It includes the identification of socio-cultural, aesthetic and ecological values of the landscape. The LVIA assessment identified four LCUs based on a review of the site context and the *Department of Conservation and Land Management* (CALM; 1994) *Landscape Character Types of Western Australia* (GHD 2025b). Table 10-5 provides a summary of each identified LCU and representative photographs. The location of the identified LCUs is shown on Figure 10-2.

Table 10-5: Landscape Character Units Relevant to the Proposal (GHD 2025b)

Landscape Character Unit	Distinguishing Features	Representative Photographs	
LCU1: Leeuwin Naturaliste Coast	• Topography consists of a central ridgeline, uneven beaches, towering sea cliffs and valleys, and beyond the ridge an almost flat to gently undulating plain. • Much of this LCU encompasses Leeuwin Naturaliste National Park and State Forest. Vegetation includes wind-pruned coastal heathland, stunted Jarrah Marri forest and towering Karri. • Set out in a typical grid pattern, Augusta town centre lies adjacent to Hardy Inlet and is oriented to take advantage of the views across the inlet from the typical building type of one or two storey commercial and residential properties. • The local community has strong links to the marine and inlet environment, which are important natural assets that support the local fishing and tourism sectors.		
			
			

Landscape Character Unit	Distinguishing Features	Representative Photographs	
LCU2: Scott Coastal Plains	• Topography consists of the Southern Ocean coastline. This includes vertical cliffs, horizontal sandy plains and gently curving beaches. This secluded coastal dune system fronts a low-lying wetland corridor and low rounded hills. • The wetland corridor includes seasonal swamps, wetlands and the Scott River in addition to Swan Lakes and Lake Gingilup. • This LCU includes the residential settlement of East Augusta. A small settlement of one to two storey dwellings. The Hardy Inlet has numerous jetties housing small boats used by residents to access Augusta town centre. • Flora, fauna and landscape conservation is a significant land use of this LCU as it encompasses Scott National Park and Gingilup Swamps Nature Reserve, with privately owned land primarily cleared for farming.		
			
			

Landscape Character Unit	Distinguishing Features	Representative Photographs	
LCU3: Darling Uplands	• A deeply dissected landscape featuring rolling hills, V-shaped river valleys and extensive areas of Jarrah, Marri and Karri forest. • This LCU consists of the Margaret River / Wooditjup Bilya and tributaries of the Blackwood River / Goorbilyup Buerle and their foreshores are registered Aboriginal heritage sites. • Farming and agriculture (including viticulture) and the timber industry are prevalent, with family farms being quintessential to the way of life within this LCU.		
			
			

Landscape Character Unit	Distinguishing Features	Representative Photographs	
LCU4: Blackwood River and Hardy Inlet Riparian Corridor	• This LCU consists of the Blackwood River / Goorbilyup Buerle and Hardy Inlet, which are Aboriginal heritage sites. • Hardy Inlet is open to the Southern Ocean, via Flinders Bay. The Blackwood River / Goorbilyup Buerle discharges into the north-eastern end of the inlet. • 70% of lower Blackwood land use consists of State forest or conservation estate. • Fringing vegetation is largely in excellent condition. • Recreational pursuits such as kayaking, boating and camping alongside the Blackwood River / Goorbilyup Buerle are popular pastimes for local residents, tourists and visitors. • Ellis Street Jetty primarily serves as the boat access from East Augusta, a regular form of transport.		
			

Landscape Character Unit	Distinguishing Features	Representative Photographs	
			

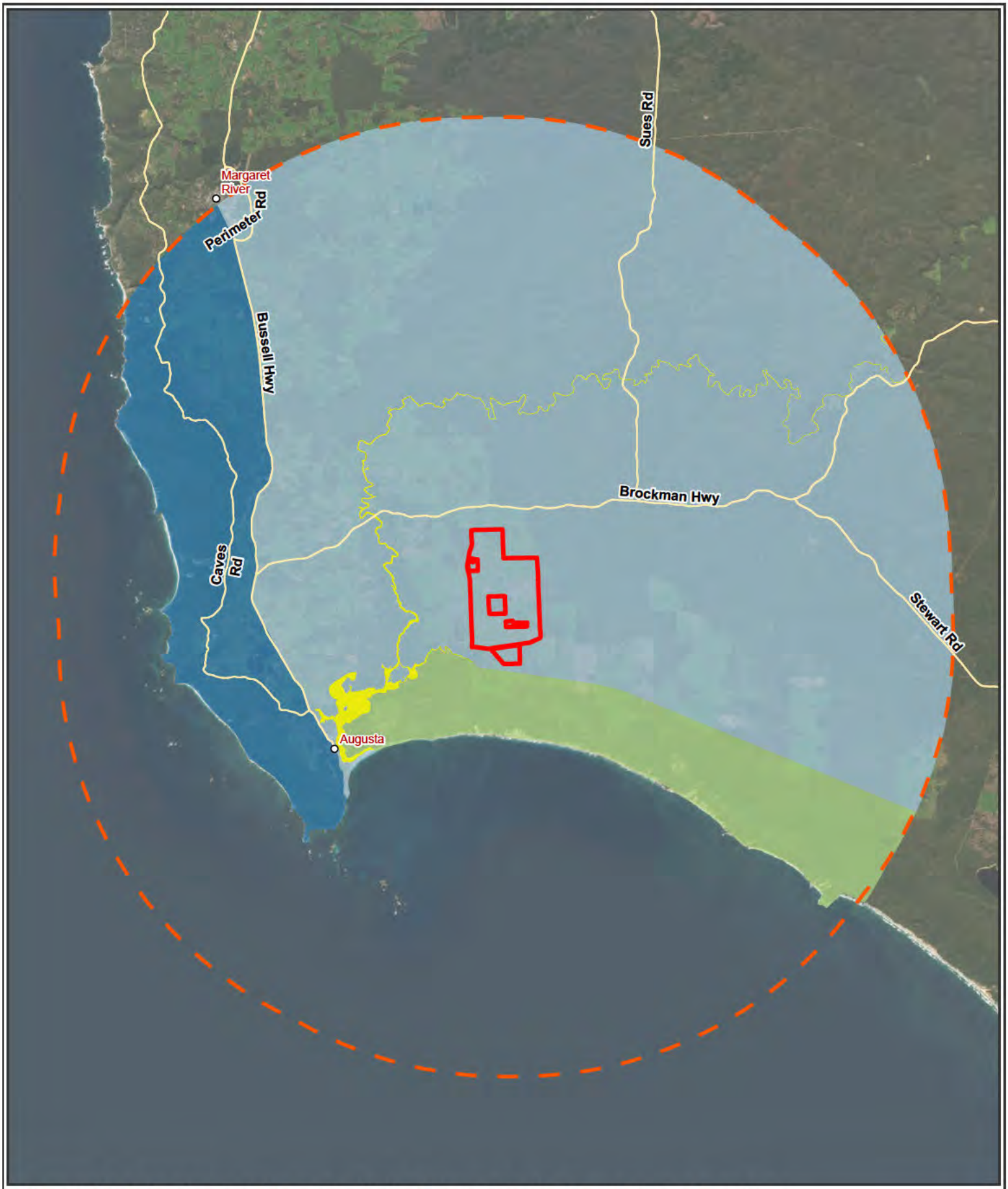


Figure 10-2: Landscape Character Units Relevant to the Development Envelope

Development Envelope
Wind Farm Development Envelope 30 km Buffer
Towns
State Road

Landscape Character Units
Darling Uplands
Leeuwin Naturaliste Coast
Scott Coastal Plains
Blackwood River and Hardy Inlet Riparian Corridor

0 3 6 12
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 8/29/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

10.3.7.4. Sensitive Visual Receptors

The LVIA assessment identified twelve key sensitive visual receptors relevant to the Proposal (GHD 2025b). The sensitive visual receptors were identified based on the type of the receptor and their proximity to the Development Envelope. Table 10-6 lists the sensitive visual receptors and their locations are depicted on Figure 10-3.

Table 10-6: Sensitive Visual Receptors Relevant to the Proposal

Viewpoint Reference	Sensitive Visual Receptor	Location	Proximity to Development Envelope (km)
VP01	Augusta Hotel	Blackwood Avenue, Augusta	12.4 km south-west
VP02	Augusta Residential	Hurford Place, Augusta	11.6 km south-west
VP03	Hillview Road Lookout	Lawrence Road, Augusta	16.6 km south-west
VP04	Adjacent to Molloy Island	Howe Road, Kudardup	5.5 km west
VP05	Scott River Road	Scott River Road, Scott River	Within Development Envelope
VP06	Warner Glen Road	Warner Glen Road, Forest Grove	14.7 km north-west
VP07	Brockman Highway	Brockman Highway, Schroeder	2.5 km north-west
VP08	Karridale Residential	Sawmill Loop, Karridale	14.7 km west
VP09	Glenarty Road	Glenarty Road, Karridale	9.7 km west
VP10	Albany Terrace Beach Access	Albany Terrace, Augusta	12.4 km south-west
VP11	Flinders Bay Jetty	Davies Road, Augusta	14.0 km south-west
VP12	Colourpatch / Seine Bay	Albany Terrace, Augusta	12.4 km south-west

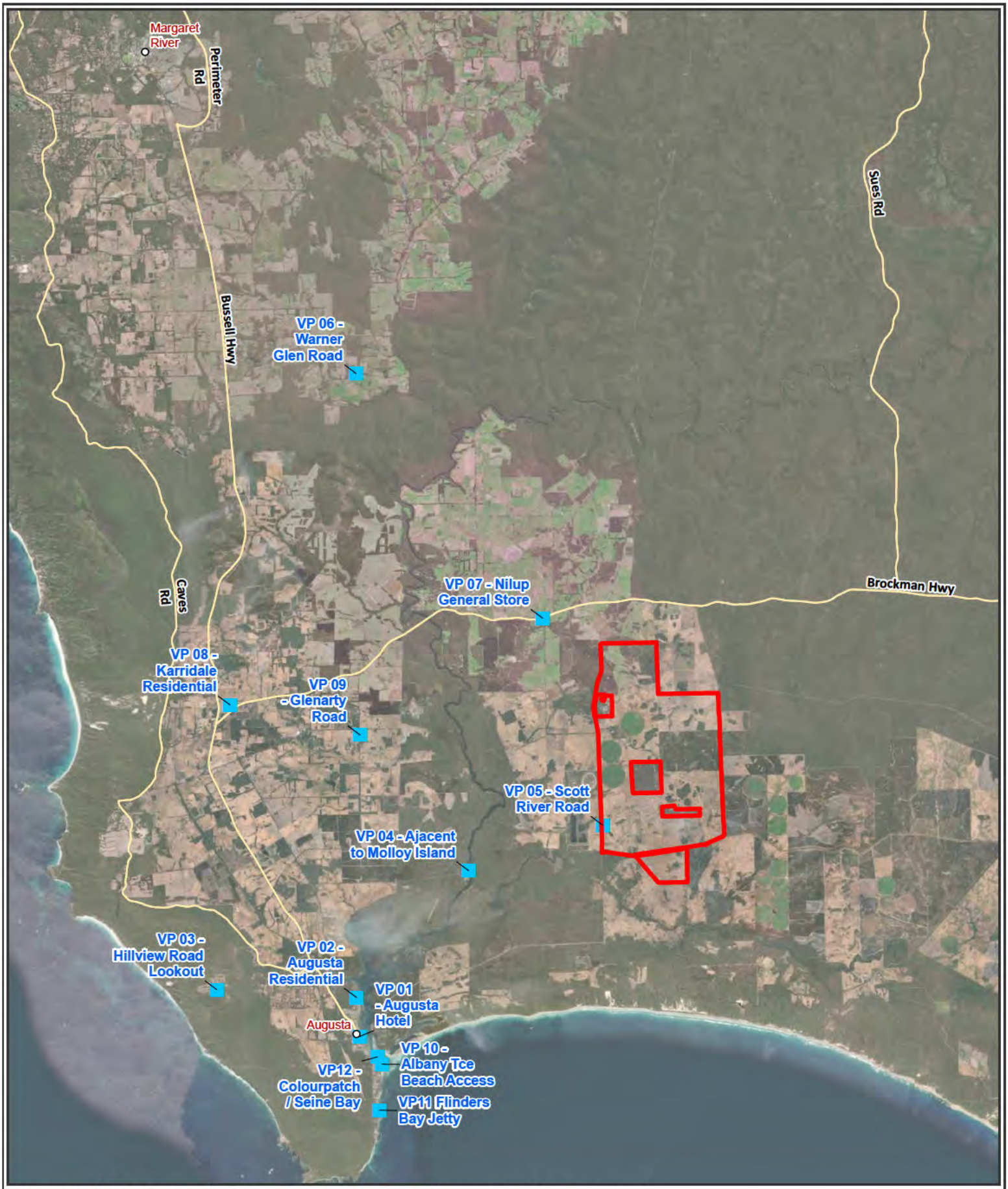


Figure 10-3: Sensitive Visual Receptors Relevant to the Proposal

Development Envelope

Sensitive Visual Receptors

Towns

Main Roads

State Road

0 2.5 5 10

Kilometers

Datum/Projection: GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 8/29/2025

N

eco logical AUSTRALIA A TETRA TECH COMPANY

10.3.8. Noise

A noise impact assessment was undertaken for the Proposal to predict and assess the impact of noise during operation of the wind turbine generators (WTGs) and associated substation at sensitive receptor locations (GHD 2025a, Appendix S). Noise during construction will be limited to concrete pumping, plant and equipment movements, including cranes, trucks and agitators, which generate intermittent noise during setup and operation. Any noise impacts associated with construction activities are expected to be minimal due to the localised, temporary and short timeframe of construction; therefore, a noise impact assessment for construction activities was not conducted.

Noise production during operations of the WTGs can be categorised into two groups (GHD 2025a):

- Mechanical noise. Sources of mechanical noise include the gearbox, cooling fans, generator, auxiliary equipment, yaw drives and brakes (when applied)
- Aerodynamic noise. Aerodynamic noise refers to the passage of air over the turbine blades and generally increases with rotor speed.

Aerodynamic noise is considered the more dominant source of noise emissions from WTGs. Noise from the substation is associated with mechanical noise from the two 132 kV transformers.

There are two types of noise receptors relevant to the Proposal:

- Noise sensitive receptor: a building or dwelling used for residential or accommodation purposes which are categorised as either:
    - Involved noise sensitive receptor: a noise sensitive receptor in a parcel of land that will accommodate part of the wind farm development
    - Not-involved noise sensitive receptor: a noise sensitive receptor in a parcel of land that will not accommodate any part of the wind farm development.
- Non-sensitive noise receptor: a building not used for residential or accommodation purposes (e.g. a shed or commercial premises).

Noise receptors identified within 5 km of the Development Envelope are presented in Figure 10-4, of which 29 are noise sensitive receptors (two involved noise sensitive receptors and 27 not-involved noise sensitive receptors, Table 10-7) and five are non-sensitive noise receptors (R11, R12, R25, R26 and R27), which will not be used for residential or accommodation purposes once the Proposal is constructed. Non-sensitive noise receptors have not been considered in the noise impact assessment.

Potential impacts of infrasound is a concern that has been raised by the local community. Infrasound was a potential impact associated with older designs of WTGs where blades were situated downwind of the main wind turbine tower, resulting in an infrasound effect as blades cut through the turbulence generated at the downwind side of the main tower (GHD 2025a). Modern WTGs, including those proposed by the Proponent, are designed to have the blades upwind of the main tower which when combined with improved blade design, has resulted in infrasound not being a major characteristic of modern wind farms. On this basis, infrasound is not discussed further in this assessment.

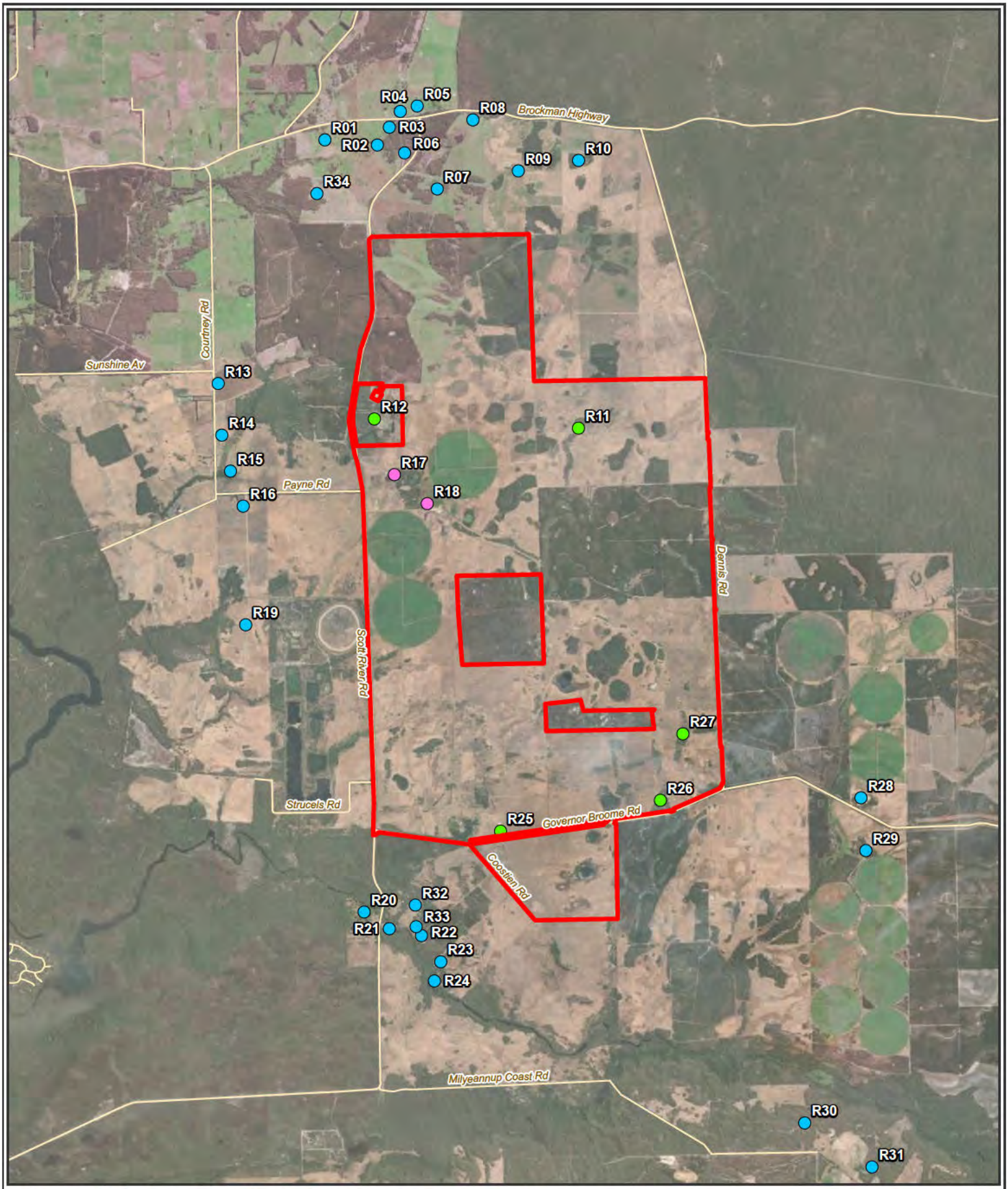


Figure 10-4: Sensitive Noise Receptors Relevant to the Proposal

Development Envelope

Roads

Noise Receptor Type

- Non-sensitive Noise Receptor
- Involved Noise Sensitive Receptor
- Not-involved Noise Sensitive Receptor

0 0.5 1 2

Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/12/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

10.3.8.1. Noise Assessment Criteria

Noise emissions from the Proposal were assessed against a dual set of criteria (GHD 2025a, Table 10-7):

- The primary noise criteria were based on the *Environmental Protection (Noise) Regulations 1997* (the WA Noise Regulations)
- Secondary noise criteria were derived using baseline noise monitoring results and the South Australia Environment Protection Authority's (SA EPA) *Wind Farms Environmental Noise Guidelines* (SA Guidelines; SA EPA 2021).

Substation noise emissions were assessed against the WA Noise Regulations only, as per Table 10-8.

Table 10-7: Criteria for Assessing Noise from the Proposal's WTGs (GHD 2025a)

Noise Sensitive Receptor	Reference of Noise Criteria	Hub Height Wind Speed (dB(A))							
		4 m/s	5 m/s	6 m/s	7 m/s	8 m/s	9 m/s	10 m/s	11 m/s
Involved noise sensitive receptor									
R17, R18	WA Noise Regulations^	40	40	40	40	40	40	40	40
	SA Guidelines#	45	45	45	45	45	45	45	45
Not-involved noise sensitive receptor									
R01, R02, R03, R04, R05, R06, R07, R08, R09, R10, R34	WA Noise Regulations	35	35	35	35	35	35	35	35
	SA Guidelines	35	36	38	39	40	40	39	41
R20, R21, R22, R23, R24, R32, R33	WA Noise Regulations	35	35	35	35	35	35	35	35
	SA Guidelines	35	35	36	36	37	37	37	39
R28, R29, R30, R31	WA Noise Regulations	35	35	35	35	35	35	35	35
	SA Guidelines	35	36	37	37	37	37	37	38
R14, R15, R16, R19	WA Noise Regulations	35	35	35	35	35	35	35	35
	SA Guidelines	35	35	35	35	35	35	35	36
R13	WA Noise Regulations	35	35	35	35	35	35	35	35
	SA Guidelines	35	35	36	36	37	37	37	38

^R17 and R18 are involved noise sensitive receptors (i.e. have participating landowners) for which 40 dB(A) has been used, on advice from DWER. #R17 and R18 are involved noise sensitive receptors, the SA Guideline criteria of 45 dB(A) for an involved noise sensitive receptor has been used.

Table 10-8: Criteria for Assessing Noise from the Proposal's Substation – WA Noise Regulations (GHD 2025a)

Type of Premises Receiving Noise	Time of Day	Assigned Noise Level (dB(A))		
		L_{A10}	L_{A1}	L_{AMAX}
Noise sensitive premises: Highly sensitive area	7:00am – 7:00pm Monday to Saturday	45	55	65
	9:00am – 7:00pm Sunday and Public Holidays	40	50	65
	7:00pm – 10:00pm all days	40	50	55
	10:00pm – 7am Monday to Saturday 10:00pm – 9:00am Sunday and Public Holidays	35	45	55
Noise sensitive premises: Any area other than highly sensitive area	All hours	60	75	80
Commercial premises	All hours	60	75	80
Industrial and utility premises other than those in the Kwinana Industrial Area	All hours	65	80	90

10.3.9. Electromagnetic Interference

Wind turbines have the potential to result in electromagnetic interference through interactions with point-to-point microwave telecommunications. This includes potential for interruptions to radio and television broadcasts and mobile phone coverage. All services which rely on microwave or radio frequency electromagnetic waves will herein be broadly referred to as 'radiocommunications'.

A preliminary Electromagnetic Interference (EMI) Assessment (DNV 2025a; Appendix S) was undertaken to assess the potential for interference with radiocommunications of the Proposal to 33 dwellings within 5 km of the Development Envelope, of which 13 are 'involved dwellings, that is, dwellings belonging to landowners with property intersected by the Development Envelope or otherwise involved with the Proposal as part of an agreement.

To assess potential EMI impacts, the preliminary EMI Assessment identified all radiocommunications towers within 75 km of the Development Envelope and assessed the licences attach to each tower (DNC 2025a). There are 289 radiocommunication towers located within 75 km of the Development Envelope, two of which occur within 2 km and are operated by Western Australian Police, Telstra, Optus, TPG and Western Power (DNV 2025a). Other services with potential to be impacted by the Proposal include mobile phones, wireless internet, broadcast radio and television, satellite television and internet, meteorological radars, trigonometrical stations and citizen's band (CB) radio.

10.3.10. Shadow Flicker and Blade Glint

Shadow flicker refers to the fluctuating levels of light caused by a moving object. In the context of the Proposal, shadow flicker refers to the intermittent shadowing resulting from rotating wind turbine blades passing between the sun and the observer. The effect of shadow flicker is most noticeable from inside a dwelling where the flicker is seen through a window (DNV 2025b). The likelihood of shadow flicker impacting a dwelling, and the duration of the impact, is dependent on multiple factors including the distance and direction between the turbine and the dwelling, weather conditions, position of the sun, turbine height and blade diameter and wind direction (DNV 2025b).

Blade glint refers to light which may be reflected off the surface of a wind turbine blade. Glint is dependent on several factors including the orientation of the nacelle, angle of the blade, angle of the sun and reflectiveness of the surface of the blades. Both blade glint and shadow flicker have potential to cause annoyance to people in the nearby dwellings (DNV 2025b).

A Shadow Flicker and Blade Glint Assessment was undertaken to assess the potential for shadow flicker and blade glint to occur as a result of the Proposal (DNV 2025b, Appendix O). Blade glint is not considered an issue for the Proposal, as the turbine blade surface will be coated with a non-reflective paint (DNV 2025b). On this basis, blade glint is not considered a relevant impact from the Proposal and will not be discussed further in this assessment.

Twenty-five receptors (dwellings) were considered in the shadow flicker assessment (Figure 10-5; DNV 2025b). Another nine dwellings were considered unlikely to be impacted by shadow flicker at intensities considered sufficient to cause annoyance, given their distance from the Proposal's turbines and were therefore excluded from the assessment. Of the 25 dwellings considered, six are considered 'involved' receptors, four of which have agreed with the Proponent such that the dwelling will not be used for residential or accommodation purposes on construction of the Proposal (Figure 10-5, Table 10-9). These four dwellings (R11, R25, R26, R27) were therefore not considered sensitive receptors and are not considered further in this assessment, leaving 21 receptors considered for assessment.

Table 10-9: Sensitive Shadow Receptors Relevant to the Proposal

Sensitive Shadow Receptor (Dwelling) ID	Receptor Type^	Distance to Nearest Turbine (m)
R1	Non-involved	2,560
R2	Non-involved	2,216
R3	Non-involved	2,454
R6	Non-involved	2,069
R7	Non- Involved	1,600
R9	Non-involved	2,378
R12*	Non-involved	949
R13	Non-involved	2,433
R14	Non-Involved	2,604
R17	Involved	1,715
R18	Involved	1,794
R19	Non-Involved	2,319
R20	Non-involved	2,006
R21	Non-involved	2,000
R22	Non-involved	1,775

Sensitive Shadow Receptor (Dwelling) ID	Receptor Type^	Distance to Nearest Turbine (m)
R23	Non-involved	1,798
R24	Non-involved	2,000
R28	Non-involved	2,421
R32	Non-involved	1,513
R33	Non-involved	1,804
R34	Non-involved	1,981

^It is noted that the number of involved and non-involved receptors do not align with DNV (2025b). Three involved receptors (R7, R14 and R19) have been reclassified to non-involved as they occur outside of the Development Envelope.
* Note that although R12 was considered a "dwelling" in DNV 2025b, R12 operates as a commercial premise and so is not a sensitive receptor.

10.3.10.1. Shadow Flicker Assessment Criterion

The Draft National Wind Farm Development Guidelines (Draft National Guidelines, EPHC 2010) recommend that the modelled theoretical shadow flicker duration of any moderate level of intensity or above at any dwelling should not exceed 30 hours per year, and that the actual or measured shadow flicker duration should not exceed 10 hours per year. This criterion has been applied in the assessment of shadow flicker at all dwellings.

10.3.11. Aviation

An Aviation Impact Assessment (Aviation Projects 2025, Appendix Q) was undertaken to ensure no impact to existing aviation operations, such as the Royal Flying Doctors Service or aerial firefighting, as a result of the Proposal.

The assessment concluded that the wind turbines associated with the Proposal will not result in incompatible intrusions or compromise the safety of existing airports or associated navigation and communication facilities (Aviation Projects 2025). As such, the potential impacts of the Proposal on aviation are not discussed further in this assessment.

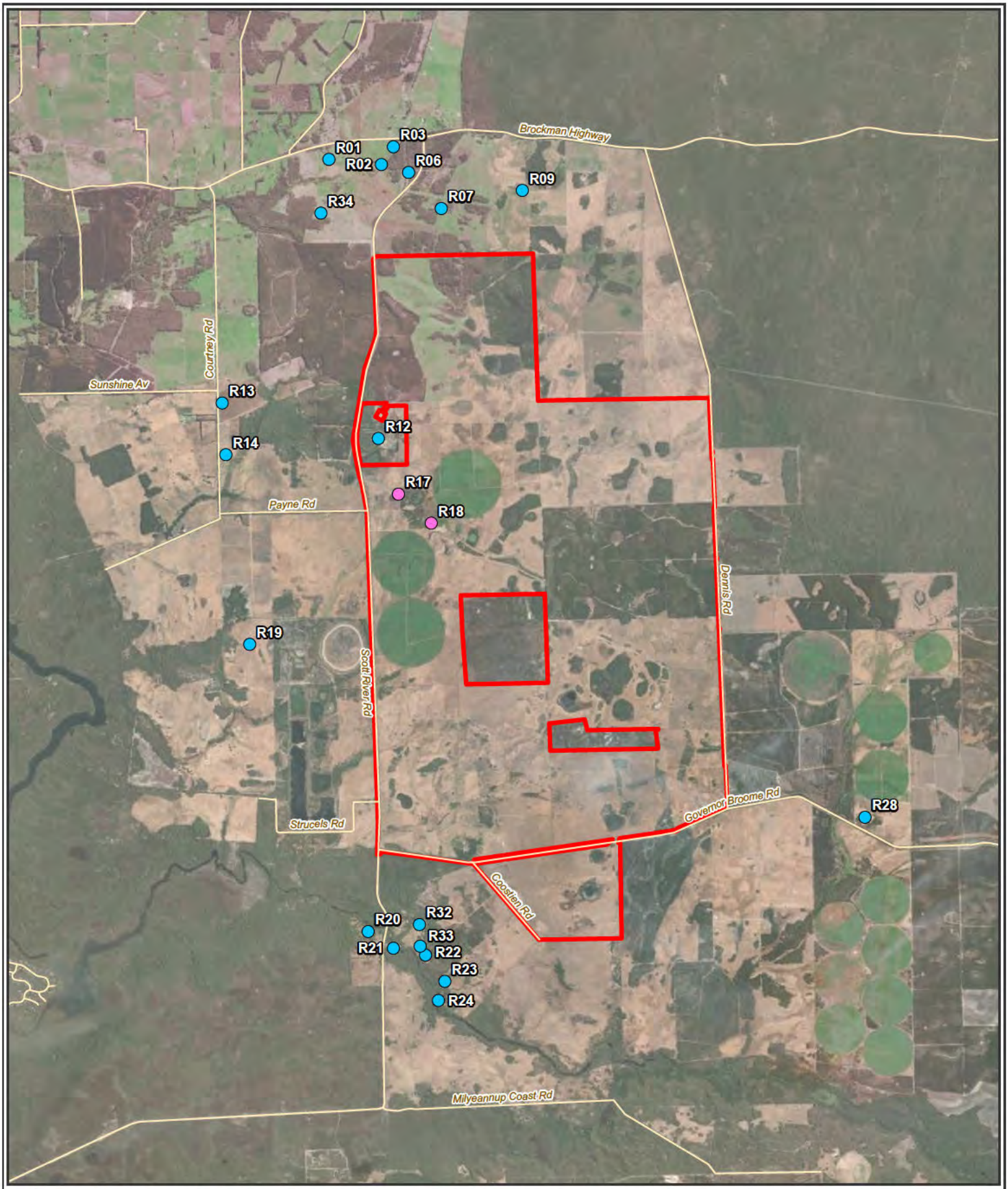


Figure 10-5: Sensitive Shadow Receptors Relevant to the Proposal

Development Envelope

Roads

Sensitive Shadow Receptor Type

- Not-involved
- Involved

0 0.5 1 2

Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 9/22/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

10.4. Potential Environmental Impacts

The potential impacts of the Proposal on social surroundings values prior to mitigation being applied have been identified as:

- Impacts to Aboriginal heritage sites or cultural values through:
    - Ground disturbance associated with the construction of the Proposal which may cause the loss of or damage to Registered Aboriginal heritage sites, lodged Aboriginal heritage places or cultural values
    - Changes to surface water flows, groundwater levels and water quality which may impact the Blackwood River / Goorbilyup Buerle or Scott River.
- Impacts to landscape and visual amenity due to the placement of wind turbines and other proposal infrastructure
- Altered socio-economic outcomes for the local community including:
    - Impacts to tourism and employment
    - Impacts to agricultural land use
    - Impacts on infrastructure, services and roads.
- Reduce local amenity as a result of:
    - Light emissions
    - Noise emissions
    - Shadow flicker
    - Dust emissions.

Biological values such as wetlands, swamps, bird life and conservation significant flora, vegetation and fauna are also important social values and a key concern to the local community. Potential impacts of the Proposal to these values are described and assessed in Section 7: Inland Waters, Section 8: Flora and Vegetation and Section 9: Terrestrial Fauna; therefore, the assessment of the impacts to these biological values are not detailed further within this section.

10.5. Mitigation

The Proponent has applied the mitigation hierarchy during the design of the Proposal to reduce potential impacts to social surroundings values as far as practicable.

Specific mitigation and management measures proposed to be implemented by the Proponent are discussed below and detailed in Table 10-10.

10.5.1. Cultural Heritage

The Proposal has been designed to completely avoid direct impacts to the Blackwood River / Goorbilyup Buerle registered heritage site.

The Proposal has currently been designed to avoid direct impacts to Scott River, a lodged Aboriginal heritage site. However, the Proponent is investigating the use of an existing farm track within the Development Envelope which intersects a small tributary of the river, to avoid clearing native vegetation

(Section 8.6.1). This option will not be progressed without consultation with KKAC, and any authorisation required under the AH Act.

10.5.2. Acid Sulfate Soils, Groundwater and Surface Water

A key concern identified by the local community is the risk of PASS resulting in significant impacts to soil fertility and future land use. Due to the presence of PASS within the Development Envelope (Section 6.3.6), the Proponent commits to the preparation and implementation of an ASSDMP prepared in accordance with relevant guidance. A Preliminary ASSDMP has been prepared which details the proposed management framework, controls and monitoring measures to be included in the detailed ASSDMP, which will be developed following completion of detailed site investigations and detailed design prior to construction of the Proposal (PTG 2025; Appendix B). The ASSDMP is expected to be a condition of DA approval.

Turbine and other tower foundations have also been designed to limit the excavation of PASS and dewatering requirements, while achieving the necessary mass and stability (Section 2.2.1; Figure 2-3).

The specific foundation option chosen for each turbine/mast/tower location will be determined based on detailed site investigation and revised modelling to ensure that any proposed dewatering or excavation would not result in significant impacts to soil, surface water or groundwater quality as a result of PASS exposure. Dewatering will be managed to ensure drawdown does not exceed 2 mbgl at the perimeter of each foundation and 0.1 m beyond 100 m from any dewatering location. Below ground foundations will only be used where it confirmed that the proposed turbine/mast/tower location would not require dewatering. The management of PASS is discussed further in Section 6: Terrestrial Environmental Quality and Section 7: Inland Waters.

Table 10-10: Application of the Mitigation Hierarchy for Potential Impacts to Social Surroundings

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impact
Loss or damage of Aboriginal heritage sites	• The Proposal has been designed to avoid direct impacts to Blackwood River / Goorbilyup Buerle.	• The Proposal has been designed to avoid direct impacts to Scott River. Any impact to tributaries of this river within the Development Envelope would require consultation with KKAC and relevant authorisation under the AH Act. • As per the CEMP, should potential artefacts or remains be uncovered during construction, all works will cease immediately and a 'no work zone' will be established around the sites until it is assessed by appropriate specialists. • Indirect impacts to the Blackwood and Scott rivers will be minimised. Detailed management measures are provided in Section 7: Inland Waters. Key measures to be outlined in the CEMP and ASSDMP include: - No clearing of any native vegetation within 50 m of any lodged heritage place or registered heritage site - Hazardous materials will be appropriately contained to prevent mobilisation into waterways - No direct/indirect disposal of dewater into wetlands or rivers. - Dewatering will be discharged to infiltration basins, with appropriate testing and monitoring in accordance with the ASSDMP - Civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable	N/A	Potential for minor, localised and temporary impacts to the water quality of the small tributaries of the Blackwood River / Goorbilyup Buerle and Scott River within the Development Envelope. The assessment and significance of this residual impact is detailed in Section 10.6.1.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impact
Reduced landscape and visual amenity through the placement of infrastructure	• Wind turbine blades will be coated in a non-reflective paint to avoid blade glint.	• The Proposal has been designed to avoid impacts to native vegetation as much as possible, with impacts limited to the clearing of 1 ha of native remnant vegetation. • Wind turbines will be uniform in colour, design and size. • Non-reflective materials and muted colours will be used to reduce visibility at distance. • Existing farm tracks will be utilised as much as practicable, and all access roads will be maintained in an unsealed condition to blend with surrounding rural setting. • Landowners and adjacent neighbours will be engaged to discuss screening and landscaping to mitigate any visual impacts.	N/A	Altered landscape and visual amenity from sensitive receptors. The assessment and significance of this residual impact is detailed in Section 10.6.2.
Altered socio-economic outcomes for the local community – land use	N/A	• The Indicative Disturbance Footprint has been designed to limit impacts on land use, including the utilisation of existing farm tracks as much as practicable, and alignment of new tracks along fence lines/ edge of paddocks where practicable. • Alternative turbine foundations will be utilised to avoid, and otherwise minimise PASS disturbance and dewatering (Section 6.6 and Section 7.6). • A Preliminary ASSDMP (Appendix B) has been developed to inform the management measures for PASS to be undertaken during construction of the Proposal. These measures will be implemented into a detailed ASSDMP following finalisation of infrastructure design and layout. Key measures are outlined in Section 6 (Terrestrial Environmental Quality) and Section 7 (Inland Waters). • Construction activities will be temporary and short term (approximately 18 – 24 months). • The Proponent will continue to engage and work with landowners to mitigate and manage construction and operational impacts.	N/A	Potential for temporary impacts during construction. No ongoing residual impacts expected. The assessment and significance of this residual impact is detailed in Section 10.6.3.

Altered socio-economic outcomes for the local community – tourism, infrastructure, services and roads	• Detailed design will consider adjustment of turbine locations or the relocation, reconstruction or modification of communication infrastructure to ensure no EMI as a result of the Proposal.	**Tourism** • An accommodation strategy will be developed to identify suitable workforce accommodation with consideration of local impacts on housing and tourist accommodation. • A public viewing area will be included within the Proposal to cater for the wind farm as a tourist attraction. This will include informative signage about wind as a renewable energy source and allow visitors to observe the turbines. **Infrastructure, Services and Roads** • Detailed design will consider adjustment of turbine locations or the relocation, reconstruction or modification of communication infrastructure to ensure no EMI as a result of the Proposal • A Traffic Management Plan will be implemented during the construction of the Proposal. The Traffic Management Plan will include the following management measures to minimise traffic safety impacts and disruptions to local road users: - Implement traffic control including detours and signage - Advertise road closures/disruptions to the local community - Minimise conflicting traffic schedules with stock movements, feed deliveries etc. as much as practicable. • A Bushfire Management Plan (BMP; Linfire 2025a) and Bushfire Risk Management Plan (BRMP; Linfire 2025b) will be implemented during construction and operation of the Proposal. This will include the following key management measures: - Establishment of non-vegetated areas and asset protection zones - All wind turbines will be fitted with an automatic fire detection and alarm system, as well as an automatic fire suppression system - All buildings and vehicles will be fitted with first response fire equipment - Adhering to local government fire restrictions, including daily checks of fire danger ratings	N/A	No EMI as a result of the Proposal. Altered socio-economic outcomes for the local community. The assessment and significance of this residual impact is detailed in Section 10.6.3.3.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impact
		- Emergency services will have full access to the Development Envelope and water tanks for emergency response inside or outside of the Development Envelope. • Implementation of a community benefit fund, that would start in the same year as construction and continue through the operational life of the Proposal.		
Reduced amenity – increased light	N/A	• Nighttime construction activities will be avoided where practicable. • Lighting will be minimised to that necessary for safe construction and operation of the Proposal (e.g. use of directional lighting, hoods or sensor lighting). • Assessments to date do not indicate that lighting on the wind turbines will be required. Aviation lighting will only be installed on wind turbines where required by CASA/emergency services. In this instance, if lighting is required by the approving authorities, the Proponent will work with aviation and emergency services to assess lighting solutions.	N/A	Minor increase in light emissions. The assessment and significance of this residual impact is detailed in Section 10.6.4.1.
Reduced amenity – increased noise	N/A	• The Indicative Disturbance Footprint has been designed to ensure compliance with noise regulations at all existing dwellings. • Turbines will be regularly maintained to ensure noise emissions are not adversely impacted by turbine wear. • An operational noise management plan will be developed and implemented for the wind farm and include noise monitoring.	N/A	Minor increase in noise levels. The assessment and significance of this residual impact is detailed in Section 10.6.4.2.
Reduced amenity – shadow flicker	N/A	• Landowners and adjacent neighbours will be engaged to discuss screening and landscaping to minimise visual impacts of shadow flicker.	N/A	No significant shadow flicker impacts. The assessment and significance of this residual impact is detailed in Section 10.6.4.3.

Potential Impact	Avoidance	Minimisation	Rehabilitation	Residual Impact
Reduced amenity – dust emissions	N/A	• Dust management measures will be implemented in accordance with the CEMP. Measures will include (but not be limited to) implementation of: - Dust suppression techniques during construction, such as water carts - Speed limits on unsealed roads/tracks - Progressive clearing, and rehabilitation of temporary disturbance areas.	• Progressive rehabilitation will be undertaken of temporarily disturbed areas, reducing the potential for dust emissions.	Minor increase in dust emissions during construction. The assessment and significance of this residual impact is detailed in Section 10.6.4.4.

10.6. Assessment and Significance of Residual Impacts

10.6.1. Aboriginal Cultural Heritage

The Blackwood River / Goorbilyup Buerle and Scott River tributaries that intersect the Development Envelope are important and significant cultural heritage sites for the South West Boojarah People (AHA Logic 2024).

The Proposal will not result in any direct impacts to the Blackwood River / Goorbilyup Buerle registered Aboriginal heritage site, and the Proposal has currently been designed to avoid direct impacts to Scott River, a lodged Aboriginal heritage site. However, the Proponent is investigating the potential to utilise an existing farm track which intersects a small tributary of the river, as an alternative to the currently proposed access track. The current proposed access track requires a small area (0.01 ha) of native vegetation that provides habitat for conservation significant species to be cleared (see Section 8 and Section 9). The alternative option will not be progressed without consultation with KKAC and any relevant authorisations required under the AH Act.

A comprehensive impact assessment for the waterways relevant to the Proposal is provided in Section 7 (Inland Waters). The assessment found that the potential indirect impacts from the Proposal to waterways include minor and localised changes to surface water flow patterns and changes to quality of surface water and/or groundwater, resulting from contamination, erosion, sedimentation or excavation and exposure of PASS.

Changes to surface water flow and depth as a result of Proposal infrastructure are expected to be minimal, given that infrastructure will not be located within any waterways and no key streams are proposed to be diverted. The Proponent will implement mitigation measures during construction and operation to minimise the potential impacts. This will include:

- Scheduling civil construction activities, specifically activities that require excavation, to occur during the dry season where practicable
- Utilising drainage control methods (e.g. drains and culverts) in flood-prone areas
- Appropriately containing hazardous materials to prevent mobilisation
- Discharging dewater effluent into infiltration basins rather than into waterways
- No dewatering will occur for the construction of borrow pits
- Implementation of a CEMP to ensure the maintenance of surface water regimes, which will include monitoring and contingency measures.

The potential for exposure of PASS to impact the quality of the Blackwood or Scott Rivers has been minimised through Proposal design. The Proponent considers that potential impacts of PASS disturbance during construction can be appropriately managed through the implementation of an ASSDMP, which will be prepared in accordance with relevant guidance and the Preliminary ASSDMP (Appendix B), and is expected to be a condition of the DA approval (Section 3.3). This is discussed in further detail in Section 6 (Terrestrial Environmental Quality) and Section 7 (Inland Waters).

Based on the above, the Proponent considers that potential impacts to the Blackwood and Scott Rivers will be minor, temporary and localised, occurring during construction of the Proposal only, and are able to be managed through implementation of the CEMP and ASSDMP, and will not result in a significant residual impact to important cultural heritage sites within and surrounding the Development Envelope.

10.6.2. Landscape and Visual Amenity

The installation of wind turbines within the rural agricultural landscape will unavoidably alter the existing landscape character and result in visual impacts. The proposed turbines will be variably visible from a range of locations, each to a different extent (GHD 2025b).

Table 10-11 provides a summary of the assessment of impacts to visual amenity from each of the LCUs (GHD 2025b). The significance of impacts was determined based on the LCU sensitivity to change and the estimated magnitude of change. The LVIA assessment determined that LCU1, LCU2 and LCU3 would have a high-moderate impact rating and LCU4 would have a moderate impact rating as a result of the Proposal (GHD 2025b).

Table 10-11: Summary of Visual Impact Assessment (GHD 2025b)

LCU	Title	Sensitivity to Change	Magnitude of Change	Significance of Impact	Summary of Impact
LCU1	Leeuwin Naturaliste Ridge	High	Moderate	High-moderate	LCU1 has a high-moderate impact rating due to the LCU having a high sensitivity to change relating to Leeuwin Naturaliste Ridge, a landscape of high quality, and the Proposal resulting in a moderate magnitude of change as it is likely to have discernible changes in the landscape character due to partial loss of, or change to elements, features or characteristics of the landscape.
LCU2	Scott Coastal Plain	High	Moderate	High-moderate	LCU2 Scott Coastal Plain has a high-moderate impact rating due to the LCU having a high sensitivity to change relating to the Southern Ocean coastline, an area of high scenic values, and numerous designated areas which include highly diverse flora and fauna species, and the Proposal resulting in a moderate magnitude of change as it is likely to have discernible changes in the landscape that would be out of scale with the landscape character and at odds with the local pattern of the landform.
LCU3	Darling Uplands	High	Moderate	High-moderate	LCU3 Darling Uplands has a high-moderate impact rating due to the LCU having a high sensitivity to change relating to the importance of the drainage features, national parks and residential areas within a dissected landscape, and the Proposal resulting in a moderate magnitude of change as it will likely have discernible changes to the landscape that would impact the landscape character.
LCU4	Blackwood River and Hardy Inlet Riparian Corridor	High	Low	Moderate	LCU4 Blackwood River and Hardy Inlet Riparian Corridor has a moderate impact rating due to the LCU having a high sensitivity to change due to the values of the local community; however, the magnitude of changes is considered low as the Proposal is only likely to be visible from specific confined locations.

Table 10-12 provides a summary of the assessment of impacts to visual amenity from each of the 12 sensitive receptor locations (GHD 2025b). The significance of the predicted impact was determined based on the sensitive receptor's sensitivity to change and the estimated magnitude of change and was assessed as moderate to high at all sensitive receptors except for Karridale Residential (VP08), which is not expected to be significantly impacted by changes to visual amenity.

Visual impacts associated with construction are considered to be short term (approximately 2 years) with operational impacts considered permanent. The overall visual impact of the Proposal will vary greatly depending on the individual viewer's sensitivity to, and acceptance of, change. For example, the Albany Wind Farm is known to have had positive impacts on Albany (Place.ID 2025), where it has created a unique sense of place and a positive tourism asset. In addition, the LVIA has been undertaken on a 'worst-case scenario' basis, modelling the maximum number (20 turbines), at maximum height (250 m) and all turbines rotated to face sensitive receptors across the Development Envelope.

The Proposal includes the development of a public viewing area of the wind farm which will allow visitors to observe the turbines and will provide information about renewable energy. The aim is to encourage similar positive outcomes to the Albany Wind Farm, creating a new aspect to the sense of place for the local community and adding a positive tourism asset.

The Proponent has designed the layout of the turbines within the Development Envelope to minimise clearing of native vegetation as much as possible, ensuring that existing remnant vegetation remains to maintain the rural landscape character and shield turbines in the landscape, where possible.

Based on the above, although the Proposal will have an impact on visual amenity the significance of this impact will vary greatly depending on the individual viewer's sensitivity to and acceptance of change. The Proponent will continue to investigate opportunities to minimise the visual impact and will continue to engage with stakeholders during detailed design of the Proposal.

Table 10-12: Summary of Visual Impact Assessment (GHD 2025b)

View Point	Title	Sensitivity to Change	Magnitude of Change	Significance of Impact	Summary of Impact	Representative Photo*
VP01	Augusta Hotel	High	High	High	VP01 has a high impact rating due to the viewpoint having a high sensitivity to change relating to the value of the scenic, elevated long and wide views across Hardy Inlet and East Augusta towards the Proposal. A high magnitude of change is likely due to the substantial and obvious effect on the existing view, permanently altering the characteristics and diminishing the perceived quality of that view.	Plate 10-1 Plate 10-2
VP02	Augusta Residential	High	Moderate	High-moderate	VP02 has a high-moderate impact rating due to the viewpoint having a high sensitivity to change relating to the value of the scenic, elevated and wide views that include the water body of Hardy Inlet towards the Proposal. A moderate magnitude of change is expected due to the discernible change to the characteristics of the existing view.	Plate 10-3 Plate 10-4
VP03	Hillview Road Lookout	High	Low	Moderate	VP03 has a moderate impact rating due to the viewpoint having a high sensitivity to change relating to the landscape value of the Leeuwin-Naturaliste ridge and the long, wide-ranging, elevated views and scenic landscape, encompassing the Proposal. This is expected to result in a low magnitude of change as the turbines will likely be visible as only a small portion of a much wider view and may not be considered uncharacteristic within the existing landscape.	Plate 10-5 Plate 10-6
VP04	Adjacent to Molloy Island	High	Moderate	High-moderate	VP04 has a high-moderate impact rating due to the viewpoint having a high sensitivity to change relating to its value as a conservation and scenic area used for recreation. The Proposal is anticipated to result in a moderate magnitude of change as it is likely to have an adverse effect on the left side of the view, out of scale with the existing view.	Plate 10-7 Plate 10-8
VP05	Scott River Road	High	High	High	VP05 has a high impact rating due to the viewpoint having a high sensitivity to change relating to residents travelling to and from work being close to the Proposal and having long viewing periods of the Proposal area. The Proposal is expected to result in a high magnitude of change as it is likely to have substantial and obvious effect on the existing view, diminishing the perceived quality.	Plate 10-9 Plate 10-10
VP06	Warner Glen Road	High	Low	Moderate	VP06 has a moderate impact rating due to the viewpoint having a high sensitivity to change relating to the road having wide scenic views across the rural landscape from an elevated vantage point and users of the road (residents, recreational users and tourists) having prolonged views of the Proposal. The Proposal is predicted to result in a low magnitude of change as the turbines are not considered out of character with the existing view, sitting just above the tree canopy in the background.	Plate 10-11 Plate 10-12
VP07	Brockman Highway	High	Moderate	High-moderate	VP07 has a high-moderate impact rating due to the viewpoint having a high sensitivity to change relating to highway contributing to the natural and rural landscape amenity and being used by local residents, agricultural workers, heavy haul vehicles and tourists. The Proposal is expected to result in a moderate magnitude of change as it is likely to effect a discernible change to the characteristics of the view and be out of scale with the existing view.	Plate 10-13 Plate 10-14
VP08	Karridale Residential	Moderate	Negligible	Negligible	VP08 has a negligible impact rating due to the viewpoint having a moderate sensitivity to change given that residents with long viewing periods of the Proposal are screened and at a distance. The Proposal is anticipated to result in a negligible magnitude of change as the change is considered imperceptible due to little or no loss of or change to the elements, features or characteristics of the view.	Plate 10-15 Plate 10-16
VP09	Glenarty Road	High	Moderate	High-moderate	VP09 has a high-moderate impact rating due to the viewpoint having a high sensitivity to change relating to the road providing scenic and rural views from an elevated position. The Proposal is considered likely to result in a moderate magnitude of change as is expected to result in a discernible effect on the characteristics of the view and be out of scale with the existing view.	Plate 10-17 Plate 10-18
VP10	Albany Terrace Beach Access	High	High	High	VP10 has a high impact rating due to the viewpoint having a high sensitivity to change related to it being a coastal vantage point with long scenic views of the Southern Ocean, Blackwood River / Goorbilyup Buerle mouth and coastal zone of Scott Coastal Plain. The Proposal is assessed as likely to result in a high magnitude of the change as it is anticipated to permanently alter the otherwise undeveloped rugged coastal view and dimmish the perceived quality.	Plate 10-19 Plate 10-20
VP11	Flinders Bay Jetty	High	High	High	VP11 has a high impact rating due to the viewpoint having a high sensitivity of change related to it being a coastal vantage point that includes long scenic views of the Southern Ocean and coastal zone of Scott Coastal Plain. The Proposal is predicted to result in a high magnitude of change as it is likely to permanently alter the otherwise undeveloped view across the Southern Ocean and diminish the perceived quality of the view.	Plate 10-21 Plate 10-22
VP12	Colourpatch / Seine Bay	High	Moderate	High-moderate	VP12 has a high-moderate impact rating due to the viewpoint having a high sensitivity of change relating to the long scenic views of the landscape being highly valued by the community, recreational users and tourists. The Proposal is expected to result in a moderate magnitude of change as it is likely to result in a discernible change to the right side of the view that would be out of scale with the existing view.	Plate 10-23 Plate 10-24

*Additional representative photos are provided in Appendix T including those with red overlays.

Plate 10-1: Existing View from VP01 (August Hotel)

Plate 10-2: View from VP01 (Augusta Hotel) with Proposal

Plate 10-3: Existing View from VP02 (Augusta Residential)

Plate 10-4: View from VP02 (Augusta Residential) with Proposal

Plate 10-5: Existing View from VP03 (Hillview Road Lookout)

Plate 10-6: View from VP03 (Hillview Road Lookout) with Proposal

Plate 10-7: Existing View from VP04 (Adjacent to Molloy Island)

Plate 10-8: View from VP04 (Adjacent to Molloy Island) with Proposal

Plate 10-9: Existing View from VP05 (Scott River Road)

Plate 10-10: View from VP05 (Scott River Road) with Proposal

Plate 10-11: Existing View from VP06 (Warner Glen Road)

Plate 10-12: View from VP06 (Warner Glen Road) with Proposal

Plate 10-13: Existing View from VP07 (Brockman Highway)

Plate 10-14: View from VP07 (Brockman Highway) with Proposal

Plate 10-15: Existing View from VP08 (Karridale Residential)

Plate 10-16: View from VP08 (Karridale Residential) with Proposal – Red Overlay

Plate 10-17: Existing View from VP09 (Glenarty Road)

Plate 10-18: View from VP09 (Glenarty Road) with Proposal

Plate 10-19: Existing View from VP10 (Albany Terrace Beach Access)

Plate 10-20: View from VP10 (Albany Terrace Beach Access) with Proposal

Plate 10-21: Existing View from VP11 (Flinders Bay Jetty)

Plate 10-22: View from VP11 (Flinders Bay Jetty) with Proposal

Plate 10-23: Existing View from VP12 (Colourpatch / Seine Bay)

Plate 10-24: View from VP12 (Colourpatch / Seine Bay) with Proposal

10.6.3. Socio-Economic Outcomes for the Local Community

10.6.3.1. Tourism and Employment

The Proposal includes the development of a public viewing area of the wind farm which will allow visitors to observe the turbines and will provide information about renewable energy. Visitors may include schools, people with special interest groups (e.g. environmental, scientific, creative) and other tourists to the area. This will result in a positive net benefit to the local community, creating a tourism asset and an opportunity for active community participation in the Proposal (Place.ID 2025).

The Proposal will create a number of jobs, primarily during the construction phase with an anticipated peak construction workforce of 150 people over an 18 to 24 month period. During operations, the Proposal will require approximately five full time staff who reside locally for wind farm maintenance activities, landowner liaison, environmental management and safety. The Proponent will develop a procurement strategy with a focus on maximising local employment opportunities creating a positive outcome with regards to increased employment opportunities for the local community.

Pressure on local accommodation resulting from the Proposals construction workforce has been raised as a concern by the local community (Place.ID 2025). While the construction workforce will be accommodated locally it is not expected to significantly strain the availability of local accommodation to the extent that local tourism is impacted, given the estimated peak of 150 personnel. The Proponent considers that the Proposal will positively contribute to the local economy during the construction period.

10.6.3.2. Agricultural Land Use

The Proposal has been designed to limit impacts to biodiversity, including native vegetation, fauna habitat and waterways, by locating the Development Envelope on land largely cleared for agricultural development. Impacts to the productivity of the agricultural lands is an important consideration of the Proposal and a concern highlighted by the local community (Place.ID 2025).

The Proposal may result in temporary land access restrictions during construction. Restriction will be minimised as much as possible, and the Proponent will communicate with relevant landowners and other stakeholders to ensure alternative access arrangements can be made where required.

The Proposal is not expected to significantly impact the production potential of existing farmland within the Development Envelope, given the small infrastructure footprint, continued access for cropping/grazing within a short distance of a turbine (typically 40 - 70 m) and the upgrades to many internal access roads which will benefit the relevant landowners. Wind farms and productive agriculture have a well-established track record of land use compatibility and can provide a consistent and steady income for farmers in addition to agriculture.

PASS also has the potential to impact productivity by affecting the soil fertility, and groundwater and surface water quality. An ASSDMP will be developed to manage the potential risks to the environment during construction of the Proposal. As the infrastructure and design layout has not yet been finalised, a Preliminary ASSDMP (Appendix B) has been prepared which details the proposed management framework, controls and monitoring measures to be included in the detailed ASSDMP to be developed prior to construction of the Proposal.

Turbine and other mast/tower foundations have also been designed to limit dewatering requirements and the volume of PASS disturbed. Three potential foundation designs (two primary, one secondary) have been included as part of the Proposal (see Section 2.2.1), with the two primary foundation options (above ground and partially above ground foundations) minimising the amount of PASS proposed to be

excavated (as detailed in Section 6) and associated dewatering requirements (as detailed in Section 7). The specific foundation option chosen for each turbine/mast/tower location will be determined based on detailed site investigation and revised modelling to ensure there will be no significant impact to soil, groundwater or surface water quality. Further detail on PASS risk and management is provided in Section 6 (Terrestrial Environmental Quality) and Section 7 (Inland Waters).

At the end of life of the wind farm, the Proponent will decommission and rehabilitate the Development Envelope to a state agreed upon with the landowners, in accordance with the Decommissioning Plan (Appendix C) and in any event to a state suitable for the prevailing agricultural land use. This may include regrading, topsoil replacement and revegetation. The Proponent will ensure engagement with landowners is ongoing throughout the planning, decommissioning and rehabilitation process to understand preferences for removal or retention of Proposal infrastructure (such as fencing, storage facilities and roads).

Based on the above it is expected that the Proposal will have limited negative impacts to agricultural development within the region and may provide a benefit in terms of financial sustainability for farming operations.

10.6.3.3. Infrastructure, Services and Roads

Electromagnetic Interference

Results of the preliminary EMI assessment indicate that without mitigation there is potential for the Proposal to result in minor EMI impacts (DNV 2025a).

Based on the indicative layout three turbines are within the diffraction exclusion zones of the point-to-point links operated by Telstra. If required, turbine locations will be adjusted and/or communication infrastructure will be relocated, reconstructed or modified to ensure no impacts associated with EMI to these links.

The Proposal may also interfere with point-to-area style services such as mobile phone signals, radio broadcasting, and terrestrial television broadcasting, particularly in areas with existing poor or marginal signal coverage. Mobile phone signal coverage by Telstra, Optus and Vodafone/TPG are generally available throughout most of the Development Envelope, and therefore these providers are unlikely to experience interference from EMI. Dwellings within approximately 5-10 km of the Proposal are within interference zones calculated for the Augusta and Bunbury television broadcast transmitters. Dwellings that are currently receiving weak signals from these transmitters may experience additional interference with their services. If interference to any of these point-to-area style services is experienced, a range of management options are available, including:

- Mobile phones- Increase signal strength from affected tower or alternative towers, or the installation of an additional tower
- Radio Broadcasting - Installation of higher-quality antenna at affected dwelling and/or move antenna to a new location
- Television broadcasting - Re-alignment of antenna at affected dwelling to existing tower, re-direction of antenna to alternative tower, installation more directional or higher gain antenna, change location of antenna, installation of cable or satellite television or installation of relay transmitter.

One dwelling within 5 km of the Development Envelope may experience interference to geostationary satellites which transmit both international and national programs. For the same dwelling, interference is also possible to signals from the National Broadband Network (NBN) Sky Muster satellite. If these

services are being used and if interference to these are experienced, a range of management option could be implemented including redirecting satellite dish to alternative satellite, install larger or higher-quality satellite dish, or change location or height of the satellite dish. Potential EMI impacts on other services considered in the assessment, including trigonometrical stations, survey marks, and CB radio, are not expected, or are considered to be minor (DNV 2025a).

The Proponent will continue to engage with providers (including Telstra and Western Power) and other relevant stakeholders to develop suitable mitigation measures, if required, to ensure minimal disruption to electromagnetic signals.

On this basis, the Proposal is not expected to result in significant impact to communications infrastructure as a result of EMI.

10.6.3.4. Traffic

The Proposal will result in an increase to existing traffic volumes within and around the Development Envelope during the 18-24 month construction phase. Once operational, traffic associated with the Proposal will be limited to occasional maintenance vehicles which may occur a few times a year and is not expected to significantly impact the local community (Shawmac 2024). As such, this assessment focuses on the construction phase of the Proposal.

During construction, the peak hour traffic generation is expected to be an average of 28 and maximum of 53 vehicles per hour (Shawmac 2024). According to the TIA Guidelines, this is considered a low to moderate impact and can be accommodated within the existing road network capacity (WAPC 2016; Shawmac 2024). Notably peak periods of Proposal traffic are anticipated in the morning and late afternoon which is outside the existing peak traffic period along Brockman Highway around midday. The crash history for the roads surrounding the Development Envelope is low, indicating that there is no major safety issue with the road network (Shawmac 2024). Given the low to moderate increased traffic as a result of the Proposal and the limited time period that traffic will increase, the Proposal is not expected to result in a significant increase in the risk of vehicle collisions.

The impacts of traffic on local industries and communities will be minimised during construction through the implementation of a Traffic Management Plan. The Proponent will ensure that any traffic disruptions such as road closures and detours are communicated to the local community with sufficient forewarning. It is expected that the increased traffic volumes during the construction phase of the Proposal can be managed to ensure that there are no significant impacts to the community or other industries utilising the transport route.

10.6.3.5. Bushfire

The potential for the Proposal to result in increased risk of fire and impacts to fire-fighting airplane access is a community concern (Place.ID 2025). The Development Envelope is designated as a bushfire prone area (DFES 2024), with the continuous native vegetation in the surrounding forests presenting the highest bushfire risk in the local area (Linfire 2025b). During consultation, members of the community and local fire brigade raised concerns regarding fire plane access to the Development Envelope and water storage on site.

Fire hazards associated with wind farms can include electrical hazards (power surges, hot surfaces, lightning strike), chemical hazards (leakage of oils and other flammables), increased fire spread due to air flow or falling debris (including turbine blades), obstruction of aerial firefighting access and landscape hazards (ignition within the wind farm facility or external ignition of infrastructure from radiant heat or embers) (Linfire 2025b). However, as noted by the Australasian Fire and Emergency Services Authorities

Council, the likelihood of turbine fires is considered to be low given appropriate protection measures are applied (Linfire 2025b).

The risk of fire associated with the Proposal will be managed through the implementation of a BMP (Linfire 2025a) and BRMP (Linfire 2025b). Vegetation will be maintained around all infrastructure to reduce bushfire risk, including the implementation of non-vegetated and asset protection zones around the base of each wind turbine. All wind turbines will be fitted with an automatic fire detection and alarm system, as well as an automatic fire suppression system. In the event of a turbine fire, the affected turbine will automatically shut down. Turbines will also have the capability to be remotely shut down and de-energised in the event of bushfire. The fire detection and alarm system will include notification to relevant personnel, such as wind farm staff, DFES, the local fire brigade and/or neighbouring landowners. In accordance with the BMP (Linfire 2025a), the Proposal will be:

- Equipped with a mobile fire trailer (or similar approved device) which the Proponent must ensure is maintained and ready for use, by emergency services, at all times during bushfire season, including ensuring a full water tank and pump fuel tank
- Provide water for managing fire by emergency services, currently proposed to be stored in three clearly signposted 45 kL firewater tanks across the site.

The Proponent will ensure that access to the Development Envelope and water tanks is available to emergency services at any time. Wind turbines can also be paused remotely in the unlikely event of a fire, to enable aerial firefighters to access the area, should the pilot deem it safe to do so.

In addition to this, wind farms can reduce the bushfire risk through:

- Improved private access roads, allowing better access for emergency services in case of fire and providing additional firebreaks
- Having full time operational staff on site, meaning more eyes and ears on the ground to spot bush fires early
- Attracting lightning strikes during thunderstorms (rather than hitting the ground and vegetation), with strikes safely managed by their built-in protection systems (AFESCA 2018)
- Installing remote monitoring systems to notify personnel if a fire is detected
- Providing dedicated water tanks at the wind farm which can be used in the event of a fire.

10.6.4. Reduced Amenity

10.6.4.1. Light

The installation of aviation hazard lighting on wind turbines has the potential to result in visual impacts at nighttime. The Proponent understands that the dark sky is a valued attribute of the rural landscape. While current aviation assessment has not identified a requirement for turbine lighting. Aviation lighting will only be installed if required by the approving authorities, the Proponent will work with aviation and emergency services to assess alternative lighting solutions that enhance aviation safety without impacting the surrounding environment. In this instance, mitigation measures will be implemented to reduce the impacts of aviation hazard lighting as much as possible, including:

- Installation of aviation lighting on the minimum number of turbines required for safety purposes.
- Use of the lowest candela intensity permitted for safety purposes
- Construction of wind turbines from non-reflective material.

There are no existing flight paths over the Development Envelope. As such, turbine lighting would only be triggered in emergency situations and for a short duration.

Some lighting may be required during construction of the Proposal. Nighttime construction activities will be avoided where possible, and lighting will be limited to that required for safety purposes. The minimum intensity and number of lights will be used.

Lighting will also be required on supporting infrastructure including substations and facility buildings during operations. Due to the low height of this infrastructure, it is not expected to result in significant impacts to the visual amenity of the landscape.

Based on the above lighting from the Proposal is not expected to result in a significant impact to sensitive receptors or the character of the landscape.

10.6.4.2. Noise

Noise levels have been estimated at all identified noise sensitive receptors relevant to the Proposal (GHD 2025a). These estimates have been based on all WTGs operating at the same time and at various wind speeds.

The noise impact assessment considered the predicted noise levels of the Proposal's WTGs against the WA Noise Regulations and background noise monitoring against the SA Guidelines (Section 10.3.8). The predicted noise levels during WTG operation are below both sets of assessment criteria for all noise sensitive receptors. The predicted noise levels from WTGs are presented in Table 10-13 and noise contours are shown on Figure 10-6 .

The results of the noise impact assessment found that received noise levels at noise sensitive receptors from the substation is expected to be more than 20 dB lower than noise from the WTGs (GHD 2025a). As such, the substation is not expected to result in noticeable noise levels at the noise sensitive receptors.

An Operational Noise Management Plan will be developed and implemented. This will include the requirement for noise monitoring to be undertaken to ensure that levels are not greater than those predicted. If exceedances are recorded, contingency measures will be implemented. On this basis, the Proposal is not expected to result in significant impacts to local noise receptors.

Table 10-13: Predicted Nosie Levels (dB(A)) of the Proposal Assessed Against WA Noise Regulations and SA Guidelines (SA EPA 2021)

Noise Sensitive Receptor	Predicted Noise Level (dB(A)) at Each Wind Speed																								Compliance	
	4 m/s			5 m/s			6 m/s			7 m/s			8 m/s			9 m/s			10 m/s			11 m/s				
	L_{Aeq} 10 min	WA Criteria	SA Criteria	L_{Aeq} 10 min	WA Criteria	SA Criteria	L_{Aeq} 10 min	WA Criteria	SA Criteria	L_{Aeq} 10 min	WA Criteria	SA Criteria	L_{Aeq} 10 min	WA Criteria	SA Criteria	L_{Aeq} 10 min	WA Criteria	SA Criteria	L_{Aeq} 10 min	WA Criteria	SA Criteria	L_{Aeq} 10 min	WA Criteria	SA Criteria	WA Criteria	SA Criteria
R01	16	35	35	18	35	36	21	35	38	24	35	39	26	35	40	27	35	40	28	35	39	28	35	41	Yes	Yes
R02	16	35	35	18	35	36	21	35	38	24	35	39	26	35	40	28	35	40	28	35	39	28	35	41	Yes	Yes
R03	15	35	35	17	35	36	20	35	38	23	35	39	25	35	40	27	35	40	27	35	39	27	35	41	Yes	Yes
R04	14	35	35	16	35	36	19	35	38	22	35	39	24	35	40	26	35	40	26	35	39	26	35	41	Yes	Yes
R05	15	35	35	17	35	36	20	35	38	23	35	39	25	35	40	27	35	40	27	35	39	27	35	41	Yes	Yes
R06	16	35	35	19	35	36	22	35	38	25	35	39	26	35	40	28	35	40	28	35	39	28	35	41	Yes	Yes
R07	19	35	35	21	35	36	25	35	38	28	35	39	30	35	40	31	35	40	32	35	39	32	35	41	Yes	Yes
R08	15	35	35	17	35	36	21	35	38	24	35	39	25	35	40	27	35	40	27	35	39	27	35	41	Yes	Yes
R09	17	35	35	19	35	36	22	35	38	25	35	39	27	35	40	28	35	40	29	35	39	29	35	41	Yes	Yes
R10	15	35	35	17	35	36	21	35	38	23	35	39	25	35	40	27	35	40	27	35	39	27	35	41	Yes	Yes
R13	16	35	35	19	35	35	22	35	36	25	35	36	27	35	37	29	35	37	29	35	37	29	35	38	Yes	Yes
R14	16	35	35	19	35	35	22	35	35	25	35	35	27	35	35	28	35	35	29	35	35	29	35	36	Yes	Yes
R15	16	35	35	18	35	35	21	35	35	24	35	35	26	35	35	28	35	35	28	35	35	28	35	36	Yes	Yes
R16	16	35	35	19	35	35	22	35	35	25	35	35	26	35	35	28	35	35	28	35	35	28	35	36	Yes	Yes
R17 (involved)	21	40	45	24	40	45	27	40	45	30	40	45	32	40	45	34	40	45	34	40	45	34	40	45	Yes	Yes
R18 (involved)	22	40	45	24	40	45	27	40	45	30	40	45	32	40	45	34	40	45	34	40	45	34	40	45	Yes	Yes
R19	18	35	35	21	35	35	24	35	35	27	35	35	29	35	35	30	35	35	31	35	35	30	35	36	Yes	Yes
R20	20	35	35	23	35	35	26	35	36	29	35	36	31	35	37	33	35	37	33	35	37	33	35	39	Yes	Yes
R21	21	35	35	23	35	35	27	35	36	30	35	36	31	35	37	33	35	37	33	35	37	33	35	39	Yes	Yes
R22	21	35	35	23	35	35	27	35	36	30	35	36	31	35	37	33	35	37	33	35	37	33	35	39	Yes	Yes
R23	21	35	35	23	35	35	27	35	36	29	35	36	31	35	37	33	35	37	33	35	37	33	35	39	Yes	Yes
R24	19	35	35	22	35	35	25	35	36	28	35	36	30	35	37	31	35	37	32	35	37	32	35	39	Yes	Yes
R28	18	35	35	20	35	36	23	35	37	26	35	37	28	35	37	29	35	37	30	35	37	30	35	38	Yes	Yes
R29	17	35	35	19	35	36	22	35	37	25	35	37	27	35	37	28	35	37	29	35	37	29	35	38	Yes	Yes
R30	11	35	35	13	35	36	16	35	37	19	35	37	21	35	37	22	35	37	23	35	37	23	35	38	Yes	Yes
R31	9	35	35	12	35	36	14	35	37	17	35	37	19	35	37	20	35	37	21	35	37	21	35	38	Yes	Yes
R32	22	35	35	25	35	35	28	35	36	31	35	36	33	35	37	34	35	37	35	35	37	35	35	39	Yes	Yes
R33	21	35	35	23	35	35	26	35	36	29	35	36	31	35	37	33	35	37	33	35	37	33	35	39	Yes	Yes
R34	17	35	35	19	35	36	22	35	38	25	35	39	27	35	40	29	35	40	29	35	39	29	35	41	Yes	Yes

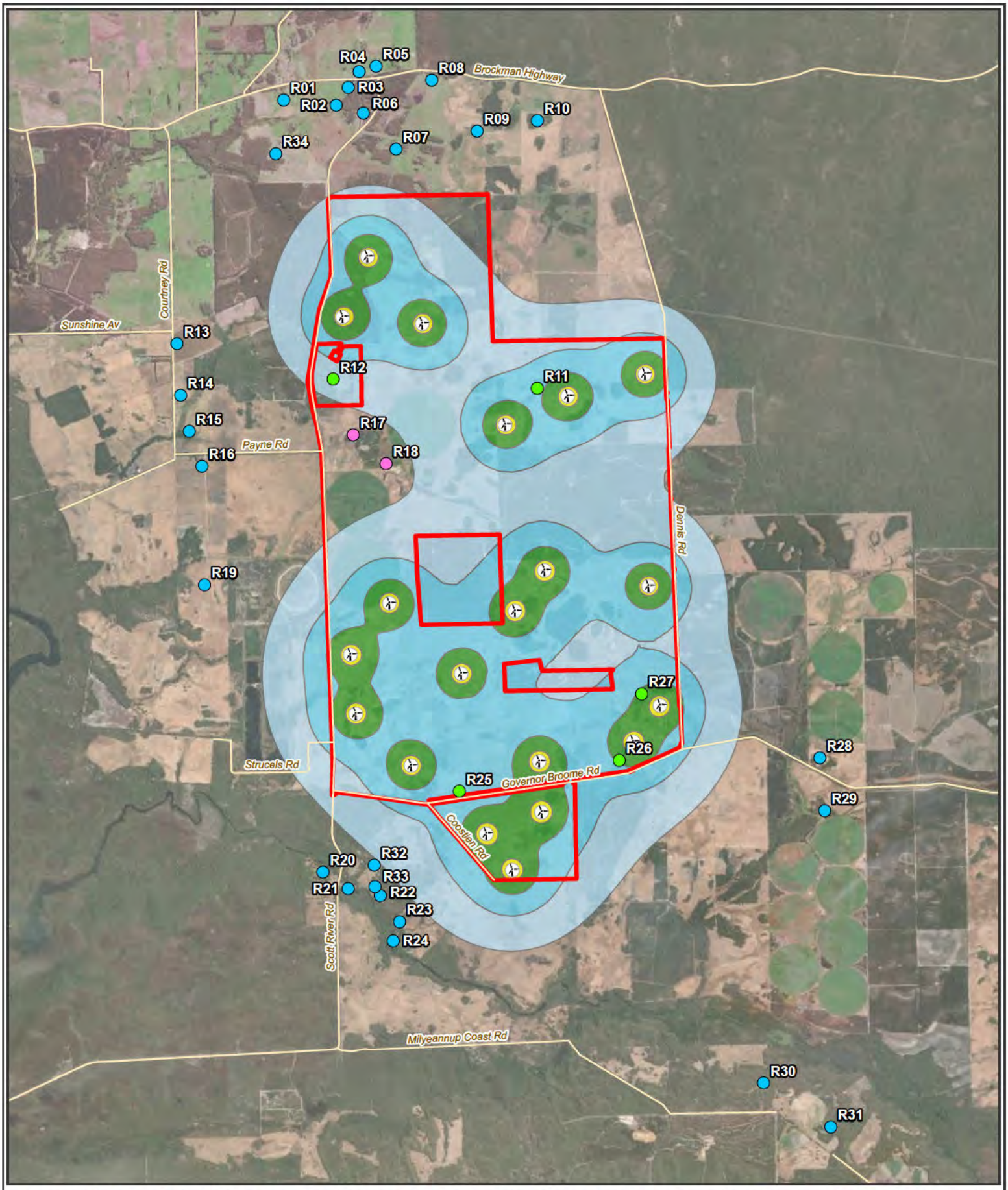


Figure 10-6: Predicted Noise Levels (dB(A)) of the Proposal at Noise Sensitive Receptors During 10 m/s Wind Speeds

10.6.4.3. Shadow Flicker

Two of the 21 dwellings assessed were predicted to experience shadow flicker of a moderate level of intensity or above based on their distance from the wind turbines being less than 1,720 m (10 times the rotor diameter) (Table 10-14, DNV 2025b). One of the two dwellings (R12) was estimated to experience a moderate or above shadow flicker intensity for a duration above the recommended theoretical limit of 30 hours per year (Table 10-14). This theoretical assessment represents a 'worst-case scenario', assuming clear skies and blades orientated towards the receptor. For the remaining dwellings:

- Twelve were considered to experience a low level of intensity of shadow flicker based on their distance from the wind turbines being more than 1,720 m (10 times the rotor diameter) and less than 2,580 m (15 times the rotor diameter). The duration of moderate or above shadow flicker expected at these receptors is therefore expected to be zero.
- Seven were considered to have no shadow flicker based on their relation to the turbines and orientation of the sun.

In accordance with the Draft National Wind Farm Guidelines (EPHC 2010) revised modelling was undertaken to account for real-world conditions such as cloud cover and turbine operation and confirm actual shadow flicker duration is less than the recommenced predicted limit of 10 hours per year for R12 and R32 (Table 10-14). Modelling of actual shadow flicker has confirmed compliance with Draft National Wind Farm Guidelines (EPHC 2010), on this basis the Proposal is not expected to result in significant shadow flicker impact on any dwelling.

Table 10-14: Predicted Theoretical and Actual Moderate or Above Shadow Flicker Intensity Duration

Sensitive Shadow Receptor (Dwelling) ID	Receptor Type	Theoretical Annual Shadow Flicker Duration				Predicted Actual Annual Shadow Flicker Duration**			
		At Dwelling (hr/yr)		Max within 50 m (hr/yr)		At Dwelling (hr/yr)		Max within 50 m (hr/yr)	
		2 m*	6 m*	2 m*	6 m*	2 m*	6 m*	2 m*	6 m*
Recommended duration limits (hr/yr)		30	30	30	30	10	10	10	10
R12~	Non-involved	33.0	32.6	35.1	34.4	5.9	5.8	6.1	6.0
R32	Non-involved	12.1	12.0	12.8	12.8	2.5	2.4	2.6	2.6

Note: All other dwellings are predicted to experience zero moderate or above shadow flicker. Bold text represents exceedance of the recommended duration limits.

~ Note that although R12 was considered a "dwelling" in DNV 2025b, R12 operates as a commercial premise and so is not a sensitive receptor.

*In the absence of detailed dwelling information, shadow flicker has been calculated as heights of 2 m, to represent ground floor windows, and 6 m, to represent second floor windows.

**Considers likely reductions in shadow flicker duration due to cloud cover and turbine orientation in accordance with the Draft National Wind Farm Guidelines (EPHC 2010).

10.6.4.4. Dust

Localised, short-term increases in dust emissions are expected to occur during construction of the Proposal associated with land clearing and vehicle and machinery movements. Minimal dust is considered to occur during operation of the Proposal. Impacts of dust deposition will be managed through the implementation of standard dust management measures including dust suppression (such as water carts) and implementation of speed limits on unsealed roads/tracks. Progressive clearing, as well as the progressive rehabilitation of temporarily cleared areas will also assist in minimising the potential for dust emissions during construction. The Proponent considers that any impacts from dust will be localised to within and immediately surrounding the Development Envelope and will be short term during construction of the Proposal. No significant impacts to the amenity of the landscape are expected.

10.7. Environmental Outcomes

No significant impacts to social surroundings values are expected as a result of the Proposal. In consideration of the proposed avoidance and mitigation measures, the environmental outcomes of the Proposal for the Social Surroundings environmental factor are:

- No direct impacts to the Blackwood River / Goorbilyup Buerle and no direct impact to the Scott River without the relevant consultation with KKAC and any necessary authorisations under the AH Act
- Indirect Impacts to small tributaries of Blackwood River / Goorbilyup Buerle and Scott River because of altered surface hydrological regimes or water quality will be minor, temporary and localised
- Moderate to high impact to LCU and the visual amenity at 11 of the 12 sensitive receptors as a result of visible wind turbines
- Creation of a tourism asset and opportunity for active community participation in the Proposal and the creation of local employment opportunities
- No significant impact to productivity of agricultural land as a result of the Proposal
- No significant impact from EMI
- Minor and temporary impact of increased traffic to the local community and industries during construction
- Minor increase in risk of accidental bushfires, however minor decrease in risk of lightening caused bushfire
- Minor increase in light emissions
- Noise emissions will be compliant with the WA Noise Regulations at all non-involved noise sensitive receptors
- Low impact of shadow flicker, compliant with Draft National Wind Farm Guidelines (EPHC 2010)
- Minor, short term increase in dust emissions during construction.

Impacts will be managed through the implementation of management plans throughout construction and operation, including a CEMP, ASSDMP, Traffic Management Plan, Operational Noise Management Plan, BMP and BRMP. The Proponent considers that the Proposal can be implemented to meet the EPA's objective for the Social Surroundings environmental factor "*to protect social surroundings from significant harm*".

11. Holistic Impact Assessment

In addition to the consideration of impacts associated with the Proposal and the application of the mitigation hierarchy to individual environmental factors, the EPA also requires Proponents to consider the impact of their proposal on the environment as a whole (EPA 2024). The environment is a complex system of connections and interactions, and while an effect on a particular factor(s) may be minor when considered in isolation, its impact across these interconnections may result in a significant impact which requires assessment.

The EPA defines the holistic impacts as the "Connections and interactions between impacts, and the overall impact of the proposal on the environment as a whole" (EPA 2024). The Proponent has sought to understand the environment as a whole, using information derived from technical surveys and investigations on the environment (Sections 6 to 10), and the views and concerns raised through consultation with relevant stakeholders (Section 4).

11.1. Connections and Interactions between Environmental Factors

The environmental surveys and studies undertaken for the Proposal have considered and assessed potential local and regional impacts. The results of these surveys have informed the Proposal impact assessment and mitigation measures. While the Proposal's predicted outcomes have been considered independently in relation to the environmental principles and the EPA's environmental objectives for each preliminary environmental factor, the Proponent recognises the complex linkages between all factors including Social Surroundings, Inland Waters, Flora and Vegetation, Terrestrial Fauna and Terrestrial Environmental Quality as illustrated in Figure 11-1.

In the South West, as in other regions, important cultural and heritage values often coincide with elements of the environment that support high visual and social amenity, botanical diversity and fauna habitat values. Therefore, additional combined environmental effects may become significant and require additional mitigation.

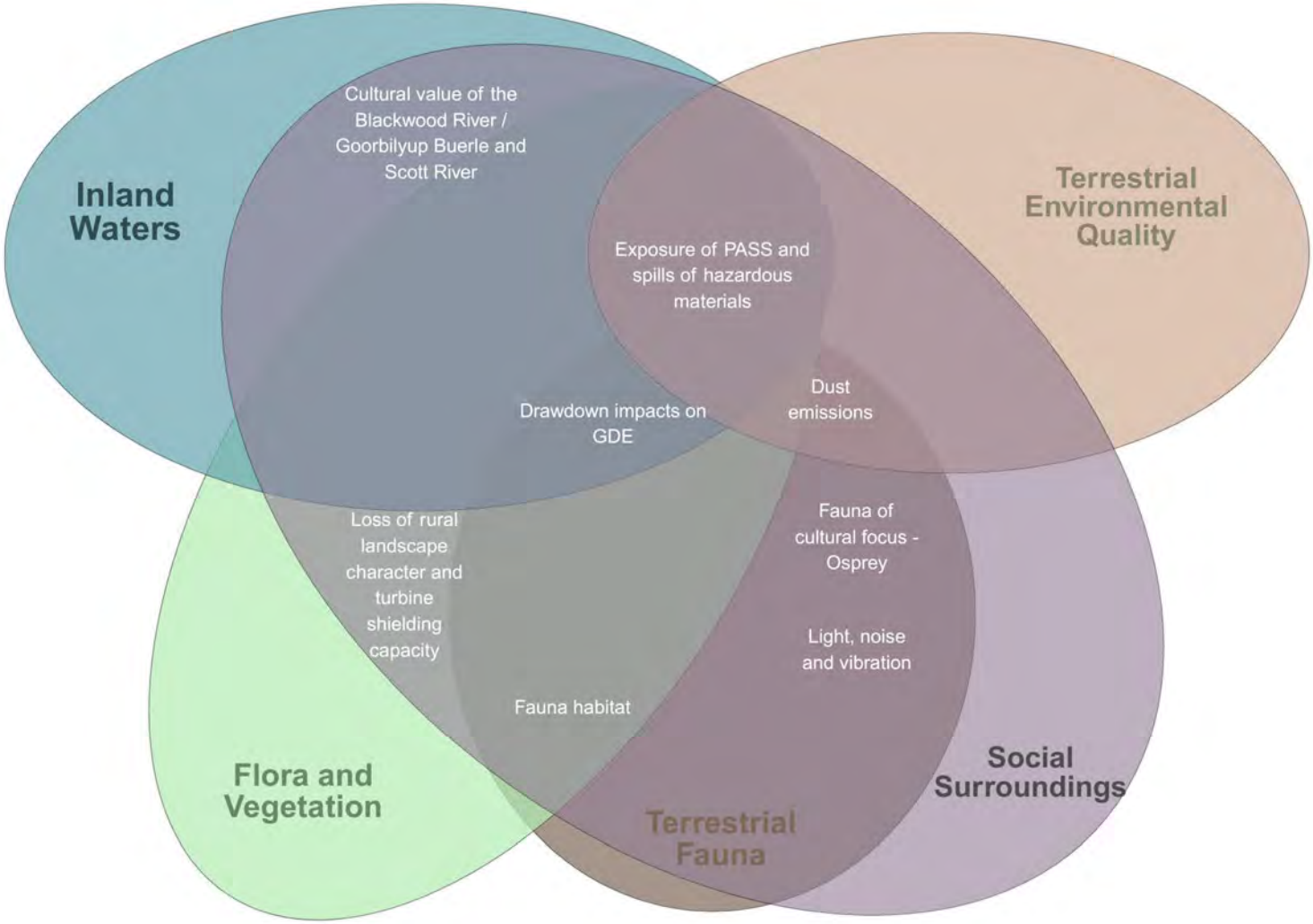


Figure 11-1: Holistic View of Links between Environmental Factors and Values

11.2. Consideration of Holistic Effects

This section provides information on the Proposal's effects on the environment as a whole to determine whether any additional considerations for assessment arise. For this holistic assessment, the following considerations have been applied:

1. Where an impact(s) has been completely avoided, it will not contribute to holistic environmental effects and does not require consideration
2. Where there are multiple overlapping minor impacts, or a minor impact affects multiple values and has been assessed as insignificant in the context of an individual factor, these may require further holistic consideration, and
3. The environmental principles of intergenerational equity, and conservation of biological diversity and ecological integrity are considered the most relevant and have been a foundation when considering potential significance of the holistic effect of the Proposal.

Where holistic effects on the environment have been identified, their potential impacts to the environment as a whole have been considered in accordance with Section 4.1 of the *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual* (EPA 2024).

Table 11-1 presents the likely pathways for these holistic effects as it relates to the implementation of the Proposal and sets out the mitigation measures and outcomes across the interconnected factors. Where the Proponent considers there is potential for a combined impact, these pathways have been given further holistic consideration.

Table 11-1: Consideration of Holistic Impacts Across Interconnecting Key Environmental Factors

Land			Water	People	Mitigation	Environmental Outcomes	Holistic Consideration
Flora & Vegetation	Terrestrial Fauna	TEQ	Inland Waters	Social Surroundings			
Land disturbance as a result of clearing and bulk earthworks							
• Soil acidification and/or toxicity due to disturbance of PASS. • Soil erosion due to ground disturbing activities impacting soil, flora and fauna • Introduction and or spread of weeds and/or dieback. • Loss of conservation significant flora and fauna during clearing. • Loss and fragmentation of native vegetation and fauna habitat. • Degradation of vegetation and habitat (particularly GDEs), associated with changes in hydrological regime and reduced soil, surface and ground water quality.			• Disturbance of PASS resulting in acidification and/or toxicity of surface water and groundwater • Reduced quality of surface water and/or groundwater due to erosion or sedimentation or mobilisation of nutrients from ground disturbing activities. • Temporary groundwater drawdown due to penetration of an aquitard causing excessive leakage from the Superficial Aquifer.	• Loss or impact to Aboriginal heritage site or lodged place (Blackwood River / Goorbilyup Buerle or Scott River). • Altered socio-economic outcomes for the local community as a result of impacts to agricultural land use.	• The Indicative Disturbance Footprint has been developed to first avoid then minimise the clearing of native vegetation and disturbance of PASS as far as practicable, including, avoiding clearing of all Threatened and Priority flora individuals, potential nesting trees for black cockatoos, Scott River Ironstone TEC and wetland habitats (including contiguous native vegetation within 50 m) and minimising impacts from soil erosion and sedimentation. • During clearing of the 0.03 ha of Moderate quality Western Ringtail Possum habitat, a fauna spotter will be available on-site to spot and respond to any Western Ringtail Possum individuals encountered within the clearing area. • Clearing will occur in a slow, progressive manner, towards native vegetation to allow fauna to move into adjacent habitat. • The Proposal has been designed to avoid direct impacts to Blackwood River / Goorbilyup Buerle and Scott River. Any impacts to tributaries of Scott River within the Development Envelope would require consultation with KKAC and relevant authorisation under the AH Act. • Should potential artefacts or remains be uncovered during excavation, all works will cease immediately and a 'no work zone' will be established around the sites until it is assessed by appropriate specialists. • The wind farm layout has been designed to avoid the placement of wind turbines in proximity (minimum of 100 m from the centre point of the turbine) to native vegetation. Therefore, the majority of land disturbance and earthworks will be located a substantial distance from native vegetation and high value fauna habitat. • Ground disturbance adjacent to waterbodies, including wetlands and waterways, will be delayed as long as possible to minimise potential for sedimentation. • Use of alternative turbine foundations (Section 2.2.1.1) to minimise the requirement to excavate beyond the ferricrete or clay layers of the aquitard. • A CEMP (Appendix H) will be implemented during construction of the Proposal. This will include management measures to minimise impacts from clearing, prevent fauna entrapment, erosion management measures, weed control measures, feral fauna management, vehicle restrictions and the degradation of vegetation and habitat • A detailed ASSDMP will be prepared and implemented following completion of detailed site investigations and revised modelling, to be informed by the Preliminary ASSDMP (Appendix B) and will include measures to manage the disturbance of PASS.	• Clearing of a maximum of 1.00 ha of remnant native vegetation/fauna habitat represented by native vegetation • Potential introduction and/or spread of weeds and/or dieback. • Potential for minor and localised impacts to soil and water quality as a result of erosion, sedimentation or mobilisation of nutrients during construction. • Minor increase in fragmentation of native vegetation and fauna habitat • Potential loss of conservation significant fauna. • Potential for minor, temporary and localised impacts to soil and water quality as a result of PASS disturbance during construction. • Penetration of an aquitard that would lead to excessive leakage for the Superficial Aquifer is unlikely.	The likely environmental outcomes as a result of land disturbance from clearing, or bulk earthworks are relatively minor when considered in isolation. The Proponent considers that given the implementation of multifaceted mitigation measures and management plans there is also minimal potential that land disturbance results in a significant combined impact when considered holistically across interconnected factors. On this basis, holistic impacts due to land disturbance are not considered further.
Dust emissions during construction and operation							
• Degradation of native vegetation and fauna habitat from dust	N/A		• Impacts to landscape and visual amenity as result of dust emissions.		• Dust management measures will be implemented in accordance with the CEMP. Measures will include: - Dust suppression techniques during construction, such as water carts - Speed limits on unsealed roads/tracks - Progressive clearing, and rehabilitation of temporary disturbance areas. • Land temporarily disturbed during construction (e.g. for laydown areas and concrete batching plant) will be rehabilitated to the original land use or to a post closure land use agreed with the landowners to minimise dust emissions.	• Localised short-term increase in fugitive dust emissions during construction.	The likely environmental outcomes as a result of the generation of dust during construction and operation of the Proposal are relatively minor when considered in isolation. The Proponent considers that given the implementation of multifaceted mitigation measures and management plans there is also minimal potential that dust emissions generated by the Proposal will result in a significant combined impact when considered

Land			Water	People	Mitigation	Environmental Outcomes	Holistic Consideration
Flora & Vegetation	Terrestrial Fauna	TEQ	Inland Waters	Social Surroundings			
							holistically across interconnected factors. On this basis, holistic impacts due to dust emissions are not considered further.
Groundwater drawdown associated with construction dewatering							
• Degradation of GDE (GDV and wetlands) as a result of groundwater drawdown. • Degradation of GDE, associated with acidification and/or toxicity of surface and ground water.			• Temporary groundwater drawdown due to dewatering for construction • Degradation of groundwater quality as a result of groundwater drawdown, including draw in of the adjacent Beenup Mine acid mine plume.	• Impacts to Aboriginal heritage site/lodged heritage place (Blackwood River / Goorbilyup Buerle or Scott River). • Reduced water security for surrounding bore users.	• The Proposal has been designed to avoid direct impacts to Blackwood River / Goorbilyup Buerle and Scott River. Any impacts to tributaries of Scott River the Development Envelope would require consultation with KKAC and relevant authorisation under the AH Act. • Transmission poles and towers will utilise concrete caisson (bored concrete) foundations, so dewatering is not required • Civil construction, specifically activities that require excavation, will be scheduled to occur during the dry season, where practicable • Dewatering will be minimised, managed and monitored in accordance with a detailed ASSDMP to be informed by the Preliminary ASSDMP (Appendix B), to ensure that drawdown does not present an unacceptable impact on the environment. This will be achieved through: - Application of the following drawdown limits: - Maximum drawdown of 2.0 mbgl at the perimeter of each foundation - Drawdown will not exceed 0.1 m beyond 100 m from any dewatering location - Drawdown will not exceed natural seasonal variation (i.e. will remain above natural seasonal low in watertable) at GDE. • Use of alternative turbine foundations (Section 2.2.1.1). • No dewatering effluent will be disposed of, directly or indirectly, to wetlands or rivers. • Strategic disposal of dewater to, and location of, infiltration basins / trenches around the point of extraction to minimise the cone of depression. • Dewatering will be temporary, with the primary foundation (partially above ground) requiring dewatering for approximately 33 days. • No dewatering will occur for the construction of borrow pits. Borrow pits will be constructed above the water table. • Application of other management strategies as required (e.g. sheet piling).	• No impacts to the health of GDE (wetlands/GDV) as a result of dewatering during construction. • No direct or indirect impacts to the Blackwood River / Goorbilyup Buerle or Scott River. Potential for minor temporary and localised drawdown during construction • No interaction with the Beenup Mineral Sands acid mine plume is expected. • No significant effect on bore productivity is expected.	The likely environmental outcomes as a result of dewatering are relatively minor when considered in isolation. The Proponent considers that given the implementation of multifaceted mitigation measures and management plans there is also minimal potential that groundwater drawdown and dewatering results in a significant combined impact when considered holistically across interconnected factors. On this basis, holistic impacts due to groundwater drawdown and dewatering are not considered further.
Construction and operation of infrastructure							
• Loss or injury to fauna from collision with vehicles, machinery, turbines and transmission infrastructure. • Changes to fauna behaviour from wind turbine movements, noise, vibration and light • Increased competition or predation by feral fauna • Degradation of vegetation and habitat associated with changes in hydrological regime • Degradation of soil, vegetation and habitat due to the accidental loss or spills of hydrocarbons and other hazardous materials • Degradation of vegetation and fauna habitat from increased risk of bushfires			• Accidental loss or spills of hydrocarbons and other hazardous materials resulting in surface and groundwater contamination. • Changes to surface hydrological regimes due to Proposal infrastructure. • Changes to groundwater flow due to Proposal infrastructure.	• Reduction of landscape and visual amenity from noise and light emissions and shadow flicker. • Altered socio-economic outcomes for the local community as a result of impacts to recreation and tourism. • Altered socio-economic outcomes for the local community as a result of impacts on infrastructure, services and roads as a result of EMI, increased traffic or increased risk of accidental bushfires. • Altered socio-economic outcomes for the local community as a result of impacts to agricultural land use.	• Construction activities will be temporary and short term (approximately 18-24 months). • All temporary construction infrastructure (e.g., laydown areas and concrete batching plant) will be located within areas of existing disturbance, reducing clearing. • The Proposal has been designed to avoid direct impacts to Blackwood River / Goorbilyup Buerle and Scott River. Any impacts to tributaries of Scott River the Development Envelope would require consultation with KKAC and relevant authorisation under the AH Act. • Use of alternative turbine foundations (Section 2.2.1.1) to minimise changes to groundwater flow • The following design considerations will avoid and minimise impacts to visual amenity: - Wind turbine blades will be coated in a non-reflective paint to avoid blade glint.	• No direct impacts to the Blackwood River / Goorbilyup Buerle and no direct impact to the Scott River without the relevant consultation with KKAC and any necessary authorisations under the AH Act. • Indirect Impacts to small tributaries of Blackwood River / Goorbilyup Buerle and Scott River because of altered surface hydrological regimes or water quality will be minor, temporary and localised. • Potential loss or injury to fauna from collision with vehicles, machinery, turbines and transmission infrastructure. • Minor alterations to birds and bats movement patterns and behaviour from	The likely environmental outcomes as a result of construction and operation of infrastructure are relatively minor when considered in isolation. The Proponent considers that given the implementation of multifaceted mitigation measures and management plans there is also minimal potential that the construction and operation of Proposal infrastructure results in a significant combined impact when considered holistically across interconnected factors. On this basis, holistic impacts due to the construction and operation

Land			Water	People	Mitigation	Environmental Outcomes	Holistic Consideration
Flora & Vegetation	Terrestrial Fauna	TEQ	Inland Waters	Social Surroundings			
					- The Proposal has been designed to avoid impacts to native vegetation as much as possible, with impacts limited to the clearing of 1 ha of native remnant vegetation. - Wind turbines will be uniform in colour, design and size. - Non-reflective materials and muted colours will be used to reduce visibility at distance. - Existing farm tracks will be utilised as much as practicable, and all access roads will be maintained in an unsealed condition to blend with surrounding rural setting. - Landowners and adjacent neighbours will be engaged to discuss screening and landscaping to mitigate any visual impacts. • A Bushfire Management Plan (BMP; Linfire 2025a) and Bushfire Risk Management Plan (BRMP; Linfire 2025b) will be implemented during construction and operation of the Proposal. • A CEMP (Appendix H) will be implemented during construction of the Proposal. This will include key management measures for restricting vehicle movement, feral fauna attraction, accidental spills of hazardous materials and lighting minimisation measures. • A BBAMP (Appendix N) will be implemented during commissioning and operation of the Proposal. This will include adaptive management measures and monitoring requirements to minimise the loss or injury to birds and bats and light minimisation measures to avoid the attraction of birds and bats to turbines. • A Traffic Management Plan will be implemented during construction of the Proposal to minimise traffic safety impacts and disruptions to local road users. • An operational noise management plan will be developed and implemented for the wind farm • The Indicative Disturbance Footprint has been designed to ensure compliance with noise regulations at all existing dwellings. • Nighttime construction activities will be avoided where practicable. • Turbines will be regularly maintained to ensure noise emissions are not adversely impacted by turbine wear. • The Proponent will implement measures to minimise changes to surface hydrological regimes including: - Civil infrastructure will be located and designed to ensure specific risk-based flood vulnerability requirements have been addressed and will be located outside of the 1% AEP flood extent, where practicable. - Modification of existing drainage infrastructure will be avoided, where possible, unless the proposed modification will improve drainage and not lead to any detrimental impacts to downstream receptors. - Drainage controls (e.g. drains and culverts) will be appropriately located, designed, constructed and maintained to maintain surface water flow regimes and minimise erosion. - Flow velocities will be maintained below 2 m/s upstream and downstream of disturbance areas, including at culvert inlet and outlets. - Design and construction works will ensure that local grading and excavation areas do not create areas of pooled water. - Exposed soils will be vegetated or covered (e.g. with rock or synthetic liners) in disturbed areas where surface water flow velocities exceed 1 m/s and remain below 2 m/s.	wind turbine movement, light, noise and/or vibration. • Potential for an increased abundance of feral fauna • Noise emissions will be compliant with the WA Noise Regulations at all non-involved noise sensitive receptors • Minor increase in light emissions. • Low impact of shadow flicker. • Impacts to vegetation, fauna habitat and soil and water quality as a result of the accidental loss or spill of hazardous materials will be minor. • Impacts to soil quality as a result of the disturbance of PASS will be minor and limited to the Development Envelope. • Minor increase in risk of accidental bushfires • Minor and localised impact to surface and groundwater flows as a result of Proposal infrastructure. • Moderate to high impact to LCU and the visual amenity at 11 of the 12 sensitive receptors as a result of visible wind turbines	of infrastructure are not considered further.

11.3. Conclusion

The Proposal's environmental impacts extend beyond individual factors and therefore the Proponent has undertaken a holistic evaluation to consider the combined and interconnecting effects across land, water, and people.

As per Table 11-1, all potential combined impacts were assessed as having a relatively minor impact, with the exception of impacts to visual amenity. However, as discussed in Section 10.6.2, this impact will vary greatly depending on the individual viewer and the Proponent will continue to investigate opportunities to minimise the visual impact of the Proposal.

Based on the above, the Proponent considers that the proposed mitigation measures will be effective in limiting both isolated and combined environmental impacts to minimal levels, mitigating the need for additional holistic mitigation.

12. Cumulative Impact Assessment

The purpose of this chapter is to evaluate the potential cumulative impacts that may result from implementing the Proposal.

Cumulative impacts are defined as the successive, incremental and interactive impacts on the environment of a proposal with one or more, past, present and reasonably foreseeable future activities (EPA 2024).

Specifically, this chapter will:

- Identify the environmental factors that need to be considered in the cumulative impact assessment
- Explain the methodology and screening process used to assess potential cumulative impacts
- Determine whether the Proposal could contribute to a significant cumulative effect on any environmental factor.

12.1. Local Impact Area

The environmental factors considered in this cumulative impact assessment are Flora and Vegetation, Terrestrial Fauna, Terrestrial Environmental Quality, Inland Waters and Social Surroundings.

The Proposal is located in the South West of Western Australia, within the Shire of Augusta-Margaret River. The surrounding landscape has been historically extensively cleared and is now primarily utilised for agricultural activities. The impact of this historical clearing and present agricultural activities is assumed to have been captured in the description of the receiving environment for the relevant EPA factors and forms the basis for this impact assessment. No substantial future agricultural development is expected within the region and therefore the cumulative impact associated with this historical and present agricultural clearing is not considered in this cumulative impact assessment.

A Local Impact Area (LIA) has been determined to assess the cumulative impact of the Proposal and other existing and reasonably foreseeable projects. The LIA encompasses the regional extents of environmental values at a broader resolution than that of each individual project. As such the LIA incorporates the following environmental values, that occur within 50 km of the Proposal:

- Pre-European Vegetation Associations
- Land Systems
- Beenup and Scott sub catchments, and Lower Blackwood Estuarine Reach
- The Superficial and Leederville aquifers.

A visual representation of the LIA is provided in Figure 12-1.

12.2. Existing and Reasonably Foreseeable Projects in the Local Impact Area

The EPA (2024a) defines reasonably foreseeable future activities as "third party (or Proponent) activities that are already approved, are in a government approvals process or are otherwise reasonably likely to proceed:

- For proposals assessed at the level of environmental review – at the time an Environmental Review Document for a proposal is accepted
- For proposals assessed at the level of assessment on referral information - at the time the final referral or required additional information is accepted
- Existing activities that are reasonably expected to be ongoing."

Although the Local Impact Area has experienced considerable historical agricultural clearing, due to data availability constraints, projects considered in the LIA are limited to those with EP Act and EPBC Act approvals, including:

- Projects assessed under Part IV of the EP Act
- Clearing Permits issued under Part V of the EP Act, with revoked, surrendered and withdrawn Clearing Permits excluded
- Projects assessed under Part 9 of the EPBC Act.

A desktop review identified eight existing or reasonably foreseeable projects within 50 km of the Proposal that have identified significant impacts to Environmental Factors associated with this Proposal. The relevant projects and their potential cumulative impacts to each key environmental factor are outlined below in Table 12-1 and shown within the LIA in Figure 12-1. Each projects entire development envelope was utilised to calculate cumulative impacts in accordance with the precautionary principle. Although visual impacts are key concern for the Proposal, none of the projects identified were assessed for visual impacts, hence these impacts are not discussed on a cumulative scale. In addition, given the absence of additional wind farms within the LIA, cumulative impacts to birds and bats as a result of turbine strike or barotrauma have not been assessed cumulatively.

The Milyeannup Wind Farm was also identified as a project within the LIA that was assessed under Part 9 of the EPBC Act. As discussed in Section 2.4.2, this project will not go ahead and the current Proposal provides an alternative renewable energy development option, with significantly less environmental impacts. As such, the Milyeannup Wind Farm has not been considered in cumulative impact calculations.

Table 12-1: Cumulative Impacts of Existing or Reasonably Foreseeable Projects in Proximity to the Proposal

Project	Approximate Distance (km) and direction from Proposal	Year of Approval	Relevant Key Environmental Factors	Development Envelope extent (ha)
EPA Significant Proposal				
Riverslea Subdivision*	29.1 km north-west	2007	Inland Waters	58.2
Yoongarillup Mineral Sands Project	46.7 km north	2016	Terrestrial Fauna	139.1
Margaret River Water Supply Upgrade*	26.2 north-west	1991	Terrestrial Fauna, Inland Waters, Social Surroundings	26.7
Heavy Mineral Sands Mine Beenup, Shire of	Directly adjacent to Proposal	1991	Terrestrial Fauna, and Inland Waters	336.2

Project	Approximate Distance (km) and direction from Proposal	Year of Approval	Relevant Key Environmental Factors	Development Envelope extent (ha)
Augusta-Margaret River*				
EPBC Act Referrals				
Lot 32 Tom Cullity Drive, Wilyabrup	31.5 km north-west	2022	Flora and Vegetation, Listed threatened species and communities; Terrestrial Fauna	40.1
Vlam Road Gravel Pit, Vlam Road, Karridale, WA	16.0 km north-west	2014	Listed threatened species and communities; Terrestrial Fauna	13.5
Flat Rock Boating Facility	14.5 km south-west	2011	Listed threatened species and communities; Flora and Vegetation	5.9
Clearing Permits				
Clearing Permits within 50 km of the Proposal (288 clearing permits)	Not applicable	-	Flora and Vegetation	1,777.0

*These significant proposals were assessed prior to current environmental factors, up to date factors have been identified from approvals documentation.

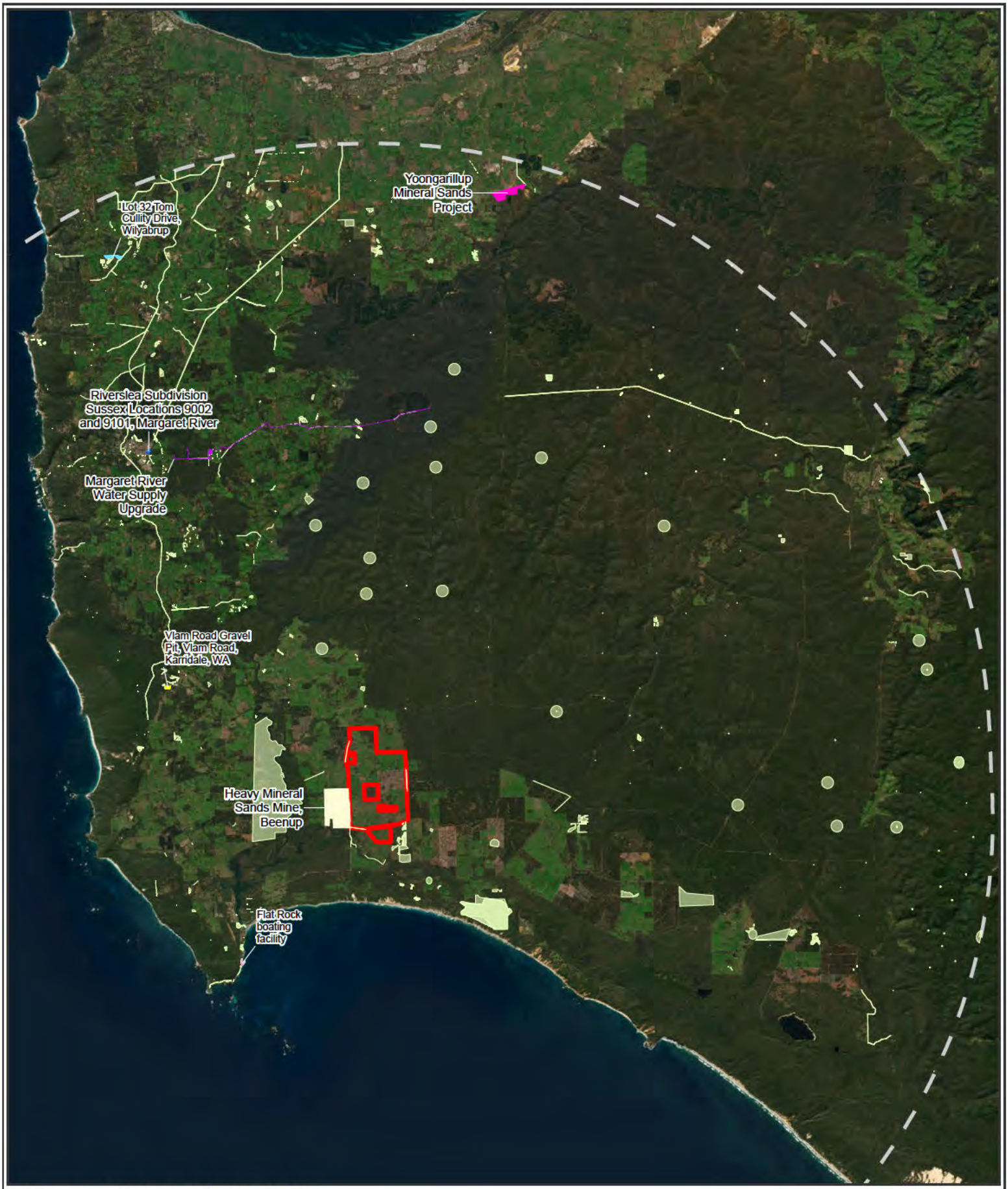


Figure 12-1: Local Impact Area

- Development Envelope
- 50 km buffer
- Clearing Permits within 50 km of the Proposal

EPA Significant Proposal

- Heavy Mineral Sands Mine, Beenup
- Margaret River Water Supply Upgrade
- Riverslea Subdivision Sussex Locations 9002 and 9101, Margaret River
- Yoongarillup Mineral Sands Project

EPBC Act Referrals

- Flat Rock boating facility
- Lot 32 Tom Cullity Drive, Wilyabrup
- Vlam Road Gravel Pit, Vlam Road, Karridale, WA

0 4 8 16
Kilometers

Datum/Projection:
GDA2020 MGA Zone 50

Project: 24PER7886-DH Date: 8/20/2025

N

eco logical AUSTRALIA
A TETRA TECH COMPANY

12.3. Cumulative Impacts

The Proposal has potential to contribute to the following cumulative impacts:

- Cumulative loss of regionally significant vegetation (Flora and Vegetation)
- Cumulative loss of locally and regionally significant terrestrial fauna habitat (Terrestrial Fauna)
- Cumulative degradation of soil landscape systems (Terrestrial Environmental Quality)
- Cumulative loss or degradation of hydrological catchments (Inland Waters)
- Cumulative reduction and acidification of groundwater in regional aquifers (Inland Waters)
- Cumulative impacts on the socio-economic outcomes for the local community and amenity (Social Surroundings).

12.3.1. Cumulative Loss of Regionally Significant Vegetation

Pre-European Beard (2013) VAs have been utilised as a proxy to calculate the cumulative impacts of native vegetation clearing within the LIA. As the extent of disturbance associated with these VAs was not always publicly available for each project, spatial estimates of vegetation occurrence occurring within each project development envelope was calculated, with assumed clearance of the entire development envelope to be conservative.

It is assumed that vegetation clearing undertaken prior to 2018 has been captured in the native vegetation statistics published in 2018 (GoWA 2019). Therefore, projects assessed under Part IV of the EP Act and Part 9 of the EPBC Act implemented prior to 2018 are assumed to be reflected in the receiving environment and have not been included in the cumulative assessment.

The National Objectives and Targets for Biodiversity Conservation (Commonwealth of Australia 2001) includes a target to avoid the clearance of existing vegetation with a pre-European extent of below 30%. This target is reiterated by the EPA (2008). All VAs that occur within the Development Envelope are above this 30% threshold (Section 8.3.2.3).

The Proposal will result in minimal clearing within the current mapped extent of VAs within the LIA, with a maximum proposed clearing limit of 1.00 ha of native vegetation. Given the linear configuration of the Indicative Disturbance Footprint this clearing is likely to occur within multiple VAs within the Development Envelope.

The approximate loss of mapped pre-European VAs within the LIA based on the cumulative disturbance, as well as the maximum proposed clearing of each VA is presented in Table 12-2. The estimated cumulative impact on VAs within the LIA is anticipated to total 4,361.97 ha, with the majority of clearing within VA 3 (3,622.63 ha, approximately 75% of its pre-European extent remaining within the LIA). Following implementation of the Proposal, only 23.86% of the pre-European extent of VA 973 will remain within the LIA. However, this is not expected to represent a significant cumulative impact given the abundance of VA 973 within the Warren and Jarrah bioregions will remain at 59.87% of its pre-European extent, if the entire maximum proposed clearing (1.00 ha) occurred within this VA (see Section 8.3.2.3). Based on the maximum proposed clearing, at a regional scale, the Proposal will contribute to minimal clearing within the current mapped extent (DPIRD 2019) of each VA.

Clearing will also be minimised as much as possible within VA 1137 given it has been reduced by approximately 67.82% from its original extent in the LIA. In the unlikely event all potential native vegetation clearing (1.00 ha) disturbed only VA 1137, 32.08% would remain intact within the LIA (i.e. an increase in loss of 0.10%, resulting in 68.92% of its original extent being lost). In addition, the extent

within the Warren and Jarrah bioregions will remain at 32.00% of its pre-European extent if the entire maximum proposed clearing (1.00 ha) occurred within this VA (see Section 8.6.1). Given there are no projects within the LIA that intersect VA 1137, cumulative impacts to this VA are expected to be negligible.

On the basis of the above, any potential cumulative impact to native vegetation is not anticipated to be significant.

Table 12-2: Proposed Cumulative Clearing of Pre-European Vegetation Associations (ha)

Cumulative Clearing	VA 973	VA 975	VA 27	VA 51	VA 3	VA 14	VA 949	VA 1134	VA 1137
Pre-European extent within LIA	25.06	3,911.26	22,293.32	19,852.07	334,429.29	924.60	1,865.82	8,649.84	1,079.65
Current extent within LIA	6.98	3,314.13	8,125.40	11,121.09	254,684.73	836.88	621.40	7,134.20	347.40
Maximum clearing under this Proposal*	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Clearing under past, present and reasonably foreseeable future activities									
Lot 32 Tom Cullity Drive, Wilyabrup	0.00	0.00	0.00	0.00	40.06	0.00	0.00	0.00	0.00
Clearing Permits within 50 km of the Proposal	0.00	121.16	0.00	547.03	3581.57	0.00	3.47	59.68	0.00
Maximum Total Cumulative Clearing within LIA (ha)	1.00	122.16	1.00	548.03	3,622.63	1.00	4.47	60.68	1.00
Extent Remaining within LIA (ha) (% of Pre-European extent)	5.98 (23.86)	3,191.97 (81.61)	8,124.4 (36.44)	10,573.06 (53.26)	251,062.1 (75.07)	835.88 (90.40)	616.93 (33.06)	7,073.52 (81.78)	346.40 (32.08)

*This is considered to be a worst-case scenario, as given the linear configuration of the Indicative Disturbance Footprint the maximum of 1 ha of clearing is likely to occur within multiple VAs within the Development Envelope

12.3.2. Cumulative Loss of Locally and Regionally Significant Terrestrial Fauna Habitat and the Cumulative Degradation of Soil Landscape Systems

Broad scale fauna habitat mapping has been completed within the Development Envelope but is unavailable for existing or reasonably foreseeable projects within the LIA. Regional scale land system mapping by DPIRD (2022) allows for assessment of cumulative impacts on broad landscape units as a surrogate for more detailed fauna habitat mapping. In addition, cumulative impacts on Terrestrial Environmental Quality can also be considered in this manner, in relation to the degradation of soil landscape systems, from pathways including the exposure of PASS and contamination. Where possible, the assessment has considered impacts based on the clearing footprints of each project. Where footprints were not publicly available, the entire development envelope has been assumed to be cleared to be conservative. The impacts associated with the Proposal have been determined based on the Indicative Disturbance Footprint. The cumulative loss of land systems is presented in Table 12-3.

All conservation significant fauna species that occur or are likely to occur within the Development Envelope may also be affected by existing or reasonably foreseeable projects. Retaining habitat where possible will minimise the impact on conservation significant fauna within the area.

The estimated cumulative impact on land systems impacted by the Proposal is anticipated to total approximately 1,395.92 ha. Based on the Indicative Disturbance Footprint, the Proposal's contribution is approximately 106.61 ha (8.46% of total impacts).

The cumulative impacts on land systems are minor, with the highest loss being approximately 679.18 ha from the Scott River Plain System (Table 12-3). Although the entire extent of the Indicative Disturbance Footprint occurs within the Scott River Plain System (Table 12-3), the Proposal includes flexibility to refine the Indicative Disturbance Footprint within the Development Envelope during detailed design. Therefore, the Scott River Plain System may not be impacted by the Proposal to this entire extent and impacts to the Nillup Plain System may occur. A substantial proportion (697.05 ha, 55.30%) of impacts to land systems are associated with the historic Beenup Mineral Sands Mine, now closed and rehabilitated to establish wetlands and native vegetation. As such, the fauna habitat and soil values are expected to have been largely reestablished at this project. Therefore, on a cumulative scale, the actual impacts to land systems are likely to be significantly less than the perceived impact outlined in Table 12-3.

Approximately 3,490.24 ha of fauna habitat will be retained within the Development Envelope comprising native and highly modified habitats. The Proposal will result in minimal clearing of habitats represented by native vegetation, with a maximum proposed clearing limit of 1.00 ha of native vegetation. Furthermore, the land systems used as a proxy for fauna habitat extend throughout the Warren and Southern Jarrah Forest bioregions and the species associated with the Proposal are known to occur throughout the region. For example, nearby there is higher quality and extensive habitat for black cockatoos and Western Ringtail Possums within conservation areas such as national parks in proximity to the Proposal. On this basis, the cumulative impacts to terrestrial fauna habitat and soil landscape systems from the Proposal are not expected to be significant at a local or regional scale.

Table 12-3: Proposed Cumulative Clearing of Land Systems Based on the Indicative Disturbance Footprint

Cumulative Clearing	Nillup Plain System	Scott River Plain System
Extent within LIA (ha)	53,427.23	63,345.66
Disturbance proposed under this Proposal (ha)	0.00	106.61
Clearing under past, present and reasonably foreseeable future activities		
Riverslea Subdivision	0.00	0.00
Yoongarllup Mineral Sands Project	0.00	0.00
Margaret River Water Supply Upgrade	0.00	0.00
Heavy Mineral Sands Mine Beenup, Shire of Augusta-Margaret River	124.48	572.57
Lot 32 Tom Cullity Drive, Wilyabrup	0.00	0.00
Vlam Road Gravel Pit, Vlam Road, Karridale, WA	0.00	0.00
Flat Rock Boating Facility	0.00	0.00
Clearing Permits within 50 km of the Proposal	456.87	0.00
Total Cumulative Disturbance (ha)	581.35	679.18
Extent Remaining (ha) (%)	52,845.88 (98.91)	62,666.48 (98.93)

12.3.3. Cumulative Loss or Degradation of Hydrological Catchments

Mapping of sub catchment boundaries across WA has been published by DWER (DWER 2018a). This dataset allows for the quantification of cumulative impacts of projects on hydrological sub catchments that intersect the Proposal. Where possible, the assessment has considered impacts based on the clearing footprints of each project. Where footprints were not publicly available, the entire development envelope has been assumed to be cleared to be conservative. The impacts associated with the Proposal have been determined based on the Indicative Disturbance Footprint. The cumulative loss of hydrological catchments is presented in Table 12-4.

The total estimated cumulative reduction of the Beenup sub catchment from the Proposal and existing projects within the LIA is 1,021.20 ha, with 40.69% remaining. Although this impact appears significant, a substantial amount (1007.88 ha, 98.70% of impacts) is associated with the historic Beenup Mineral Sands Mine. Given hydrological values are likely to have been reestablished across most of this rehabilitated site, the actual impacts to hydrological catchments are likely to be significantly less than the perceived impact outlined in Table 12-4.

The total estimated cumulative reduction of the Scott sub catchment from the Proposal and existing projects that occur within the LIA is 3,250.02 ha, with 95.37% remaining. The total estimated cumulative reduction of the Lower Blackwood Estuarine Reach sub catchment from the Proposal and existing projects that occur within the LIA is 1,817.15, with 89.98% remaining. The cumulative impacts to these sub catchments are considered minor as they are extensive throughout the LIA.

On the basis of the above, the cumulative impacts to hydrological catchments within the Development Envelope are not expected to be significant.

Table 12-4: Proposed Cumulative Loss or Degradation of Hydrological Catchments

Cumulative Clearing	Beenup Sub catchment	Scott Sub catchment	Lower Blackwood Estuarine Reach
Extent within LIA (ha)	1,721.69	70,243.87	18,353.48
Extent potentially impacted under this Proposal (ha)	12.83	72.22	21.56
Clearing under past, present and reasonably foreseeable future activities			
Riverslea Subdivision	0.00	0.00	0.00
Yoongarllup Mineral Sands Project	0.00	0.00	0.00
Margaret River Water Supply Upgrade	0.00	0.00	0.00
Heavy Mineral Sands Mine Beenup, Shire of Augusta-Margaret River	1007.88	164.78	0.00
Lot 32 Tom Cullity Drive, Wilyabrup	0.00	0.00	0.00
Vlam Road Gravel Pit, Vlam Road, Karridale, WA		0.00	0.00
Flat Rock Boating Facility	0.00	0.00	0.00
Clearing Permits within 50 km of the Proposal	0.49	3,013.02	1,817.15
Total Cumulative Impact (ha)	**1,021.20**	**3,250.02**	**1,838.71**
Extent Remaining (ha) (%)	**700.49 (40.69)**	**66,993.85 (95.37)**	**16,514.77 (89.98)**

12.3.4. Cumulative Reduction and Acidification of Groundwater in Regional Aquifers

The Proposal is not expected to result in any significant cumulative effects to the Superficial or Leederville aquifer and associated values (e.g. GDEs and aquatic fauna), given groundwater drawdown associated with the construction of turbine/mast/tower foundations is expected to be temporary, shallow and localised in nature.

A total of 24 registered groundwater bores occur within 500 m of the Development Envelope (Stantec 2025b. A large proportion of the Development Envelope and surrounding areas also intersect Groundwater Management Zone 7, which has restricted water use from the Superficial and Leederville aquifers with no new water allocation, bores or excavations permitted to be constructed within the management zone boundary other than exempt uses, monitoring, replacement of existing bores or remediation (Stantec 2025b).

Given the restricted use of groundwater associated with a large extent of the local area and that impacts associated with groundwater drawdown from the Proposal are expected to be minor and temporary and will be managed in accordance with a detailed ASSDMP which will be informed by a Preliminary ASSDMP (PTG 2025; Appendix B), the Proposal is not expected to significantly contribute to existing groundwater drawdown related effects on the Superficial and Leederville aquifers and their values.

On the basis of the above, the cumulative impacts to regional aquifers are not expected to be significant.

12.3.5. Cumulative Impacts on the Socio-economic Outcomes for the Local Community and Amenity

The Proposal is expected to result in a minor and temporary impact of increased traffic to the local community and industries particularly during construction, as well as a minor increase in light, dust and noise emissions.

Impacts to social surroundings including the generation of noise and dust emissions, pressure on local accommodation and traffic safety impacts were raised during the assessment of the Margaret River Water Supply Upgrade. Like the Proposal, these impacts were considered minor and temporary, with most impacts limited to the construction phase of the project, assumed to have been completed decades ago as the Margaret River Water Supply Upgrade was approved in 1991. The remaining projects identified within the LIA were not assessed for impacts to the local community or amenity.

On the basis of the above, the Proposal is not expected to significantly contribute to impacts on the socio-economic outcomes for the local community and amenity.

13. References

Australasian Fire and Emergency Service Authorities Council (AFESCA) 2018. *Wind Farms and Bushfire Operations* (AFAC Publication No. 2053), AFAC, Melbourne, Australia.

Australian Bureau of Statistics (ABS) 2021a. *Augusta: 2021 Census All Persons QuickStats*. Available from: https://abs.gov.au/census/find-census-data/quickstats/2021/501011001

Australian Bureau of Statistics (ABS) 2021b. *East Augusta: 2021 Census All Persons QuickStats*. Available from: https://www.abs.gov.au/census/find-census-data/quickstats/2021/SAL50448

Australian Bureau of Statistics (ABS) 2021c. *Margaret River: 2021 Census All Persons QuickStats*. Available from: https://www.abs.gov.au/census/find-census-data/quickstats/2021/501011004

Australian Bureau of Statistics (ABS) 2021d. *Molloy Island: 2021 Census All Persons QuickStats*. Available from: https://abs.gov.au/census/find-census-data/quickstats/2021/SAL50978

AHA Logic 2024. *Proposed Wind Farm: Archaeological and Ethnographic Heritage Survey*. Report prepared for Karri Karrak Aboriginal Corporation and SynergyRED.

Atlas of Living Australia (ALA) No Date. *Geotria australis: Gray, 1851*. Available from: https://bie.ala.org.au/species/https://biodiversity.org.au/afd/taxa/5093c51f-d856-459c-ac0b-bd72f39eeaca

Australian and New Zealand Environment and Conservation Council & Agriculture and Resource Management Council of Australia and New Zealand (ANZECC & ARMCANZ) 2000. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Commonwealth of Australia.

ARES Project Services Pty Ltd (ARES) 2024. *Beenup Wind Farm: OSOM Route Study*. Report prepared for SynergyRED.

Australian Museum 2019. *Salamanderfish, Lepidogalaxias salamandroides Mees, 1961*. Available from: https://australian.museum/learn/animals/fishes/salamanderfish-lepidogalaxias-salamandroides-mees-1961

Aviation Projects Pty Ltd (Aviation Projects) 2025. *Aviation Impact Assessment: Beenup Wind Farm*. Report prepared for SynergyRED.

Baerwald, E.F., D'Amours, G.H, Klug, B.J., Barclay, R.M.R. 2008. 'Barotrauma is a significant cause of bat fatalities at wind turbines'. *Current Biology*. 18(16), 695-696. Available at: https://www.sciencedirect.com/science/article/pii/S0960982208007513

Bamford Consulting Ecologists (Bamford) 2021. *Scoring System for the Assessment of Foraging Value of Vegetation for Black-Cockatoos*. Revised 4th April 2021.

Beard, J. S., Beeston, G., Harvey, J., Hopkins, A. & Shepherd, D. 2013. *The vegetation of Western Australia at the 1:3,000,000 scale*. Explanatory memoir. Second edition. Department of Agriculture and Food Western Australia.

Bennett, E., Florent, S.N, Venosta, M., & Gibson M. 2022. 'Curtailment as a successful method for reducing bat mortality at a southern Australian wind farm'. *Austral Ecology*. 47 (6). Available at: https://www.researchgate.net/publication/361906419_Curtailment_as_a_successful_method_for_reducing_bat_mortality_at_a_southern_Australian_wind_farm

Biota Environmental Sciences (Biota) 2009a. *A Flora and Vegetation Survey of the Proposed Milyeannup Wind Farm*. Biota Environmental Sciences, Leederville, WA. Report Prepared for Verve Energy.

Biota Environmental Sciences (Biota) 2009b. *Milyeannup Wind Farm Environmental Impact Assessment*. Biota Environmental Sciences, Leederville, WA. Report Prepared for Verve Energy.

Biota Environmental Sciences (Biota) 2009c. *Milyeannup Wind Farm Terrestrial Fauna Survey*. Biota Environmental Sciences, Leederville, WA. Report Prepared for Verve Energy.

Birdlife Australia 2013. *Australasian Bittern: the big brown boomer of Western Australia*. Birdlife Australia.

Birdlife Australia 2025a. *Blue-billed Duck*. Available from: https://datazone.birdlife.org/species/factsheet/blue-billed-duck-oxyura-australis

Birdlife Australia 2025b. *Peregrine Falcon*. Available from: https://birdlife.org.au/bird-profiles/peregrine-falcon/.

Bureau of Meteorology (BoM) 2025a. *Climate Data Online*. Available: http://www.bom.gov.au/climate/data/.

Bureau of Meteorology (BoM). 2025b. *Groundwater Dependent Ecosystems Atlas*. Available from https://www.bom.gov.au/water/groundwater/gde/

Brett Lane and Associates 2005. *Wind Farms and Birds: Interim Standards for Risk Assessment*. Australian Wind Energy Association Report. Available from: https://tethys.pnnl.gov/sites/default/files/publications/BrettLane-2005.pdf.

Bureau of Meteorology (BoM). 2025c. *Australian Groundwater Explorer.* Available at: Australian Groundwater Explorer: Water Information: Bureau of Meteorology

Churchill, S. 2008. *Australian bats*. 2nd edition. Allen & Unwin - Jacana Books, Sydney, NSW.

Cogger, H. G. 2014. *Reptiles and Amphibians of Australia*. CSIRO Publishing, Collingwood, Victoria.

Commonwealth of Australia 2001. *National Objectives and Targets for Biodiversity Conservation*. Available at: https://library.dbca.wa.gov.au/static/FullTextFiles/020395.pdf.

Department of Agriculture, Water and the Environment (DAWE) 2021a. *Species Profile and Threats Database. Calidris tenuirostris — Great Knot*. Department of Agriculture, Water and Environment. Available at: http://www.environment.gov.au/cgibin/sprat/public/publicspecies.pl?taxon_id=862

Department of Agriculture, Water and the Environment (DAWE) 2021b. *Species Profile and Threats Database. Pluvialis fulva — Pacific Golden Plover*. Department of Agriculture, Water and Environment. Available at: http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=25545

Department of Agriculture, Water and the Environment (DAWE) 2022. *Referral Guideline for 3 WA threatened black cockatoo species Carnaby's Cockatoo (Zanda latirostris), Baudin's Cockatoo (Zanda baudinii) and the Forest Red-tailed Black-cockatoo (Calyptorhynchus banksii naso).*

Department of Biodiversity, Conservation and Attractions (DBCA) 2018. *Australasian Bittern (Botaurus poiciloptilus) Western Australian Recovery Plan*. Wildlife Management Program No. 64. Department of Biodiversity, Conservation and Attractions, Perth, WA.

Department of Biodiversity, Conservation and Attractions (DBCA) 2023. *Threatened and Priority Fauna Database*. Department of Biodiversity, Conservation and Attractions, Kensington, WA.

Department of Biodiversity, Conservation and Attractions (DBCA) 2024. *Threatened and Priority Communities Database Search*. Perth, WA.

Department of Biodiversity, Conservation and Attractions (DBCA) 2025. *DBCA - Lands of Interest (DBCA-012).* Available at: https://catalogue.data.wa.gov.au/dataset/dbca-lands-of-interest

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2021. *Species Profile and Threats Database. Apus pacificus— Fork-tailed Swift*. Department of Agriculture, Water and Environment, Canberra, ACT. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=678

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2023a. *Approved Conservation Advice for the Empodisma peatlands of southwestern Australia*. Available from: https://www.environment.gov.au/biodiversity/threatened/communities/pubs/174-conservation-advice.pdf

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2023b. *Margaret River Burrowing Crayfish.* Available from: https://www.dcceew.gov.au/environment/biodiversity/threatened/action-plan/priority-invertebrates/margaret-river-burrowing-crayfish

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2023c. *Species Profile and Threats Database: Calidris melanotos — Pectoral Sandpiper*. Department of Climate Change, Energy, the Environment and Water, Canberra. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=858

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024a. *Australia's bioregions (IBRA).* Available from: https://www.dcceew.gov.au/environment/land/nrs/science/ibra

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024b. *Conservation Advice for Calidris acuminata (Sharp-tailed Sandpiper).* Department of Climate Change, Energy, the Environment and Water, ed. DCCEEW, Canberra, ACT.

Department of Climate Change, the Environment, Energy and Water (DCCEEW) 2024c. *Conservation Advice for Tringa nebularia (Common Greenshank).* Available at: https://environment.gov.au/biodiversity/threatened/species/pubs/832-conservation-advice-05012024.pdf

Department of Climate Change, the Environment, Energy and Water (DCCEEW) 2024d. *Onshore Wind Farm Guidance: Best practice approaches when seeking approval under Australia's National Environment Law (Draft).* May 2024.

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024e. *Protected Matters Search Tool*. Available at: https://pmst.environment.gov.au/#/map?lng=131.52832031250003&lat=-28.671310915880834&zoom=5&baseLayers=Imagery,ImageryLabels

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024f. *Species Profile and Threats Database: Actitis hypoleucos — Common Sandpiper*. Department of Climate Change, Energy, the Environment and Water, Canberra, Australia. Available at: https://www.environment.gov.au/cgibin/sprat/public/publicspecies.pl?taxon_id=59309

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024g. *Species Profile and Threats Database: Calidris ferruginea — Curlew Sandpiper*. Department of Climate Change, Energy, the Environment and Water, Canberra. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=856

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024h. *Species Profile and Threats Database: Calidris ruficollis — Red-necked Stint*. Department of Climate Change, Energy, the Environment and Water. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=860

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024i. *Species Profile and Threats Database: Charadrius bicinctus — Double-banded Plover*. Department of Climate Change, Energy, the Environment and Water. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=895

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024j. *Species Profile and Threats Database: Charadrius mongolus — Lesser Sand Plover, Mongolian Plover*. Department of Climate Change, Energy, the Environment and Water. Available at: https://www.environment.gov.au/cgibin/sprat/public/publicspecies.pl?taxon_id=879

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024k. *Species Profile and Threats Database: Hydroprogne caspia — Caspian Tern.* Department of Climate Change, Energy, the Environment and Water, Canberra. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=808

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024l. *Species Profile and Threats Database: Limicola falcinellus — Broad-billed Sandpiper*. Department of Climate Change, Energy, the Environment and Water. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=842

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024m. *Species Profile and Threats Database: Limosa lapponica — Bar-tailed Godwit*. Department of Climate Change, Energy, the Environment and Water. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=844

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024n. *Species Profile and Threats Database: Limosa limosa — Black-tailed Godwit.* Department of Climate Change, Energy, the Environment and Water, Canberra. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=845

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024o. *Species Profile and Threats Database: Pluvialis squatarola — Grey Plover*. Department of Climate Change, Energy, the Environment and Water, Canberra. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=865

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2024p. *Species Profile and Threats Database: Tringa brevipes — Grey-tailed Tattler*. Department of Climate Change, Energy, the Environment and Water. Available at: https://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=851

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2025a. *Conservation Advice for Galaxiella munda (Western Mud Minnow).* Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/79240-conservation-advice-05032025.pdf

Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2025b. *Species Profile and Threats Database*. Available at: https://environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=87737

Department of Conservation and Land Management (CALM) 1994. *The Visual Landscape Character Types of Western Australia*.

Department of Conservation and Land Management (CALM) 2008. *The Hydrogeology of the Southern and Scott River Ironstone Communities South West Western Australia*. May 2008.

Department of Environment and Conservation (DEC) 2009. *Cape Leeuwin Freshwater Snail Monitoring Report.* Available at: https://library.dbca.wa.gov.au/static/FullTextFiles/070420.pdf

Department of Environment and Conservation (DEC) 2012a. *Brush-tailed Phascogale Phascogale tapoatafa (Meyer, 1793).* Department of Environment and Conservation, Kensington, WA.

Department of Environment and Conservation (DEC) 2012b. *Chuditch (Dasyurus geoffroii) National Recovery Plan.* Government of Western Australia, Department of Environment and Conservation, Australian Government.

Department of Environment and Conservation (DEC) 2012c. *Western Brush Wallaby Macropus irma (Jourdan, 1837).* Department of Environment and Conservation, Kensington, WA.

Department of Environmental Regulation (DER) 2015a. *Identification and Investigation of Acid Sulfate Soils and Acidic Landscapes*. Available from: https://www.wa.gov.au/system/files/2023-04/Identification-and-investigation-of-acid-sulfate-soils-and-acidic-landscapes.pdf

Department of Environment Regulation (DER) 2015b. *Treatment and Management of Soil and Water in Acid Sulfate Soil Landscapes*. Available at: https://www.wa.gov.au/system/files/2023-04/Treatment-and-management-of-soil-and-water-in-acid-ss-landscapes.pdf

Department of Fire and Emergency Services (DFES) 2024. *Bush Fire Prone Areas 2024 (OBRM-021)*. Available from: https://catalogue.data.wa.gov.au/dataset/bush-fire-prone-areas-2024-obrm-021

Department of Health (DoH) 2014. *Contaminated Sites: Ground and Surface Water.* Chemical Screening Guidelines. Government of Western Australia, Perth, Western Australia.

Department of Infrastructure, Transport, Regional Development, Communications and Arts (DITRDCA) 2012. *National Airspace Safeguarding Framework Guideline D: Managing the Risk to Aviation Safety of Wind Turbine Installations (Wind Farms)/Wind Monitoring Towers*. Australian Government.

Department of Parks and Wildlife (DPaW) 2013. *Carnaby's Cockatoo (Calyptorhynchus latirostris) Recovery Plan.* Available at: https://www.dcceew.gov.au/environment/biodiversity/threatened/recovery-plans/calyptorhynchus-latirostris-recovery-plan

Department of Parks and Wildlife (DPAW) 2017. *Western Ringtail Possum (Pseudocheirus occidentalis) Recovery Plan. Wildlife Management Program No. 58*. Department of Parks and Wildlife, Perth, WA.

Department of Planning, Lands and Heritage (DPLH) 2013. *Aboriginal Heritage Due Diligence Guidelines*. Government of Western Australia.

Department of Planning, Lands and Heritage (DPLH) 2020. *Position Statement: Renewable Energy Facilities.* Government of Western Australia.

Department of Planning, Lands and Heritage (DPLH) 2022a. *Shire of Augusta-Margaret River: Local Planning Strategy*. Government of Western Australia.

Department of Planning, Lands and Heritage (DPLH) 2022b. *Shire of Nannup: Local Planning Scheme No. 4*. Government of Western Australia.

Department of Planning, Lands and Heritage (DPLH) 2024. *Shire of Augusta-Margaret River Local Planning Scheme No.1*. May 2024.

Department of Planning, Lands and Heritage (DPLH) 2025. *Heritage Council WA - State Register (DPLH-006).* Available from: https://catalogue.data.wa.gov.au/dataset/heritage-council-wa-state-register

Department of Primary Industries and Regional Development (DPIRD). 2001. *Scott Coastal Plain: A Strategy for a Sustainable Future*. Government of Western Australia.

Department of Primary Industries and Regional Development (DPIRD). 2019. *Pre-European Vegetation (DPIRD-006).* Available from: https://catalogue.data.wa.gov.au/dataset/pre-european-dpird-006.

Department of Primary Industries and Regional Development (DPIRD) 2020. *Soil Landscape Mapping - Zones (DPIRD-017).* Available from: https://catalogue.data.wa.gov.au/dataset/soil-landscape-land-quality-zones

Department of Primary Industries and Regional Development (DPIRD). 2022. *Soil Landscape Mapping – Systems (DPIRD-064).* Available from: https://catalogue.data.wa.gov.au/dataset/soil-landscape-mapping-systems

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2011. 'Survey Guidelines for Australia's Threatened Mammals'. *Guidelines for detecting mammals listed as Threatened under the Environment Protection and Biodiversity Conservation Act 1999*. EPBC Act Policy Statement.

Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) 2013. *Approved Conservation Advice for Scott River Ironstone Association*. Canberra: Department of Sustainability, Environment, Water, Population and Communities. Available from: http://www.environment.gov.au/biodiversity/threatened/communities/pubs/123-conservation-advice.pdf. In effect under the EPBC Act from 23-May-2013

Department of the Environment (DoE) 2013. *EPBC Act Policy 1.1 - MNES Significant Impact Guidelines*. Available at: https://www.dcceew.gov.au/environment/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance

Department of the Environment (DoE) 2014. 'Survey Guidelines for Australia's Threatened Orchids'. *Guidelines for detecting orchids listed as "Threatened" under the Environment Protection and Biodiversity Conservation Act 1999*.

Department of the Environment and Energy (DoEE) 2017. *EPBC Act Policy Statement 3.21 Industry Guidelines for Avoiding, Assessing and Mitigating Impacts on EPBC Act Listed Migratory Shorebird Species*.

Department of the Environment, Water, Heritage and the Arts (DEWHA) 2008. *Approved Conservation Advice for Verticordia plumosa var. vassensis (Vasse Featherflower*). Canberra. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/55804-conservation-advice.pdf.

Department of the Environment, Water, Heritage and the Arts (DEWHA) 2009a. *Approved Conservation Advice for Engaewa reducta (Dunsborough Burrowing Crayfish).* Available from: https://www.environment.gov.au/biodiversity/threatened/species/pubs/82675-conservation-advice.pdf

Department of the Environment, Water, Heritage and the Arts (DEWHA) 2009b. *EPBC Act Policy Statement 3.10 Significant Impact Guidelines for the Vulnerable Western Ringtail Possum (Pseudocheirus occidentalis) in the Southern Swan Coastal Plain, Western Australia*. Available at: https://www.dcceew.gov.au/sites/default/files/documents/western-ringtail-possum.pdf

Department of the Environment, Water, Heritage and the Arts (DEWHA) 2010a. *Survey Guidelines for Australia's Threatened Bats. Guidelines for Detecting Bats listed as Threatened under the Environmental Protection and Biodiversity Conservation Act 1999*. Commonwealth of Australia.

Department of the Environment, Water, Heritage and the Arts (DEWHA) 2010b. *Survey guidelines for Australia's Threatened Birds. Guidelines for Detecting Birds Listed as Threatened under the Environment Protection and Biodiversity Conservation Act 1999.*

Department of Water (DoW) 2009a. *Blackwood Groundwater Area Subarea Reference Sheets: Plan companion for the South West Groundwater Areas Allocation Plan*. Government of Western Australia, Perth, WA.

Department of Water (DoW) 2009b. *SouthWest Groundwater Areas Allocation Plan*. Government of Western Australia, Perth, WA.

Department of Water and Environmental Regulation (DWER) 2015. I*dentification and Investigation of Acid Sulfate Soils and Acidic Landscapes*. Department of Environment Regulation, Perth

Department of Water and Environmental Regulation (DWER) 2017. *Acid Sulfate Soil Risk Map, Lower South West (DWER-052).* Available at: https://catalogue.data.wa.gov.au/dataset/acid-sulfate-soil-risk-map-lower-south-west-dwer-052.

Department of Water and Environmental Regulation (DWER). 2018a. *Hydrographic Catchments - Catchments (DWER-028).* Available at: https://catalogue.data.wa.gov.au/dataset/hydrographic-catchments-catchments

Department of Water and Environmental Regulation (DWER). 2018b. *Surface Water Management Subareas (DWER-042)*. Available at: Surface Water Management Subareas (DWER-042) - Datasets - data.wa.gov.au

Department of Water and Environmental Regulation (DWER) 2019. *Landfill Waste Classifications and Waste Definitions 1996*. Available at: https://www.der.wa.gov.au/images/documents/our-work/licences-and-works-approvals/WasteDefinitions-revised.pdf

Department of Water and Environmental Regulation (DWER) 2021. *Guideline: Assessment and Management of Contaminated*. Available from: https://www.wa.gov.au/system/files/2023-05/guideline-assessment-and-management-of-contaminated-sites.pdf

Department of Water and Environmental Regulation (DWER) 2025a. *Black-stripe minnow - Galaxiella nigrostriata.* Available from: https://rivers.dwer.wa.gov.au/species/galaxiella-nigrostriata/

Department of Water and Environmental Regulation (DWER) 2025b. *Salamanderfish - Lepidogalaxias salamandroides*. Available from: https://rivers.dwer.wa.gov.au/species/lepidogalaxias-salamandroides/

Department of Water and Environmental Regulation (DWER). 2025c. *Contaminated Sites Database (DWER-059).* Available at: Contaminated Sites Database (DWER-059) - Dataset - Data.gov.au

Department of Water and Environmental Regulation (DWER). 2025d. *Public Drinking Water Source Areas (DWER-033).* Available at: Public Drinking Water Source Areas (DWER-033) - Datasets - data.wa.gov.au

Department of Water and Environmental Regulation (DWER). 2025e. *WRIMS - Groundwater Subareas (DWER-083).* Available at: WRIMS - Groundwater Subareas (DWER-083) - Datasets - data.wa.gov.au

Department of Water and Environmental Regulation (DWER). 2025f. *South West groundwater areas allocation plan*. Available at: South West groundwater areas allocation plan | Western Australian Government

Department of Water and Environmental Regulation (DWER) No Date. *Pouched Lamprey - Geotria australis.* Available from: https://rivers.dwer.wa.gov.au/species/geotria-australis/

DNV Australia Pty Ltd (DNV) 2025a. *Beenup Wind Farm EMI Assessment.* Report Prepared for Urbis Ltd.

DNV Australia Pty Ltd (DNV) 2025b. *Beenup Wind Farm: Shadow Flicker and Blade Glint Assessment.* Report Prepared for Urbis Ltd.

Dunstan, W. A., Rudman, T., Shearer, B. L., Moore, N. A., Paap, T., Calver, M. C., & Hardy, G. S. J. 2008. 'Research into Natural and Induced Resistance in Australian Native Vegetation of Phytophthora cinnamomi and Innovative Methods to Contain and/or Eradicate within Localised Incursions in Areas of High Biodiversity in Australia'. *Eradication of Phytophthora cinnamomi from Spot Infections in Native Plant Communities in Western Australia and Tasmania.*

Eamus, D., Froend, R. H., Hose, G. & Murray, B. 2006. 'A Functional Methodology for Determining the GW Regime Needed to Maintain Health of Groundwater Dependent Vegetation'. *Journal of Botany* 54: 97-114.

Eco Logical Australia (ELA) 2025a. *Wind Farm in Scott River Bird and Bat Adaptive Management Plan.* Prepared for Synergy Renewable Energy Developments Pty Ltd.

Eco Logical Australia (ELA) 2025b. *Wind Farm in Scott River Ecological Gap Survey.* Prepared for Synergy Renewable Energy Developments Pty Ltd.

Ecosystem Solutions 2020. *Flora and Fauna Significance Assessment Margaret River Senior High School*. Ecosystem Solutions, Dunsborough, WA. Report prepared for RPS Australia West Pty Ltd.

Edge of Planning & Property 2018. *Shire of Nannup: Local Planning Strategy*. Government of Western Australia.

Environmental and Landscape Management (ELM) 2017. *Lot 2602 McDonald Road, Karridale Flora and Fauna Assessment*. Environmental and Landscape Management.

Environment Protection and Heritage Council (EPHC) 2010. *National Wind Farm Development Guidelines - Draft*. Available from: https://www.nepc.gov.au/sites/default/files/2022-09/draft-national-wind-farm-development-guidelines-july-2010.pdf

Environmental Protection Authority (EPA) 2008. *Environmental Guidance for Planning and Development: Guidance Statement 33*. Western Australia. Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/GS33-270508.pdf

Environmental Protection Authority (EPA) 2016a. *Environmental Factor Guideline: Flora and Vegetation*. Perth, Western Australia. Published December 2016.

Environmental Protection Authority (EPA) 2016b. *Environmental Factor Guideline: Terrestrial Environmental Quality*. Available from: https://www.epa.wa.gov.au/policies-guidance/environmental-factor-guideline-terrestrial-environmental-quality

Environmental Protection Authority (EPA) 2016c. *Environmental Factor Guideline: Terrestrial Fauna*. Published December 2016.

Environmental Protection Authority (EPA) 2016d. *Technical Guidance: Flora and Vegetation Surveys for Environmental Impact Assessment*. Perth, Western Australia. Published December 2016.

Environmental Protection Authority (EPA) 2016e. *Technical Guidance: Sampling of Short Range Endemic Invertebrate Fauna*. Published December 2016.

Environmental Protection Authority (EPA) 2018. *Environmental Factor Guideline: Inland Waters*. June 2018.

Environmental Protection Authority (EPA) 2019. *EPA Technical Report: Carnaby's Cockatoo in Environmental Impact Assessment in the Perth and Peel Region*. Available at: https://library.dbca.wa.gov.au/static/FullTextFiles/926408.pdf

Environmental Protection Authority (EPA) 2020. *Technical Guidance: Terrestrial Vertebrate Fauna Surveys for Environmental Impact Assessment.* Published December 2016.

Environmental Protection Authority (EPA) 2023a. *Environmental Factor Guideline: Social Surroundings.* Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Environmental%20Factor%20Guideline%20-%20Social%20Surroundings%20%28Nov2023%29.pdf

Environmental Protection Authority (EPA) 2023b. *Statement of Environmental Principles, Factors, Objectives and Aims of EIA.* Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Statement%20of%20environmental%20principles%2C%20factors%2C%20objectives%20and%20aims%20of%20EIA%20-%204%20April%202023.pdf

Environmental Protection Authority (EPA) 2023c. *Technical Guidance: Environmental Impact Assessment of Social Surroundings - Aboriginal Cultural Heritage.* Available from: https://www.epa.wa.gov.au/sites/default/files/Policies_and_Guidance/Technical%20Guidance%20EIA%20of%20Social%20Surroundings%20-%20Aboriginal%20Cultural%20Heritage%20%28Nov2023%29_2.pdf

Environmental Protection Authority (EPA) 2024a. *Environmental Impact Assessment (Part IV Divisions 1 and 2) Procedures Manual*. EPA, Western Australia. December 2024.

Environmental Protection Authority (EPA) 2024b. *Instructions and Template: How to Identify the Content of a Proposal*. Government of Western Australia.

Environmental Protection Authority (EPA) 2024c. *Instructions on How to Prepare an Environmental Review Document*. EPA, Western Australia. March 2024.

Environmental Protection Authority (EPA) 2024d. *Instructions: Referral of a Proposal under Section 38 of the Environmental Protection Act 1986*. Government of Western Australia.

Foo, C.F., Bennett, V.J., Hale, A.M., Korstian, J.M., Schildt, A.J. & Williams, D.A. 2017. *Increasing Evidence that Bats Actively Forage at Wind Turbines*. Available at: https://pmc.ncbi.nlm.nih.gov/articles/PMC5672837/

GHD Pty Ltd (GHD) 2024. *Proposed Wind Farm - Scott River: Landscape and Visual Impact Assessment.* Report Prepared for SynergyRED.

GHD Pty Ltd (GHD) 2025a. *Proposed Wind Farm at Scott River: Noise Impact Assessment.* Report Prepared for Synergy Renewable Energy Developments Pty Ltd

GHD Pty Ltd (GHD) 2025b. *Proposed Wind Farm - Scott River: Landscape and Visual Impact Assessment.* Report Prepared for SynergyRED.

Government of Western Australia (GoWA) 2019. *2018 Statewide Vegetation Statistics Incorporating the CAR Reserve Analysis (Full Report)*. Current as of March 2019. Department of Biodiversity, Conservation and Attractions, Perth, WA.

Government of Western Australia (GoWA) 2020. *Western Australian Climate Policy.* November 2020.

Harewood, G. 2018. *Fauna Assessment Turner Caravan Park Augusta*. Greg Harewood, Bunbury, WA. on behalf of the Chief Executive Officer Shire of Augusta Margaret River.

Herron NF, Macfarlane C, Henderson BL, Post DA, O'Grady A, Rachakonda PK, Wilkins A, Peeters L, Dawes WR, McVicar TR, Hosack G, Ickowicz A, Hayes KR, Dambacher J, Barry S, Brandon C, Zhang YQ, Crosbie R, Viney NR, Sudholz C, Mount R, Tetreault-Campbell S, Marvanek S, Buettikofer H, Gonzalez D, Crawford D, Schmidt RK and Lewis S (2018) 'Impact and Risk Analysis for the Hunter Subregion'. *Product 3-4 for the Hunter Subregion from the Northern Sydney Basin Bioregional Assessment*. Department of the Environment and Energy, Bureau of Meteorology, CSIRO and Geoscience Australia, Australia. Available from http://data.bioregionalassessments.gov.au/product/NSB/HUN/3-4

Harvey, M.S. 2002. 'Short-range Endemism in the Australian Fauna: Some Examples from Nonmarine Environments'. *Invertebrate Systematics*. 16: 555–570.

Higgins, P. J. and Davies, S.J.F. (eds) 1996. *Handbook of Australian, New Zealand and Antarctic Birds.* Volume Three – Snipe to Pigeons. Oxford University Press, Melbourne, Victoria.

International Association for Impact Assessment (IAIA) 2025. *Social Impact Assessment Guidance for Assessing and Managing the Social Impacts of Projects.* April 2015.

International Union for Conservation of Nature (IUCN) 2019. *The IUCN Red List of Threatened Species*.

Invertebrate Solutions 2024a. *Desktop Assessment of Short Range Endemic Fauna for a Proposed Wind Farm in Scott River - Western Australia*. Report by Invertebrate Solutions for SynergyRED Pty Ltd. September 2024.

Invertebrate Solutions 2024b. *Desktop Assessment of Subterranean Fauna for a Proposed Wind Farm in Scott River, Western Australia*. Report by Invertebrate Solutions for SynergyRED Pty Ltd. August 2024.

Johnstone, R.E. 2025. Black Cockatoos Calyptorhynchus (Zanda) in the Scott River Region. Prepared for SynergyRED.

Johnstone, R. E and Kirkby, T. 1999. *Food of the Forest Red-tailed Black Cockatoo Calyptorhynchus banksii naso in South-west Western Australia*. Western Australian Naturalist 22, 167-177.

Johnstone, R.E., Johnstone, C. & Kirkby T. 2010. 'Carnaby's Cockatoo (Calyptorhynchus latirostris), Baudin's Cockatoo (Calyptorhynchus baudinii) and the Forest Red-tailed Black Cockatoo (Calyptorhynchus banksii naso) on the Swan Coastal Plain (Lancelin– Dunsborough), Western Australia'. *Studies on Distribution, Status, Breeding, Food, Movements and Historical Changes*. Report to the Department of Planning, Perth.

Gibson, N., Keighery, B., Keighery, G., Burbridge, A. and Lyons, M. 1994. *A Floristic Survey of the Southern Swan Coastal Plain*. Unpublished Report Prepared for the Australian Heritage Commission by Department of Conservation and Land Management and Conservation Council of Western Australia (Inc.).

Lewis Environmental Consultants (LEC) 1990. *Heavy Minerals Mine Beenup*. Lewis Environmental Consultants, Perth, WA. Report prepared for Mineral Deposits Ltd.

Linfire Consultancy (Linfire) 2025a. *Scott River Wind Farm Scott River Road, Scott River: Bushfire Management Plan.* Report prepared for Synergy Renewable Energy Developments Pty Ltd.

Linfire Consultancy (Linfire) 2025b. *Scott River Wind Farm Scott River Road, Scott River: Bushfire Risk Management Plan (Renewable Energy).* Report prepared for Synergy Renewable Energy Developments Pty Ltd.

Litoria Ecoservices 2016. *Flora and Fauna Assessment: Gloucester Park, Margaret River*. Litoria Ecoservices, Fortitude Valley, QLD.

Litoria Ecoservices 2017. *Preliminary Western Ringtail Possum Habitat Assessment and Survey*. Litoria Ecoservices Environmental Assessment, Planning & Management. Prepared by Litoria Ecoservices for the Shire of Augusta Margaret River.

Luu R., English, V. 2004. Scott River ironstone Association. Interim Recovery Plan 2004–2009. Department of Conservation and Land Management. Wanneroo, WA. Available at: https://library.dbca.wa.gov.au/static/Journals/080548/080548-217.pdf

Lyons, M. N., Keighery, G. J., Gibson, N., & Wardell-Johnson, G. 2000. 'The Vascular Flora of the Warren Bioregion, Southwest Western Australia: Composition, Reservation Status, and Endemism'. *CALMScience*, 3(2), 181–250.

Mishnaevsky, L Jr., Tempelis, A., Belahurau, Y., and Johansen, N. F-J. 2024. 'Microplastics Emission from Eroding Wind Turbine Blades: Preliminary Estimations of Volume'. *Energies*, 17, 6260. https://doi.org/10.3390/en17246260

Morcombe, M., and Stewart, D. 2021. *Morcombe & Stewart Guide to Birds of Australia*.

National Health and Medical Research Council (NHMRC) 2015. I*nformation Paper: Evidence on Wind Farms and Human Health*. NHMRC. Canberra:

Newport, J., Shorthouse, D.J., & Manning, A.D. 2014. 'The Effects of Light and Noise from Urban Development on Biodiversity: Implications for Protected Areas in Australia'. *Ecological Management & Restoration*. 13(3). Available at: https://wepa.org.au/wp-content/uploads/2019/08/Newport-et-al-The-effects-of-light-and-noise-from-urban-development-on-biodiversity-2014.pdf

Ninox 2011. *Monitoring of Waterbirds and Vertebrate Fauna at the Beenup Mineral Sands Mine Site 2005-2011.* Ninox Wildlife Consulting, Perth, WA. Unpublished Report.

Phoenix Environmental Sciences (Phoenix) 2025a. *Basic and Targeted vertebrate fauna survey for a Proposed Wind Farm in Scott River*. Report Prepared for SynergyRED.

Phoenix Environmental Sciences (Phoenix) 2025b. *Bird and Bat Risk Assessment for a Proposed Wind Farm in Scott River*. Report Prepared for SynergyRED.

Phoenix Environmental Sciences (Phoenix) 2025c. *Detailed Flora and Vegetation Survey for a Proposed Wind Farm in Scott River.* Report Prepared for Synergy Renewable Energy Development.

Place.ID Consultants (Place.ID) 2025. *SynergyRED Scott River Wind Farm Feasibility: Social Values Assessment Report*. Report Prepared for SynergyRED.

PTG Consulting Pty Ltd (PTG) 2025. *Preliminary Acid Sulfate Soils and Dewatering Management Plan*. Report Prepared for Synergy Renewable Energy Division.

Queensland Government 2025. *Social Impact Assessment Guideline*. July 2025.

Robinson, C. & Keighery, G. J. 1997. 'Vegetation and Flora of Scott National Park and Adjacent Recreation Reserves'. *Western Australian Naturalist.* 21: 213-233.

RPS 2025. *Proposed Scott River Wind Farm - Acid Sulfate Soils Previous Investigations Review and Data Gap Assessment*. Prepared for Synergy RED.

Saunders, D. A and Ingram, J. A. 1995. *Birds of Southwestern Australia: An Atlas of Changes in the Distribution and Abundance of Wheatbelt Avifauna*. Surrey Beatty and Sons, Chipping Norton.

Sealite 2024. *Supporting The Cape Leeuwin Lighthouse Museum.* Sealite. Available from: https://www.sealite.com/case-studies/supporting-the-cape-leeuwin-lighthouse-museum/

Shawmac 2024. *Transport Impact Statement.* Report prepared for SynergyRED.

Shepherd, D.P., Beeston, G.R., and Hopkins, A.J.M. 2002. *Native Vegetation in Western Australia – Extent, Type and Status.* Resource Management Technical Report 249, Department of Agriculture, Western Australia.

Shire of Augusta Margaret River (Shire of AMR) 2024. *Draft Shire of Augusta Margaret River: Local Planning Scheme No. 2.*

South Australia Environmental Protection Authority (SA EPA) 2021. *Wind Farms Environmental Noise Guidelines*.

Stantec Australia Pty Ltd (Stantec) 2024. *Proposed Wind Farm in Scott River: Preliminary Geotechnical and Baseline Contamination Report.* Report Prepared for Synergy Renewable Energy Developments Pty Ltd.

Stantec Australia Pty Ltd (Stantec) 2025a. *Proposed Wind Farm in Scott River: Groundwater and Surface Water Monitoring Program*. Report Prepared for SynergyRED. June 2025

Stantec Australia Pty Ltd (Stantec) 2025b. *Proposed Wind Farm in Scott River: Surface Water and Hydrogeological Assessment*. Report Prepared for SynergyRED.

Sullivan, L., Ward, N., Tollper, N., and Landcaster, G. 2018. *National Acid Sulfate Soils Guidance: National Acid Sulfate Soils Identification and Laboratory Methods Manual*. Department of Agriculture and Water Resources, Canberra ACT.

Symbolix 2025. *Scott River Wind Farm - CRM Feasibility Assessment*. Prepared for Synergy Renewable Energy Development. 1 July 2025.

Synergy Renewable Energy Developments Pty Ltd (SynergyRED) 2025. *Wind Farm in Scott River: Preliminary Construction Environmental Management Plan*. September 2025.

Thackway, R. and Cresswell, I. D. (Eds). 1995. *An Interim Biogeographic Regionalisation for Australia: A Framework for Establishing the National System of Reserves, Version 4.0*. Australian Nature Conservation Agency, Canberra.

Threatened Species Scientific Committee (TSSC) 2006. *Commonwealth Listing Advice on Cherax tenuimanus*. Available from: https://www.dcceew.gov.au/sites/default/files/env/pages/6317dafb-2378-4187-8dda-19166647fc2a/files/cherax-tenuimanus-listing.pdf

Tourism Western Australia (Tourism WA) 2024. *Caves Road.* Western Australia: Walking on a Dream. Available from: https://www.westernaustralia.com/en/attraction/caves-road/61bbdd04d50e8a9f2f3f41bc

Umwelt 2024. *Narrogin Wind Farm: Environmental Referral Supporting Document.* Prepared on behalf of Neoen Australia Pty Ltd.

Water Quality Australia 2021. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality*. Canberra ACT, Australia.

Western Australian Local Government Association (WALGA) 2009. *South West Regional Ecological Linkages Axis Lines*. Available at: https://catalogue.data.wa.gov.au/dataset/south-west-regional-ecological-linkages-axis-lines

Western Australian Museum (WAM) 2024a. *Arachnida and Myriapoda Database Search*. July 2024.

Western Australian Museum (WAM) 2024b. *Crustacea Database Search*. July 2024.

Western Australian Museum (WAM) 2024c. *Mollusc Database Search*. July 2024.

Western Australian Planning Commission (WAPC) 2003a. *Statement of Planning Policy No. 2: Environment and Natural Resources Policy*. Government of Western Australia.

Western Australian Planning Commission (WAPC) 2003b. *Statement of Planning Policy No. 6.1: Leeuwin-Naturaliste Ridge Policy*. Government of Western Australia.

Western Australian Planning Commission (WAPC) 2007. *Visual Landscape Planning in Western Australia: A Manual for Evaluation Assessment, Siting and Design.* Perth, Western Australia

Western Australian Planning Commission (WAPC) 2009. *Augusta-Walpole Coastal Strategy.* Government of Western Australia.

Western Australian Planning Commission (WAPC) 2013. *State Planning Policy No. 2.6: State Coastal Planning Policy*. Government of Western Australia.

Western Australian Planning Commission (WAPC) 2014. *State Planning Strategy 2050.* Government of Western Australia.

Western Australian Planning Commission (WAPC) 2016. *Transport Impact Assessment Guidelines Volume 4: Individual Developments*. Government of Western Australia.

Western Australian Planning Commission (WAPC) 2020. *Position Statement: Renewable Energy Facilities*. Perth, Western Australia

Whale Watch Western Australia 2024. *Augusta Whale Watching.* Whale Watch Western Australia. Available from: https://whalewatchwesternaustralia.com/location/whale-watching-in-augusta

Woinarksi, J. & Burbidge, A. 2016. *Macropus irma*. The IUCN Red List of Threatened Species. Available at: http://dx.doi.org/10.2305/IUCN.UK.2016-2.RLTS.T12626A21953231.en

Woinarski, J.C.Z., Burbidge A.H., Comer, S. Harley, D., Legge, S., Lindenmayer, D.B., Partridge, T.B 2014. *Fire and Biodiversity in Australia*. In Austral Ark: The State of Wildlife in Australia and New Zealand. Available at: https://www.cambridge.org/core/books/abs/austral-ark/fire-and-biodiversity-in-australia/BDAB643FC74E02D3353D3724641D2DFB

Woodman Environmental (Woodman) 2019a. *ESA C458 Site Inspection Report*. Woodman Environmental, Perth, WA.

Woodman Environmental (Woodman) 2019b. *ESA C98 Site Inspection Report*. Woodman Environmental, Perth, WA.

Appendix A Proposed Wind Farm in Scott River: Surface Water and Hydrogeological Assessment

Appendix B Proposed Wind Farm in Scott River Preliminary Acid Sulfate Soils and Dewatering Management Plan

Appendix C Wind Farm in Scott River Preliminary Decommissioning Plan

Appendix D Beenup Wind Farm: OSOM Route Study

Appendix E Desktop Assessment of Subterranean Fauna for a proposed wind farm in Scott River, Western Australia

Appendix F Proposed Wind Farm in Scott River, Western Australia Greenhouse Gas Assessment Summary Report

Appendix G Proposed Wind Farm in Scott River: Preliminary Geotechnical and Baseline Contamination Report

Appendix H Preliminary Construction Environmental Management Plan

Appendix I Detailed flora and vegetation survey for a Proposed Wind Farm in Scott River

Appendix J Wind Farm in Scott River - Ecological Gap Survey

Appendix K Basic and Targeted vertebrate fauna survey for a Proposed Wind Farm in Scott River

Appendix L Bird and Bat Risk Assessment for a Proposed Wind Farm in Scott River – Level Two investigation

Appendix M Desktop Assessment of Short Range Endemic Fauna for a Proposed Wind Farm in Scott River – Western Australia

Appendix N Proposed Wind Farm in Scott River Preliminary Bird and Bat Adaptive Management Plan

Appendix O Beenup Wind Farm Shadow Flicker and Blade Glint Assessment

Appendix P Beenup Wind Farm EMI Assessment

Appendix Q Aviation Impact Assessment: Beenup Wind Farm

Appendix R SynergyRED Scott River Wind Farm Feasibility: Social Values Assessment

Appendix S Proposed Wind Farm at Scott River: Noise Impact Assessment

Appendix T Proposed Wind Farm - Scott River: Landscape and Visual Impact Assessment