Goyder North Wind Farm (EPBC 2024/09929)

Pygmy Blue-tongue Lizard Offset Management Plan – Stage 1: [redacted]

Draft

December 2025

umwelt

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Draft

Prepared by
Umwelt (Australia) Pty Limited

On behalf of
Neoen Australia Pty Ltd
ABN: 57 160 905 706

Project Director: Alison Derry
Project Manager: Jessica Skewes
Technical Manager: Emma Tremain
Report No.: 32945/R02
Date: December 2025

112 Hayward Avenue, Torrensville 5031

Acknowledgement of Country

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Document Status

Rev No.	Reviewer Name	Date	Approved for Issue Name	Date
V0.1	Emma Tremain	03/12/2025	NA (internal)	
V0.2	Marina Louter	05/12/2025	NA (internal)	
V1	Jessica Skewes	05/12/2025	Alison Derry	11/12/2025

Declarations

Declaration of Accuracy

In making this declaration, I am aware that section 491 of the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth; Cth) (EPBC Act) makes it an offence in certain circumstances to knowingly provide false or misleading information or documents to specified persons who are known to be performing a duty or carrying out a function under the EPBC Act or the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth). The offence is punishable on conviction by imprisonment or a fine, or both.

I am authorised to bind the approval holder, Neoen Australia Pty Ltd (ABN 57160905706), to this declaration and that I have no knowledge of that authorisation being revoked at the time of making this declaration.

Signed	[redacted]
Full name (please print)	Hilary Pocock
Organisation (please print)	Neoen Australia Pty Ltd
Role (please print)	Project Manager - South Australia
Date	15/12/2025

Proponent and/or Approval Holder Conflict of Interest Declaration

I declare that to the best of my knowledge I do not have any actual, potential or perceived conflicts of interest that may affect the assessment of this Offset Management plan, except as set out below.

I undertake to make a further declaration detailing any actual, potential or perceived conflict of interest that may arise during the assessment period.

I agree to comply with any mitigation steps required to address any declared conflict.

Signed	[redacted]
Full name (please print)	Hilary Pocock
Date	15/12/2025

Consultant Conflict of Interest Declaration

I declare that to the best of my knowledge I do not have any actual, potential or perceived conflicts of interest that may affect the assessment of this Offset Management Plan, except as set out below.

I undertake to make a further declaration detailing any actual, potential or perceived conflict of interest that may arise during the assessment period.

I agree to comply with any mitigation steps required to address any declared conflict.

Signed	[redacted]
Full name (please print)	Jessica Skewes
Date	15/12/2025

Landowner Declaration

I/we declare that to the best of my knowledge I do not have any actual, potential or perceived conflicts of interest that may affect the assessment of this Offset Management Plan, except as set out below.

I/we undertake to make a further declaration detailing any actual, potential or perceived conflict of interest that may arise during the assessment period.

I/we

- agree to the offset being undertaken over my/our land as identified in **Section 4.1**, of this offset management plan;
- request the approval of this Offset Management Plan under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act);
- consent to the collection and use of the personal information in this document for the purposes of assessing this Offset Management Plan made under the EPBC Act;
- solemnly and sincerely declare that the information provided is true and correct to the best of my/our knowledge and I/we make this solemn declaration conscientiously believing the same to be true; and
- understand that all information supplied on or with this application form may be disclosed publicly in accordance with the *Freedom of Information Act 1982* and *Evidence Act 1995*.

I/we declare that any non-compliance with the requirements of this Offset Management Plan shall constitute a breach of the terms and conditions of the legally binding mechanism entered into and I/we will take all necessary steps as may be required to accomplish my/our obligations contained in this Offset Management Plan.

Signed	
Full name (please print)	
Date	

Signed	
Full name (please print)	
Date	

Executive Summary

This [redacted] Pygmy Blue-tongue Lizard Offset Management Plan ([redacted] PBTL OMP, this Plan) has been prepared to guide the establishment, implementation, and management of an on-ground environmental offset required for the Goyder North Wind Farm Project (GNWF), specifically to address residual significant impacts on Matters of National Environmental Significance (MNES) under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The primary focus of this OMP is the conservation and protection of the Endangered Pygmy Blue-tongue Lizard (PBTL) (*Tiliqua adelaidensis*).

The GNWF Project is a large-scale renewable energy project located in the Mid-North region of South Australia, comprising up to 99 wind turbine generators, battery energy storage systems, substations, and associated infrastructure. The Project will result in both permanent and temporary disturbance to native vegetation and fauna habitat, with a total disturbance footprint of up to 536.82 hectares (ha), including areas of PBTL habitat. Despite extensive efforts to avoid and minimize impacts through Project design and mitigation measures, a residual significant impact remains, particularly the direct loss of up to 368.10 ha of PBTL habitat and associated indirect impacts.

To address this residual impact to PBTL, Neoen is implementing a comprehensive package of EPBC offsets designed to both offset and outweigh residual impacts to the species. The overarching offset strategy balances risk across two properties and options, each providing unique benefits and management approaches. The offsets will be implemented in a two-staged approach (Stage 1 and Stage 2), aligned with the Project's construction phases, detailed in **Section 2.4.** This Plan is related specifically to the [redacted] PBTL Offset Area which contributes to the Stage 1 offset requirements for PBTL and forms a portion of the broader [redacted] Offset Site.

Primary stakeholders in the direct (on ground) offset process include Neoen (the Project proponent), the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW), the South Australian Department for Environment and Water (DEW), involved landholders / current landowners, and the Accredited Third-party Provider and / or selected Offset Area Land Manager.

This Plan is informed by, and aligned with, a range of statutory and policy documents, including the EPBC Act Environmental Offsets Policy, the PBTL Recovery Plan, and relevant state and federal legislation and guidelines (**Section 2.3**). Dependencies include the outcome of the EPBC Referral, timely securement of offset properties, engagement of accredited land managers, timing of stages of development, and ongoing consultation with regulatory authorities and scientific experts.

The [redacted] Offset Site and [redacted] PBTL Offset Area proposed management actions are designed to achieve formal protection, enhancement, and long-term viability of PBTL populations and habitat. The site was selected due to its strategic location within the known regional distribution of the species and proximity to GNWF, suitability of habitat, and known presence of PBTL, with opportunity for further improvement.

The expected outcomes for the PBTL Offset are:

- Formal protection of the PBTL Offset Area for the duration of the action (construction and operation of GNWF). However, protection is likely to be in perpetuity as the [redacted] PBTL Offset Area is proposed to be protected via a Heritage Agreement (as outlined in **Section 5.2.2**).

- Management of the [redacted] PBTL Offset Area in accordance with a site-specific [redacted] PBTL Offset Management Plan (OMP) (this Plan), for the duration of the action (i.e. the life of the GNWF Project), to be reviewed after 10 years, in order to:
    - create, maintain and improve (where possible) the condition/quality of the [redacted] PBTL Offset Area; and
    - increase the PBTL population(s) within the PBTL Offset Area (where possible).
- Monitoring of habitat condition and PBTL population numbers within the [redacted] PBTL Offset Area.

These expected outcomes align with overall and specific objectives of the PBTL Recovery Plan, by assisting in improving the long-term viability of PBTLs in the PBTL Offset Area. In particular, the [redacted] PBTL OMP is expected to contribute to the following specific objectives from the PBTL Recovery Plan:

- Protect existing PBTL populations and habitat.
- Maintain, enhance and increase the area and quality of suitable habitat for PBTL at known populations.
- Monitor populations to evaluate the effectiveness of management and detect trends which may require a management response.

Key management actions (**Section 5.0**) include legal securement of the Offset Area, adaptive grassland and grazing management, weed and pest control, fire prevention, access restrictions, and a robust monitoring and reporting program which will be used to inform ongoing adaptive management of the [redacted] Offset Site.

This Plan demonstrates consistency with the EPBC Offsets Policy by ensuring that offsets are proportionate, additional, scientifically robust, and subject to transparent governance and adaptive management (**Section 4.4**). Where relevant, the Plan will be updated to reflect final conditions of approval once issued by the Minister.

Specific objectives of this PBTL Offset Management Plan are to:

- Provide general information on the ecology and biology of the PBTL and factors to consider, including known and/or potential threats to the species, when establishing, implementing, and managing the [redacted] PBTL Offset Area (**Section 3.0**).
- Outline the residual impacts of the GNWF Project (the action) on PBTL that require environmental offset (**Section 3.3**).
- Outline the type of offset being implemented (**Section 2.4** and **Section 4.1.5**).
- Describe the [redacted] Offset Site and PBTL Offset Area characteristics (**Section 4.0**).
- Detail the calculation of the required offset and provide the completed Offsets Assessment Guide for the PBTL Offset, including discussion/justification for the figures used to complete the offset calculation (**Section 4.2** and **Section 4.2.1**).
- Outline important details of the Stage 1 PBTL Offset, including the method of securing and managing the offset (**Section 5.1**and **Section 5.2**).
- Detail the conservation gain to be achieved by the PBTL Offset, including positive management strategies that improve the sites and/or avert the future loss or degradation of PBTL and/or PBTL habitat (**Section 4.2.1**and **Section 5.3**).

- Demonstrate how the offset is consistent with the EPBC Act Environmental Offsets Policy (**Section 4.4**).
- Detail the management objectives, management aspects and associated actions (**Section 5.3**), implementation responsibilities (**Section 5.4**).
- Detail a monitoring program to assess the success of the management actions and objectives as well as reporting, corrective actions, adaptive management and the review and update schedule associated with this [redacted] PBTL OMP (**Section 6.0**).
- Outline the risks associated with securement and implementation of this Plan, and how risks are managed (**Section 7.0**).

Abbreviations

Abbreviation	Description
AOO	Area of Occupancy
BDBSA	Biological Databases of South Australia
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
Cth	Commonwealth
DAWE	Department of Agriculture, Water, and the Environment (Australian Government; now DCCEEW).
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Commonwealth)
DE	Development Envelope
DEW	Department for Environment and Water (South Australia)
DF	Disturbance Footprint
DotE	Department of the Environment (Australian Government; now DCCEEW)
DotEE	Department of the Environment and Energy (Australian Government; now DCCEEW)
DRS	Disturbance Resistant Species
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities (Australian Government; now DCCEEW)
EBS	Environment and Biodiversity Services Pty Ltd – trading as EBS Ecology (now Umwelt)
EOO	Extent of Occurrence
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
GNWF Project	Goyder North Wind Farm Project (includes WF and OTL), the Project (also, the action or the impact site))
GNREF	Goyder North Renewable Energy Facility
GRO	General Registry Office
GRZ	Goyder Renewables Zone
GSHREP	Goyder South Hybrid Renewable Energy Project
HA	Heritage Agreement
ha	Hectare(s)
IBRA	Interim Biogeographical Regionalisation for Australia
INTG	Iron-grass Natural Temperate Grassland of South Australia Threatened Ecological Community
km	Kilometre(s)
kV	Kilovolt(s)
LSA Act	*Landscape South Australia Act 2019* (South Australia)
m	Metre(s)
mm	Millimetre (s)

Abbreviation	Description
MNES	Matter(s) of National Environmental Significance
MW	Megawatts
MWh	Megawatt hours
Neoen	Neoen Australia Pty Ltd
NPW Act	*National Parks and Wildlife Act 1972* (South Australia)
NV Act	*Native Vegetation Act 1991* (South Australia)
NVB	Native Vegetation Branch
NVC	Native Vegetation Council
OAG	Offsets Assessment Guide (DCCEEW)
OTL	Overhead Transmission Line
PBGW	Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia Threatened Ecological Community
PBTL	Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*)
PCQM	Point-centred Quarter Method
PDI Act	*Planning Development and Infrastructure Act 2016* (South Australia)
Pers. comm.	Personal communication
PMST	Protected Matters Search Tool
ROL	Risk of Loss
SA	South Australia(n)
SEB	Significant Environmental Benefit
sp.	Species (singular)
spp.	Species (plural)
SPRAT	Species Profile and Threats
ssp.	Subspecies
TEC	Threatened Ecological Community
VA(s)	Vegetation Association(s)
WF	Boundary around the wind farm infrastructure components in GNWF
WTG(s)	Wind Turbine Generator(s)
<	Less than
>	More than
≤	Less than or equal to
≥	More than or equal to
%	Percent / percentage

Glossary

Terminology	Definition
Accredited Third-party Provider	An organisation, business, landscape board or similar, which is accredited in South Australia by the Native Vegetation Council under Section 25C of the *Native Vegetation Act 1991*, and works with landholders and native vegetation clearance applicants to help deliver Significant Environmental Benefit (SEB) offsets (including establishment and ongoing management).
Action	The Action includes both construction and operation of the proposed Project, and any change from existing activities which are required to undertake these tasks safely and effectively.
Declared weed	A plant that is regulated under the *Landscape South Australia Act 2019* due to its threat to primary industry, the natural environment and public safety.
Department	The Australian Government agency responsible for administering the EPBC Act.
Development Envelope (DE)	A 'buffered' version of the Disturbance Footprint that represents the outer spatial extents within which the Disturbance Footprint will occur. Design is well developed and optimised to minimise cut and fill, avoid known areas of significance or value, and to minimise the Disturbance Footprint. The Development Envelope is an extra measure to enable final adjustments to the Disturbance Footprint in alignment with the Mitigation Hierarchy to avoid or minimise impacts on environmental values, cultural heritage or any other potential constraints that emerge during design finalisation and construction.
Disturbance Footprint (DF)	The area in which all Project infrastructure is constructed and operated.
Met mast	Meteorological mast (mast or tower equipped with instruments to measure windspeed and climatic conditions).
Micro-siting	Slight shift or adjustment to the infrastructure design during construction to avoid or minimise impacts to MNES. Micro-siting only to occur if it reduces the impact on MNES.
Minister	The Australian Government Minister administering the EPBC Act including any delegate thereof.
Operation	All activities that occur after the components of the final WTG are installed and the usage of the transmission line and substation for the purposes of transforming and/or redistributing electric current.
Project	The Goyder North Wind Farm (GNWF) Project, inclusive of Wind Turbine Generators (WTGs), overhead power transmission lines, expansion of existing Bundey substation, on-site battery energy storage system (BESS), access tracks and temporary facilities and infrastructure to enable construction. The Project is part of the larger Goyder North Renewable Energy Facility which includes a future stage of development which is not yet defined.
Project Area	The spatial bounds within which the disturbance footprint for the GNWF Project may occur, encompassing all Project components within the GNWF Project including WF and OTL.

Terminology	Definition
Project components	Includes boundaries of GNREF, GNWF, Development Envelope, Disturbance Footprint.
Project elements	Distinct functional elements of the GNWF Project include WF, OTL and Site Access.
[redacted] **PBTL Offset Area/PBTL Offset Area**	An area within the broader [redacted] Offset Site which contains PBTL habitat and is the subject of this [redacted] PBTL OMP.
[redacted] **PBTL OMP**	The [redacted] Pygmy Blue-tongue Lizard Offset Management Plan, this Plan.
[redacted] **Offset Site**	The property known as [redacted] which is proposed as an EPBC Offset Site for the GNWF Project, and is the subject this [redacted] PBTL OMP. The property which has been purchased by Neoen, and includes offsets for two Matters of National Environmental Significance, including Pygmy Blue-tongue Lizard and Iron-grass Natural Temperate Grassland of South Australia TEC as well as additional areas which contribute towards the Significant Environmental Benefit required under the *Native Vegetation Act 1991*, for impacts to native vegetation.
Significant impact(s)	Impacts which are important, notable, or of consequence, having regard to their context or intensity, and assessed within the framework of the Matters of National Environmental Significance – Significant Impact Guidelines 1.1, Commonwealth of Australia 2013.

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1.0 Introduction

Neoen Australia Pty Ltd (Neoen) is developing the Goyder North Renewable Energy Facility (GNREF) as part of its wider Goyder Renewables Zone (GRZ) concept. The GRZ is ideally located to complement Project EnergyConnect, a large interconnector transmission line which connects the South Australian (SA) transmission network to New South Wales, currently under construction by ElectraNet and TransGrid (pers. comm. Neoen 2024).

The proposed GNREF is located north-east of Burra and east of the Mount Bryan township in the Goyder Regional Council area. The broader GNREF was originally planned to include up to 1,000 Megawatts (MW) and up to 900 MW / 3,600 megawatt hours (MWh) of Battery Energy Storage System (BESS). The GNREF was granted Planning Approval under the *Planning, Development and Infrastructure Act 2016* (SA) (PDI Act) in October 2024, following a public State Commission Assessment Panel hearing. In November 2025 (12 November) the GNWF Project was approved under the South Australian *Native Vegetation Act 1991* (Application Number 2025/3089/422).

The design has since been refined and Neoen now proposes to construct Goyder North Wind Farm (GNWF; the Project; formerly referred to as GNREF Stage 1), comprising up to 99 Wind Turbine Generators (WTGs) and approximately 600 MW and 225 MW/900 MWh of BESS. This design has been referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) to the Commonwealth Department for Climate Change, Energy, the Environment and Water (DCCEEW) to assess impacts to Matters of National Ecological Significance (MNES) (EPBC 2024/09929) and was determined a Controlled Action to be assessed via Preliminary Documentation in November 2024. Preliminary Documentation was finalised in October 2025, prior to being released for public comment. The GNWF Project will either be built in one or two stages.

A significant impact assessment, in accordance with the *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (DotE, 2013), for the GNWF Project has determined that the Project is likely to have a residual significant impact to the Endangered Pygmy Blue-tongue Lizard (*Tiliqua adelaidensis*) (PBTL) and to the Critically Endangered Iron-grass Natural Temperate Grassland (INTG) of South Australia Threatened Ecological Community (TEC).

As these impacts cannot be fully avoided or mitigated, an environmental offset in accordance with the EPBC Act is required to compensate for the residual significant impacts. To address this, Neoen submitted an EPBC Offset Strategy (Umwelt, 2025a) with the Preliminary Documentation, which outlined a broad strategy to compensate for residual significant impacts to MNES, including establishment of on-ground offset sites. Since then, Neoen has further pursued several opportunities for on-ground EPBC Offsets, with the final overarching offset strategy balancing risk across two properties and options, each providing unique benefits and management approaches. The offsets will be implemented in a two-staged approach (Stage 1 and Stage 2), aligned with the Project's construction phases, detailed in **Section 2.4.**

The [redacted] Pygmy Blue-tongue Lizard Offset Management Plan (OMP) (this Plan) has been prepared for the PBTL Offset Area which forms a portion of a property known as the [redacted] Offset Site and provides the direct on ground Stage 1 offset requirements for PBTL. Remaining offset requirements for Stage 1 are met through other compensatory measures in the form of a research component, to be developed separately.

Separate OMPs have been developed for the direct offsets associated with Stage 1 and Stage 2, and for each MNES required to be offset, where applicable.

2.0 Background

2.1 Goyder North Wind Farm Project Description

The GNWF Project is proposed to be developed on multiple freehold land parcels, two parcels of Crown Land and several local road reserves. The Project does not align specifically with any future proposed land parcel or easement, as it is acknowledged that negotiations are ongoing with landowners and minor changes to the Project layout are considered likely, to further minimise potential impacts to environmental or cultural values, or because of landholder negotiations. If required, minor adjustments to the final Project layout (known as micro-siting) will be contained within what is referred to as the Development Envelope, but only where this results in an equal or lesser impact to MNES. Micro-siting will not occur if there is any likelihood that it could increase the impact on MNES such as PBTL.

The layout for the GNWF Project is based on the outcomes of multiple technical, environmental, and social studies including wind studies, heritage assessment, visual impact, and environmental and geotechnical assessments.

Components of the GNWF Project include:

- Up to 99 WTGs requiring a concrete footing and hardstand where heavy machinery can operate.
- A 275 Kilovolt (kV) or 330 kV multi-circuit overhead transmission line (OTL) connecting the wind farm substation to the Bundey Substation approximately 48 km south, including approximately 69 transmission towers, OTL access tracks, stringing corridor, brake and winch sites, helicopter pads (for areas of non-conventional stringing), and temporary construction compounds and facilities.
- A 225 MW/900 MWh BESS.
- Electrical substations including operation and maintenance facilities including two fenced compounds in the wind farm and expansion of Bundey Substation.
- A network of access tracks to each infrastructure component.
- Ancillary infrastructure including construction compounds and facilities, underground cabling, site access, and met masts.

Table 2.1 briefly summarises the proposed infrastructure components for the GNWF Project and associated clearance areas. The Disturbance Footprint areas specified are an upper limit and are intended to provide flexibility for any innovation in component design between now and the time of detailed design and construction.

Table 2.1 Infrastructure Components and Associated Permanent and Temporary Disturbance Footprint

Component	GNWF Project Specifications	Permanent Disturbance Footprint (ha)	Temporary Disturbance Footprint (ha)	Total Disturbance Footprint (ha)
Wind Farm (WF)	Components include WTGs, BESS, substation, access tracks.	267.90	132.95	400.85
Overhead Transmission Lines (OTL)	A 275 kV or 330 kV multi-circuit overhead line connecting the wind farm substation to the Bundey Substation approximately 48 km south. Transmission lines will also connect the BESS to the wind farm substation (approximately 400 m). Includes access tracks, towers, brake and winch sites, and helicopter pads for non-conventional stringing.	31.60	31.62	63.22
Other – Ancillary Infrastructure components	Predominantly temporary components required for construction of the GNWF Project.	8.05	64.69	72.75
Total Disturbance Footprint (ha):		**307.56**	**229.26**	**536.82**

2.1.1 Construction Timeframes and Project Staging

Construction of the GNWF Project is expected to take approximately 24–36 months. The scale of the GNWF means that the Project will likely be developed in two stages. Construction is likely to take place in two stages with the first stage comprising 48 WTGs, BESS, Substation and OTL, scheduled to commence in Quarter 2 (Q2) of 2026, and the second stage expected to commence construction in approximately Q1 of 2027. Construction duration would be extended by 1–2 years if undertaken in two stages. These timelines are subject to the Project gaining all necessary approvals, undertaking a competitive tender process, and acquiring the appropriate level of contracted revenue to enable financial investment decision to occur.

2.2 Environmental Impact

As outlined in the GNWF Ecological Assessment Report – 2025 (Umwelt, 2025d), Project design overlays including the GNWF Development Envelope (DE) and Disturbance Footprint (DF) were used to calculate areas of impact to vegetation associations and subsequently, to preferred habitat for conservation significant species and TECs. Permanent and temporary impact areas are identified, within which varying levels of impact—both direct and indirect—may occur. Direct impacts (i.e. clearance of habitat or loss of individuals) and indirect impacts (i.e. construction and operation disturbance) are considered in detail for PBTL in the GNWF Ecological Assessment Report (Umwelt, 2025d) and are summarized within **Section 3.3** of this Plan. Types of impacts resulting from the proposed GNWF Project are described in detail in **Table 2.2**.

Table 2.2 Types of Impact Resulting from the Proposed GNWF Project

Type	Terminology	Definition
Permanent Disturbance: The areas within the GNWF DF (up to 307.56 ha) which will not be rehabilitated following construction.	**Direct Impact**	Adverse impacts that occur as a result of the action either during construction or operation, or both. Includes immediate observable effects of the action such as clearance of vegetation, loss of individual flora or fauna species from construction or from operation of WTGs or disruption of fauna behaviours (such as nesting) within the Disturbance Footprint because of noise and increased activity during construction.
	Indirect Impact	Adverse impacts that could reasonably be predicted to follow from the Project during construction and / or operation, whether these impacts are within the control of the proponent proposing to take that action or not. Indirect impacts may include encroachment of weeds into disturbed areas, change in water runoff / catchments, or behavioural impacts as a result of shadow flicker or noise arising from operation of the Project.
Temporary Disturbance: The areas within the GNWF DF (up to 229.26 ha) which will be cleared during construction to enable access of heavy machinery and construction related activities but rehabilitated following construction where it is reasonable and practical to do so.	**Direct Impact Rehabilitated**	Vegetation impacts which involve initial clearance followed by dedicated rehabilitation measures to return the cleared area to its previous state or better, where practicable and reasonable to do so. Rehabilitation actions are proposed to be undertaken within two years of the initial impact, with efforts concentrated in higher quality vegetation associations.

The GNWF Project will have a total Disturbance Footprint of up to 536.82 ha, which consists of 307.56 ha of permanent Disturbance Footprint and 229.26 ha of temporary Disturbance Footprint, as outlined in **Table 2.1**. Of the total Disturbance Footprint, 453.87 ha is remnant native vegetation, which is protected under the SA *Native Vegetation Act 1991* (NV Act). This native vegetation represents habitat for a range of native fauna, flora and ecological communities. Impacts to native vegetation and the associated Significant Environmental Offset (SEB) for GNWF, were approved under the NV Act (Application Number 2025/3089/422) in November 2025.

A summary of permanent and temporary impacts to different vegetation types within the Disturbance Footprint is provided in **Table 2.3**. This impact to native vegetation will be undertaken in two stages, as outlined in **Section 2.1.1**, comprising of 256.96 ha for Stage 1 and 196.90 ha for Stage 2 (**Table 2.4**).

Construction of the GNWF Project is anticipated to take 24–36 months and the Project is expected to be operational for approximately 25–30 years. As such, the duration of permanent impact (307.56 ha) is estimated to be up to approximately 33 years (construction and operation). As outlined in **Table 2.2** (above) and **Table 2.3** (below), temporary disturbance which totals 229.26 ha will be rehabilitated, via spreading of topsoil, within two years of the initial impact. However, as temporary disturbance impacts the structure of the topsoil, temporary clearance areas are considered as a permanent impact area for PBTL.

Table 2.3 Summary of Vegetation Impacts Within the Disturbance Footprint

Vegetation Type	Permanent Disturbance (ha)	Temporary Disturbance (ha)	Total Disturbance (ha)
Native Vegetation (protected by the SA NV Act)	261.31	192.55	453.87
Amenity Vegetation	0.03	0.02	0.05
Exotic Vegetation	8.07	9.66	17.73
Cropping	11.56	17.30	28.85
Cleared / Unsurveyed	26.60	9.72	36.32
Total	**307.56**	**229.26**	**536.82**

Table 2.4 Staging of Impacts, Including Impacts to MNES

Stage	Total Disturbance Footprint (ha)	Native Vegetation Impact (ha)	PBTL Habitat (Known and Likely) (ha)	INTG (Class B) (ha)
Stage 1	332.91	256.96	213.09	3.99
Stage 2	203.91	196.90	155.01	2.15
Total	**536.82**	**453.87**	**368.10**	**6.14**

2.3 EPBC Act Approval Conditions

As the GNWF Project EPBC Act approval is still underway, specific approval conditions have not yet been drafted. However, it is anticipated that these conditions are likely to include a requirement for environmental offsets, supported by an Offset Management Plan (OMP) to compensate for residual significant impacts to the PBTL. The OMP must be approved by the Minister.

DCCEEW have requested a draft OMP be submitted with the Preliminary Documentation to assist in determining the adequacy of proposed offsets and thus, guide the GNWF Project approval decision. This draft document has been prepared to satisfy the requirement for an OMP and outlines the environmental offsets (or a portion of) that will be implemented to compensate for residual impact to the PBTL, resulting of Stage 1. The document will be updated following the outcome of the EPBC Referral decision and finalisation of the offset and associated management.

Relevant conditions of approval for the GNWF Project will be listed in **Table 2.5**.

Table 2.5 Relevant Conditions of Approval for the GNWF Project (EPBC 2024/09929)

Condition	Reference in this [redacted] PBTL OMP

2.4 GNWF Project EPBC Offset Package and Staging

Neoen is implementing a comprehensive package of EPBC offsets designed to both offset and outweigh the impacts to MNES arising from the GNWF Project. An EPBC Offset strategy was initially developed for the Project (Umwelt, 2025a), which has now been refined to provide a complete offset package. This EPBC offset package is structured to balance risk across two properties and offset options including investment in research, each contributing unique benefits and management strategies for the impacted MNES.

The scale of the GNWF Project means that the Project will likely be developed in two stages, with each stage potentially having its own legal entity, construction contracts and financing packages. Impacts to MNES resulting from each stage of development are detailed in **Table 2.4**. As a result, offsets are also proposed to be delivered in a staged approach, with offsets implemented which are commensurate with the stage of development under construction. However, all proposed offsets covering both stages of development have been defined up front to enable DCCEEW to make an approval determination for the entire GNWF Project. The GNWF Offset Package including the EPBC Offset Package for the GNWF Project is mapped in **Figure 2.1**.

Legal agreements will be in place with landholders prior to final investment decision, to ensure that the DCCEEW approved offset areas are secured contractually, with financial investment decision and final purchase (securement) of offset sites being undertaken immediately prior to construction of the corresponding stage of the GWNF Project. This effectively allows the financial investment in staged offsets to be aligned with the staged impacts that are being compensated for by the offset.

The overarching EPBC Offset proposal includes the purchase of two properties, including the [redacted] property (524.73 ha), to provide a portion of the offset (49.15%) for PBTL and the full offset (101.66%) for INTG, and the [redacted] property (363.11 ha) to fulfill approximately 35.91% of the total PBTL offset required (as summarised in **Table 2.6**). The staged approach to delivering these offsets is summarised in **Table 2.7**.

The remaining PBTL offset requirement (14.94%) will be met through other compensatory measures, specifically a research component, with details to be determined in consultation with Flinders University, the PBTL Recovery Team and DCCEEW. This diversified approach ensures that offset obligations are met in a robust, transparent and adaptive manner, maximizing conservation outcomes for the affected MNES, to deliver an overall conservation outcome that improves or maintains the viability of the protected matters(**Section 4.4**).

Table 2.6 Overall EPBC Offset Package Summary

Offset	Type of Offset	MNES Offset	Area (ha)	Total (Stage 1 and Stage 2) Offset Provided (%)	Approximate Value ($)
[redacted]	Direct	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Research	Compensatory	PBTL	N/A	14.94 (of PBTL)	TBC

Table 2.7 Contribution of Offsets to Each Stage of the GNWF Project

Offset	Offset	Offset Type	Offset Purpose	Area (ha)	% of Offset Provided	Approximate Value ($)
Stage 1	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Research	Compensatory	PBTL	N/A	15.05 (of PBTL)	TBC
Stage 2	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
	Research	Compensatory	PBTL	N/A	14.79 (of PBTL)	TBC

[redacted]

The compensatory offset for residual impacts to PBTL will be in the form of research, to contribute to knowledge of the species, specifically to determine effectiveness of mitigation measures implemented at GNWF (the impact site). The research initiative will be conducted in partnership with Flinders University, focusing primarily on the relocation success of PBTL. The research aims to focus on collecting empirical data on proposed impact mitigation strategies, building upon the impact focused research initiatives under way for the Goyder South Wind Farm, and will gather scientifically robust data to investigate the viability of relocation as a mitigation method to reduce impacts to PBTL from developments. Likely research questions include the survivorship of relocated individuals, their condition and behaviour following relocation (such as dispersal patterns), the impact of relocated individuals and their breeding success on local genetics, and the influence of relocation methods (e.g., soft or hard release). A separate, detailed research plan will be developed by Flinders University to guide this component, ensuring transparency, effectiveness, and alignment with best practice offset principles.

Neoen has also acquired an offset property located at 92 Civilization Gate Road, Mount Bryan East, covering approximately 1,297.23 ha to the north of the GNWF Project Area. This property has been approved by the Native Vegetation Council as a Significant Environmental Benefit (SEB) offset under the *Native Vegetation Act 1991* for a portion of the native vegetation impacts arising from the Project. Referred to as the SEB Site – Stage 1, it includes potentially suitable habitat for PBTL, totalling 305.87 ha (comprising native grassland, historically cropped grassland more than 20 years old, and Lomandra grassland), as well as 44.94 ha of Class B and Class C INTG. This site provides additional contingency within the proposed GNWF Project offset package, ensuring flexibility should any currently unrealised impacts arise during the Project, including potential risks of land acquisition as detailed in **Section 7.2**.

Ultimately, the construction schedule will determine when ground disturbance occurs, which will influence the required timing for final securement and implementation of offsets. Offset securement for a particular stage of construction will occur prior to 'breaking ground' for that stage.

Separate site-specific OMP's are provided for each of the direct (on-ground) offsets, for each MNES, and, once the Project has received EPBC approval, a research plan will be developed by Flinders University for the compensatory component.

This document is the [redacted] PBTL OMP, which is the direct offset component for Stage 1 of GNWF. The direct offset for PBTL described here, provides 85.09% of the Stage 1 offset requirements, which, in combination with proposed other compensatory measures (research plan to be developed) provides 100% of the offset requirement for the Stage 1 impacts to PBTL.

2.5 Scope and Objectives of this Plan

The objectives of this [redacted] PBTL OMP are to guide the establishment, implementation and management of a portion of the PBTL EPBC Offsets for the GNWF Project which are commensurate with the Stage 1 construction, and to ensure the relevant EPBC approval conditions are met.

More specific objectives of this Plan are to:

- Provide general information on the ecology and biology of the PBTL and factors to consider, including known and/or potential threats to the species, when establishing, implementing, and managing the [redacted] PBTL Offset Area (**Section 3.0**).
- Outline the residual impacts of the GNWF Project (the action) on PBTL that require environmental offset (**Section 3.3**).
- Outline the type of offset being implemented (**Section 2.4** and **Section 4.1.5**).
- Describe the [redacted] Offset Site and PBTL Offset Area characteristics (**Section 4.0**).
- Outline the calculation of the required offset and provide the completed Offsets Assessment Guide for the PBTL Offset, including discussion/justification for the figures used to complete the offset calculation (**Section 4.2** and **Section 4.2.1**).
- Outline important details of the PBTL Offset, including the method of securing and managing the offset (**Section 5.1**and **Section 5.2**).
- Outline the conservation gain to be achieved by the PBTL Offset, including positive management strategies that improve the sites and/or avert the future loss or degradation of PBTL and/or PBTL habitat (**Section 4.2.1, Section 4.3** and **Section 5.3**).
- Demonstrate how the offset is consistent with the EPBC Act Environmental Offsets Policy (**Section 4.4**).
- Outline the management objectives, management aspects and associated actions (**Section 5.3**), implementation responsibilities (**Section 5.4**).
- Detail a monitoring program to assess the success of the management actions and objectives as well as reporting, corrective actions, adaptive management and the review and update schedule associated with this [redacted] PBTL OMP (**Section 6.0**).
- Outline the risks associated with securement and implementation of this Plan, and how risks are managed (**Section 7.0**).

Note that this [redacted] PBTL OMP is separate from the PBTL Management Plan (Umwelt, 2025b), which relates to PBTL management and mitigation at the impact site (GNWF) during construction and operation of the windfarm.

2.6 Relevant Policies and Documents

This Plan has been prepared in accordance with the following statutory documents (**Table 2.8**) and other relevant documents (**Table 2.9**).

Table 2.8 Statutory Documents Relevant to PBTL

Document Name	Where and How the [redacted] PBTL OMP Addresses the Document
Conservation Advice for *Tiliqua adelaidensis* (pygmy blue-tongue lizard) (DCCEEW, 2023). http://www.environment.gov.au/biodiversity/threatened/species/pubs/1270-conservation-advice-31082023.pdf	This Plan includes management measures to address threats to PBTL; is consistent with and/or will contribute to conservation and recovery actions identified in the Conservation Advice, as much as possible.
Recovery Plan for the Pygmy Blue-tongue Lizard *Tiliqua adelaidensis* (Duffy, Pound, & How, 2012). https://www.dcceew.gov.au/environment/biodiversity/threatened/recovery-plans/recovery-plan-pygmy-Blue-tongue-lizard-tiliqua-adelaidensis-2012	This Plan is consistent with and/or will contribute to the objectives of the PBTL Recovery Plan as much as possible. For example, it will likely protect existing PBTL population(s) and habitat (Objective 1); Clarify distribution and abundance (Objective 2); maintain, enhance and increase the area and quality of suitable habitat for PBTLs (Objective 3); monitor populations to evaluate the effectiveness of management and to detect trends which may require a management response (Objective 4).
Threat abatement plan for predation by feral cats 2024 (DCCEEW, 2024). http://www.dcceew.gov.au/environment/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats	This Plan includes management measures for feral cats (**Section 5.3.4**).

Table 2.9 Other Relevant Documents Related to this PBTL OMP

Document Name	Where and How the Strategy Addresses the Document
Pygmy Blue-tongue Lizards: Best Practice Management Guidelines for Landholders (Schofield J. , 2006) https://cdn.environment.sa.gov.au/landscape/docs/hf/pygmy-Blue-tongue-management-rep.pdf	This Plan (**Section 5.3**) includes management measures consistent with this guideline, in particular, grazing regimes, weed control and fire prevention.
Survey guidelines for Australia's threatened reptiles: Guidelines for detecting reptiles listed as threatened under the EPBC Act (DSEWPaC, 2011) https://www.dcceew.gov.au/environment/epbc/publications/survey-guidelines-australias-threatened-reptiles	All PBTL surveys within the GNWF Project have been undertaken in accordance with this guideline. All future PBTL surveys within the [redacted] PBTL Offset Area will also be undertaken in accordance with this guideline.
Guidelines for biological survey and mapped data (Commonwealth of Australia, 2018) https://www.dcceew.gov.au/environment/environment-information-australia/information-policy/guidelines-for-biological-survey-mapped-data	All PBTL surveys and data processing have been undertaken in accordance with this guideline. All future PBTL surveys and data processing at the [redacted] PBTL Offset Area, will also be undertaken in accordance with this guideline or in line with the most up to date advice from relevant experts.

Document Name	Where and How the Strategy Addresses the Document
Guide to providing maps and boundary data for EPBC Act projects (DAWE, 2021) Guide to providing maps and boundary data for EPBC Act projects - DCCEEW	All PBTL surveys and data processing have been undertaken in accordance with this guideline. All future surveys and data processing, for example at the proposed [redacted] PBTL Offset Area, will also be undertaken in accordance with this guideline.
Native Vegetation Act 1991 (NV Act) and associated *Native Vegetation Regulations 2017* (NV Regulations)	All vegetation surveys and assessments have been undertaken in accordance with the NV Act and associated NV Regulations. A Heritage Agreement in accordance with the NV Act and associated NV Regulations may be implemented for the [redacted] PBTL Offset.
Landscape South Australia Act 2019 (LSA Act)	Management measures within this Plan to control invasive weeds and feral animals will be in accordance with LSA Act requirements.
National Parks and Wildlife Act 1972 (NPW Act)	In accordance with the NPW Act, various Permits for working with PBTLs and monitoring are required and will be obtained by the relevant parties prior to undertaking any such work
Animal Welfare Act 1985	All PBTL surveys and monitoring has been and will continue to be undertaken in accordance with the requirements of this Act.

3.0 Pygmy Blue-tongue Lizard

3.1 EPBC Legal Status and Associated Documents

The EPBC Act legal status and associated documents for PBTL, as provided within the DCCEEW's Species Profile and Threats (SPRAT) Database (online), are presented in **Table 3.1**.

Table 3.1 PBTL Conservation Documentation

EPBC Status	Listed as Endangered (Date effective 16 July 2000)
Approved Conservation Advice (DCCEEW, 2023)	Department of Climate Change, Energy, the Environment and Water (2023). Conservation Advice for *Tiliqua adelaidensis* (pygmy blue-tongue lizard). Canberra: Department of Climate Change, Energy, the Environment and Water. Available from: http://www.environment.gov.au/biodiversity/threatened/species/pubs/1270-conservation-advice-31082023.pdf. In effect under the EPBC Act from 31-Aug-2023.
Listing Advice	The species is eligible for listing under the EPBC as it was listed as Endangered under Schedule 1 of the preceding Act, the *Endangered Species Protection Act 1992* (Cth). The species is eligible for listing due to its limited Area of Occupancy (AOO) estimated to be less than 500 km^2, severely fragmented occurrence, and continuing decline in AOO, the area, extent and / or quality of habitat and the number of locations or sub-populations and number of mature individuals.
Adopted / Made Recovery Plan (Duffy, Pound, & How, 2012)	Duffy et al. (2012). Recovery Plan for the Pygmy Blue-tongue Lizard *Tiliqua adelaidensis*. Department of Environment and Natural Resources, South Australia. Available from: http://www.environment.gov.au/biodiversity/threatened/recovery-plans/recovery-plan-pygmy-Blue-tongue-lizard-tiliqua-adelaidensis-2012. In effect under the EPBC Act from 24-Jul-2012.
Adopted / Made Threat Abatement Plan (DCCEEW, 2024)	Department of Climate Change, Energy, the Environment and Water (2024). *Threat abatement plan for predation by feral cats 2024*. Canberra: Commonwealth of Australia. Available from: http://www.dcceew.gov.au/environment/biodiversity/threatened/publications/tap/threat-abatement-plan-feral-cats. In effect under the EPBC Act from 24-Dec-2024.
Policy Statements and Guidelines (DSEWPaC, 2011)	*Survey guidelines for Australia's threatened reptiles. EPBC Act survey guidelines 6.6* (Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC 2011) [Admin Guideline]. (Schofield J. , 2006)). Pygmy Blue-tongue Lizards: Best Practice Management Guidelines for Land Holders, report for the Department for Environment and Heritage, Adelaide. (SA). Microsoft Word - PBT_Guideline_fixed_Sect_6_2006-11-28.doc

3.2 Ecology and Biology

3.2.1 Ecology

The PBTL is the smallest member of the genus *Tiliqua,* colloquially referred to as the 'Blue-tongue Lizards'. A moderately sized skink, up to 20 cm in length, it has a relatively heavy body, a large head, and short limbs. Colouration varies from grey, brown to orange brown and includes a series of black flecks along the back and flanks and orange coloured eye with black pupil. Unlike other members of the genus, the PBTL has a pink tongue (Hutchinson, Milne, & Croft, 1994; Duffy, Pound, & How, 2012).

The species has the unique habitat requirement of inhabiting vertical burrows dug by Trapdoor (*Mygalomorphae*) and Wolf (*Lycosidae*) Spiders. Burrow entrances are circular in cross-section, up to 20 mm in diameter, and with an average depth of up to 25 cm. Only one adult is found per active burrow, with individuals utilising the same burrow for extended periods of time. Optimal burrow size is more than 13 mm diameter and more than 100 mm deep.

PBTLs are omnivorous, mostly feeding on medium-sized arthropods that they ambush from their burrow (Hutchinson, Milne, & Croft, 1994). Analyses of scats and stomach contents have recorded the remains of grasshoppers, ants, small spiders, beetles, snails, cockroaches and plant material (including *Dianella* spp. seed, possible chenopod material, and several leaves and flowers of introduced *Medicago* spp.) (Ehmann, 1982; Hutchinson, Milne, & Croft, 1994; Milne, 1999; Fenner, Bull, & Hutchinson, 2007).

The mating season occurs between October and November (Milne & Bull, 2000), with females heavily gravid (pregnant) by January, subsequently bearing live young. Females are sexually mature from approximately three years of age and can have up to four young each season. The young will remain with their mothers (in the burrow) from mid-January to mid-March, with neonate dispersal occurring thereafter (Clarke, 2000; Duffy, Pound, & How, 2012).

PBTLs go into brumation (a state of torpor exhibited by reptiles) over winter (June to August). Males are more active during the mating season, moving away from their burrows to seek female mating partners (Schofield J. , 2006). Neonates and females are more active during late summer (February and March) as they disperse, with females shifting burrows if neonates do not leave the maternal burrow.

The PBTL is a highly sedentary species with biological traits which limit their ability to disperse into surrounding habitats. They are thought to occupy small home ranges, rarely moving further than a metre from an established burrow, except during mating or juvenile dispersal times (Ebrahimi & Bull, 2014). A study by Milne (1999) found that within a small study population, lizards usually dispersed less than 20 m and never more than 70 m. Outside of these dispersal events, they exhibit limited movement between habitat patches, restricting their natural dispersal. Studies have found that there is male biased movement during the mating season, however this is related to reproduction activity, not dispersal, with males and females tending to disperse a similar small distance from their natal burrow (Schofield J. , 2015; Schofield, Fenner, Pelgrim, & Bull , 2012).

Dispersal is restricted by the availability of suitable vacant burrows in the dispersal landscape, and the presence and density of these burrows determines the carrying capacity of the environment. Other factors which influence the success rates of dispersion include the heightened risk of predation during movements outside of burrows, and the existing density of populations in the surrounding habitat, with territorial interactions observed between conspecifics (Fenner & Bull, 2011).

3.2.2 Habitat

PBTLs are known to occupy native perennial grassland habitats. Even highly degraded grasslands (dominated by exotic species and subject to heavy livestock grazing) are potential habitat, providing that the area is un-ploughed, and the soil structure remains intact (Milne, 1999). The species has been recorded at sites dominated by species including *Austrostipa* spp. (Spear-grasses), *Rytidosperma* spp. (Wallaby Grasses), *Maireana* spp. (Bluebush), *Aristida behriana* (Brush Wire-grass) and *Lomandra* spp. (Iron-grasses) (Hutchinson, Milne, & Croft, 1994; Souter, Bull, Lethbridge, & Hutchinson, 2007).

PBTLs are known from a range of soil types, but more frequently found in greater abundance at sites with more free-draining grey-brown or red calcareous soils which are suitable for constructing spider burrows (Souter, 2003). Higher densities of PBTL are typically reported from lower slopes of hillsides where soil depth and therefore spider burrows are deepest (Duffy, Pound, & How, 2012).

PBTL have also been recorded in disturbed soil edging cropped land; however, it is thought that ploughed soil remains unsuitable due to the soil disturbance which limits the ability of burrowing spiders to build burrows of suitable integrity to house a PBTL (Ebrahimi & Bull, 2015; Smith, Gardner, Fenner, & Bull, 2009). Occupancy of burrows in crops may be indicative of PBTL dispersal behaviour, rather than permanent occupancy, however this has not been explored in detail in the available literature. It is not known what length of time is required to stabilise the soil such that it becomes suitable to be occupied by PBTL. The distribution of records across the Mid-North demonstrates that PBTL are resilient to agricultural practices, and many populations of the species occur on agricultural land in varying condition, including in areas under intense grazing pressure from both sheep and cattle.

No Critical Habitat as defined under section 207A of the EPBC Act has been identified or included in the Register of Critical Habitat. However, habitat attributes that are considered critical to the survival of the species include:

- Spider burrows of suitable diameter and depth.
- Open grassland with tussock grasses and inter tussock spaces allowing for basking and feeding.
- Intact soil profiles with free draining grey-brown or red calcareous soils.
- Topographic features with a combination of the above attributes on the lower slopes of hillsides are habitat critical to the survival of the species.

Although PBTLs are occasionally found in habitats which do not meet the above criteria, such as in degraded exotic grasslands or on steep hill slopes in rocky areas, the above criteria are used to inform habitat of higher quality and thus suitability for long-term occupation by PBTL.

3.2.3 Distribution and Abundance

The PBTL is endemic to the Mid-North region of South Australia, with an estimated Extent of Occurrence (EOO) of 7,000 km^2 and a disjunct Area of Occupancy (AOO) of 500 km^2 (DCCEEW, 2023). Distribution modelling suggests that the species' range may contract further in response to climate change, particularly in the more arid northern reaches of its range. The extent of the historical natural range of the species is unknown, as prior to 1992 only 20 specimens, with imprecise location information, had been collected (Smith, Gardner, Fenner, & Bull, 2009).

The total population of the species is unknown. A previous national estimate of 5,000 mature individuals was produced in 2000 based on the 10 sub-populations that were known to occur at the time (Milne, Hutchinson, & Clarke, 2000). Further survey work has since been undertaken in the region which has resulted in the discovery of at least an additional 20 sub-populations across approximately 37 sites (Clayton et al. 2020 in DCCEEW 2023). More recently, due to PBTL Recovery Plan efforts, university studies and proposed wind farm flora and fauna assessments, surveys of PBTL habitat have increased and revealed several new populations which have not been captured in the existing literature for the species. Despite this, overall population size remains difficult to estimate with confidence, due to natural fluctuations and the cryptic nature of the species and species' habitat.

A recent study at Tiliqua Nature Reserve developed a method for long-term monitoring of PBTL populations and estimated the local population within a 53-ha area of suitable habitat in the broader 81-ha reserve to be between 1,723 (±298) and 2,001 (±400) individuals (Bilby, et al., 2025).

Other sub-population estimates are limited, however a recent study by Michael et al. (2024) estimated a sub-population at Jamestown (~175 ha survey area), in high quality habitat, to have approximately 14 PBTL per hectare , whilst another population of lower quality habitat near Peterborough (~350 ha survey area) was estimated to have 8 PBTL per hectare.

3.2.4 Known and /or Potential Threats

The primary threats to the PBTL, as per the Approved Conservation Advice (DCCEEW, 2023), is the clearance of native grasslands for urban industrial and infrastructure development and the intensification of agricultural activities (i.e., the conversion of land previously used for grazing into cropping land). Other threats include:

- Climate change.
- The collection of individuals for the illegal wildlife trade.
- Invasive exotic grasses degrading remnant grassland habitat.
- Inappropriate fire regimes.
- Inappropriate use of pesticides, herbicides and fertilisers, changing the composition of habitat and food resource availability.
- Predation by native and introduced species.
- Soil disturbance from ploughing, ripping (and revegetation), erosion and heavy use by hard-hoofed herbivores.
- Inappropriate gazing regimes, resulting in unfavourable grassland conditions, either too sparse or too dense to support PBTL.
- Change in land use from increasing, decreasing or removing grazing pressure; changing livestock from sheep to cattle or vice versa, or changing from grazing to cropping or infrastructure.
- Fragmentation of habitat caused by cultivation and / or roads.

3.3 PBTL Occurrence within the GNWF Project Area

The GNWF Project Area is broadly known to contain suitable habitat for PBTL, comprising large areas of uncultivated native and exotic grasslands on hillslopes within their known distribution, and a known population occurring within the Wind Farm (WF, the boundary around the wind farm infrastructure components in the GNWF Project) at Tiliqua Nature Reserve (Umwelt, 2025d).

Targeted field surveys to detect PBTL within the GNWF Project Area have identified a total of 186 PBTL from ~ 21,641 spider burrows. The status of known PBTL records within the Disturbance Footprint, Development Envelope and GNWF Project Area, based on a compilation of recent Umwelt, University and historical Biological Databases of South Australia (BDBSA) records, is presented in **Table 3.2**, with a total of 55 known records in the Disturbance Footprint, 119 in the Development Envelope, and 1,466 in the Project Area.

Table 3.2 Number of Known PBTL Records within the Disturbance Footprint, Development Envelope and GNWF Project Area

Source of Records	GNWF Project Area	Development Envelope	Disturbance Footprint	Total
EBS /Umwelt	57	74	52	183*
Recent Unpublished University records	351	7	0	358
BDBSA	1,058	38	3	1,099
Total**	**1,466**	**119**	**55**	**-**

* Represents occupied burrows (two burrows contained juvenile PBTL, for total of 186 PBTL individuals)

** Limitations: Each record represents a snapshot in space and time and may not be indicative of the current abundance or location of PBTL in the Project Area. The combination of historical and more recent survey records may overlap in their location and thus may represent counting of the same individual(s) twice (or more). BDBSA records date from as early as 1992 to 2021 and thus are unlikely to represent individuals still current in the population. The numbers presented above are therefore an overestimation of PBTL in the GNWF Project Area but provide an indication of their general abundance and long-term persistence at the site.

Prior to surveys commencing, and based on the information available in literature, Vegetation Associations (VAs) which were found to broadly match the description of suitable PBTL habitat within GNWF, included Lomandra Grassland (VA6) and Native *Austrostipa* spp. Grassland +/- emergent trees (VA11a/b), with possible habitat suitability in areas of exotic grassland (though likely to be of low quality).

Following survey work, one additional VA was found to provide suitable PBTL habitat, *Maireana rohrlachii* Shrubland (VA9), which is comprised of low shrubs with an understory of native and exotic grass and somewhat stony surface covering. No PBTL were found in areas classified as exotic grassland, whilst two PBTL were found on the edge of cropped vegetation or in areas marked as cleared which correlated with farm tracks through areas of suitable habitat.

The location of PBTL records and burrow data was interrogated further to determine if factors such as slope, aspect, altitude, soil type, landform and a range of other factors could explain the distribution of PBTL within otherwise suitable habitat. However, there was no strong correlation between the location of PBTL records, or burrows, which was explained by these factors.

Given the widespread and patchy distribution of PBTL across the WF, habitat suitability mapping indicates that most of the WF is considered as 'Likely' PBTL habitat, with 'Known' habitat restricted to within 50 m of known recent and historical records of PBTL. 'Unlikely' PBTL habitat is restricted to patchy areas of cropped land, drainage lines and densely wooded mallee vegetation in the east of the WF and southern half of the OTL, as well as grassland areas which otherwise did not meet the habitat criteria. A total of 20.04 ha of Known habitat is mapped within the Disturbance Footprint and 348.06 ha of Likely habitat (**Table 3.3**, **Figure 3.1**), from a total of 11,154.12 ha of Known and Likely habitat mapped across the broader GNWF Project (see **Table 2.7**).

Based on the survey findings and the location of historical records within the GNWF Project Area, the south-central portion of the WF is deemed to have the highest habitat suitability for the PBTL. The outwash areas in the far southeast corner of the WF and woodland habitats were found to be least suitable for PBTL. In general, Chenopod shrublands were found to be unsuitable PBTL habitat, except where a significant grassy understorey was present and the shrubland occurred on low to medium hills. No PBTLs were found in flat / low elevation areas, and these are considered unlikely to provide suitable habitat. The species is not known to occur outside of the Flinders Lofty Block IBRA bioregion, and therefore habitat that occurs in the far south / south east of the GNWF Project Area, within the Murray–Darling Depression Bioregion is also considered unlikely habitat.

Table 3.3 Summary of Known, Likely and Unlikely PBTL Habitat in GNWF Project Area

Likelihood	Description	WF (ha)	OTL (ha)	Total in DF (ha)	Total in GNWF (ha)
Known	All areas within 50 m of a known location of a PBTL, including recent and historical records. Records include those collected by Umwelt and historical records sourced from the Biological Databases of South Australia (BDBSA) (Recordset number: DEWNRBDBSA240207-2).	18.98	1.06	20.04	181.86
Likely	Areas in which there are no PBTL records, but vegetation is considered potentially suitable habitat based on the literature and preferred habitat parameters are available (including slopes and hills, suitable soil types without dense surface rock cover).	338.41	9.65	348.06	10,972.26
Subtotal		**357.39**	**10.71**	**368.10**	**11,154.12**
Unlikely*	Vegetation associations in which there are no PBTL records and are otherwise not considered suitable habitat including: • Areas where no burrows were detected. • Non-grassy shrubland, woodland and mallee vegetation associations.	109.48	59.23	168.71	6,268.85

Likelihood	Description	WF (ha)	OTL (ha)	Total in DF (ha)	Total in GNWF (ha)
	• Habitat which otherwise meets the suitability criteria but occurs within the Murray–Darling Depression Bioregion. • Habitat which otherwise meets the criteria but occurs on flats / plains, or on sandy / shaley soil, or which has high surface rock density.				
Grand Total		**466.86**	**69.94**	**536.82**	**17,422.97**

* A portion of habitat in the GNWF Project including residential areas, has not been mapped, totalling 280.64 ha, not included in GNWF totals.

Estimates of PBTL population density within the Disturbance Footprint and broader Project Area were extrapolated based on a density index calculated per hectare for each vegetation association, based on targeted survey results. However, given the fluctuations in PBTL populations over time, the EPBC Offset proposes to offset PBTL habitat, not individuals, and this information is therefore not presented further in this document.

Likely direct impacts and potential indirect impacts to PBTL individuals and/or populations associated with development (i.e., construction) and/or operation of the GNWF Project Area, are presented in **Section 3.3.1**.

3.3.1 Summary of Likely Direct and Potential Indirect Impacts to PBTL

Table 3.4 lists the likely direct and potential indirect impacts to PBTL occurring because of the development of the GNWF Project.

Table 3.4 Likely Direct and Potential Indirect Impacts to PBTL

During Construction	During Operation	Comment
Likely Direct Impacts		
Direct loss of approximately 20.04 ha of '*Known*' and 348.06 ha of '*Likely*' PBTL habitat located within the Disturbance Footprint	No direct impact is expected during operation.	Unavoidable. Design measures have minimised impact to PBTL habitat as much as technically feasible prior to construction. Further revisions may occur during construction, which may reduce impact to PBTL likely and / or known habitat.
Potential loss of PBTLs located within the Disturbance Footprint	No direct impact is expected during operation.	Where possible, the final location of underground cables and access tracks, will be micro-sited away from PBTLs during pre-construction surveys to avoid and/or minimise impacts to individual PBTLs as much as possible. Where micro-siting cannot avoid direct impact to PBTLs, the individual(s) will be relocated to the nearest suitable release site in accordance with the method outlined in the *Goyder North Wind Farm - PBTL Management Plan* (Umwelt, 2025b). Where appropriate, translocation of PBTL may be considered, in consultation with DCCEEW and the PBTL Recovery Team, involving the translocation of a population of PBTL to a designated site at another pre-determined location, such as an Offset site which contains suitable habitat.
Potential Indirect Impacts		
Clearance of '*Known*' and/or '*Likely*' PBTL habitat outside the Disturbance Footprint.		Avoidable through specific controls and management measures.
Vehicles and/or machinery driving over PBTL habitat leading to degradation of PBTL habitat and possibly striking PBTLs.		Avoidable through specific controls and management measures.

During Construction	During Operation	Comment
Pitfall (PBTLs getting trapped in trenches, pits and other open excavations).	Pitfall (PBTLs getting trapped in electrical pits).	Avoidable through specific controls and management measures.
Dust emissions smothering flora and suppressing photosynthesis leading to loss of vegetation condition and PBTL habitat suitability.	Minor dust impacts may occur through regular use of designated tracks.	Short term impact during construction only, which can be minimised through specific controls and management measures.
Short-term altered grazing regimes (increased grazing, preferential grazing, reduction or loss of grazing, altered grazing times) as a result of construction activities and localized disturbance.	Long-term altered grazing regimes (increased grazing, preferential grazing (e.g. under turbine shade), reduction or loss of grazing, altered grazing times), caused by changed fence lines and water points, altered access tracks, and potential influence of new infrastructure on livestock behaviour.	Difficult to predict likelihood and/or level of occurrence and likely consequences. Long term impacts are unknown, and the Project Owner (Neoen) will not have any direct control over grazing regimes as it is controlled by landowners or managers. A Construction Environmental Management Plan will address landowner responsibility to report notable changes in land use and grazing caused by the Project.
Sedimentation of PBTL burrows and/or PBTL habitat from construction run-off (soil).	Sedimentation of PBTL burrows and/or PBTL habitat from run-off from access tracks.	Avoidable through specific controls and management measures.
Noise and vibration disturbance during construction.	Potential disturbance to PBTLs in close proximity to turbines from turbine noise and/or vibration.	Short-term impact during construction. Potential impacts of turbine noise and/or vibration are unknown.
Introduction of new weeds to the Project Area, or increase in weeds, through use of contaminated construction material, machinery and vehicles, leading to loss of vegetation condition and PBTL habitat suitability.	Introduction and/or spread of weeds from vehicles leading to loss of vegetation condition and PBTL habitat suitability.	Avoidable through specific controls and management measures.
Division and isolation of PBTL sub-populations by construction of vehicular access tracks.	Division and isolation of PBTL sub-populations through existence of vehicular access tracks.	Avoided and/or minimised as much as possible through design process.
Stockpiling of equipment and materials and introduction of rubbish and waste materials causing degradation of PBTL habitat.		Avoidable through specific controls and management measures.

During Construction	During Operation	Comment
Chemical spills (e.g. fuel/diesel) causing degradation of PBTL habitat.		Avoidable through specific controls and management measures.
No impact disturbance caused by shadow-flicker during construction as WTGs are not yet installed or operational.	Potential disturbance to PBTLs in close proximity to turbines from shadow flicker impacts such as: • Potential increase in predation of PBTLs by birds of prey (due to PBTLs becoming accustomed to shadows). • Potential decrease in PBTL body condition due to PBTLs basking less. • Potential decrease in breeding due to PBTLs taking refuge in their burrow more often.	The potential or likelihood of this impact to PBTL actually occurring is currently not known as there is very limited data available to assess this potential impact. A shadow flicker assessment is provided as part of the Preliminary Documentation (Neoen Australia Pty Ltd, 2025) . Briefly, the assessment finds that: • 7,064.17 ha of known or likely PBTL habitat is modelled as being subjected to shadow flicker for <1–8.3 days spread over a year, where there are expected to be no impacts from shadow flicker. • 2,760.62 ha of known or likely PBTL habitat is modelled as being subjected to shadow flicker for 8.4–20.8 days spread over a year, where impacts are predicted to be very minor or inconsequential. • 526.76 ha of known or likely PBTL habitat is modelled as being subjected to shadow flicker for 20.9–41.6 days per year, where there may be some temporal impacts to individuals within the shadow flicker area. • 0.20 ha of known or likely PBTL habitat is modelled as being subjected to shadow flicker for >41–62.5 days per year and is considered as a residual indirect impact from the Project. • It is noted that portions of the indirectly impacted areas overlap with the directly impacted Disturbance Footprint.

3.3.2 Application of the Mitigation Hierarchy

Neoen have undertaken a significant and extensive number of technical investigations during the Project's planning phase to identify potential impacts of the proposed action on the environment and have adjusted the Project design, particularly the location and layout of infrastructure, as much as possible and practicable, to avoid and/or minimise impacts on the environment. Technical investigations of relevance to PBTL are outlined in **Table 3.5**.

Table 3.5 Technical Investigations Relevant to PBTL

Assessment Description	Assessment Year	Survey Type	Citation
GNREF on-ground flora assessment (GNWF, GN3)	November 2022	On-ground broad flora survey and fauna habitat assessment, and Desktop assessment.	(EBS Ecology, 2022)
GNREF Ecological constraints mapping	July 2023	Desktop summary of known ecological constraints to guide wind farm design process.	(EBS Ecology, 2023b)
GNREF and OTL Ecological Risk Assessment Summary	September 2023	Desktop summary of wind farm design revisions based on known ecological constraints.	(EBS Ecology, 2023c)
GNWF on-ground flora assessment	November 2023	Targeted GNWF and OTL native vegetation (and habitat) assessment.	(Umwelt, 2025h)
GNWF targeted Pygmy Blue-tongue Lizard (PBTL) surveys	February–March 2024	On-ground targeted PBTL surveys within infrastructure footprint (GNWF, OTL).	(Umwelt, 2025c)
GNWF on-ground flora assessment	February–March 2024	Native vegetation surveys (and habitat assessment) on additional proposed access and infrastructure areas for GNWF and OTL (White Hill Road, Gum Hill Road, Belcunda Road, OTL remaining/ adjusted alignment).	(Umwelt, 2025h)
GNWF on-ground flora assessment	September 2024	On-ground vegetation (and habitat) assessment of areas in GNWF incorporated into updated design.	(Umwelt, 2025h)
GNWF targeted PBTL surveys in WF extension	April 2025	On-ground targeted PBTL surveys within Wind Farm extension areas and updated design.	(Umwelt, 2025c)

The infrastructure layout has proceeded through a series of changes and adjustments as the iterative process of initial investigation, layout review and refinement has occurred a number of times, as information became available from the engagement process, the specialist investigations and Neoen's own technical and construction advice.

Flora and fauna assessments for the GNWF Project have enabled Neoen to identify and understand constraints, and potential impacts to flora and fauna, including MNES, and apply a risk mitigation to the design. All stages of the GNWF Project design have been undertaken with consideration of vegetation mapping, and the known locations of threatened species populations and habitat, particularly PBTL.

Extensive PBTL surveys have been undertaken across the Disturbance Footprint to map PBTL habitat and determine an accurate estimate of the potential impact on PBTL habitat and individuals. This information has also been utilised to determine 'hotspot areas', and to minimise the footprint in these locations.

Design of the Disturbance Footprint has been weighted towards existing degraded areas (existing roads and tracks and other cleared areas), cropped areas and exotic vegetation, to minimise impacts to native vegetation and thus threatened species habitats.

Project infrastructure has specifically been designed and/or located to avoid direct impact to PBTLs and their habitat as much as possible through ongoing application of the Mitigation Hierarchy. The current assessment represents the worst-case assessment of impacts. Ongoing application of the Mitigation Hierarchy in the coming months as the design is further refined, will seek to avoid impacts even further.

In addition, the location of infrastructure will be micro-sited (moved and/or adjusted slightly) within the Development Envelope, away from PBTLs and/or PBTL habitat, wherever possible, prior to the commencement of construction works to avoid and/or minimise direct impacts to individual PBTLs as much as possible. Infrastructure will not be micro-sited (moved and/or adjusted slightly) if it does not result in a reduction of potential impacts to PBTLs and PBTL habitat and Neoen commits that micro-siting will not increase impacts to PBTLs and/or PBTL habitat. Furthermore, pre-construction surveys will identify any PBTLs and PBTL habitat within the DF that have changed since previously conducted surveys.

Where micro-siting cannot avoid direct impact to PBTLs, the individual(s) will be relocated to the nearest suitable release site in accordance with the procedure outlined in the GNWF PBTL Management Plan (Umwelt, 2025b).

Furthermore, while the Project has the potential to cause indirect impacts to PBTLs, such as, but not limited to, sedimentation of burrows, noise and vibration, weeds, herbicide use and feral animals, these indirect impacts will be avoided and/or minimised during construction and operation of the Project via implementation of specific management measures contained within the GNWF PBTL Management Plan (Umwelt, 2025b). As such, the potential indirect impacts associated with erosion and stormwater drainage (i.e., sedimentation of PBTL burrows), weeds, herbicide use, and feral animals are not expected to cause a significant impact on PBTLs. Other indirect impacts such as the impact of shadow flicker on behaviour of individuals is not yet well understood. However, there is a current Flinders University research plan in place funded under the Goyder South Wind Farm Project which aims to determine the magnitude of these impacts.

Avoidance and mitigation measures applied and proposed for the Project and PBTL are specified in **Table 3.6**. Whilst every effort has been made to avoid MNES and other sensitive areas where possible, engineering and landscape constraints mean that some impacts cannot be completely avoided. More details on the avoidance and mitigation measures are available in GNWF Project Preliminary Documentation, PBTL Management Plan and other GNWF Project supporting documents.

Table 3.6 Avoidance and Mitigation Measures Applied and Proposed for PBTL

Avoidance / Mitigation Measure	Description	Effectiveness
Pre-construction / design		
Site selection	GNWF Project location was selected as a world class wind resource, located on agricultural land which has previously been cleared and has a long history of agricultural use.	Located on agricultural land which has previously been cleared and has a long history of agricultural use. Intact native vegetation is minimal, and native grasslands are derived. Minimal need to impact on intact native vegetation due to large areas of existing cleared land. Relatively low ecological, social and economic impacts.
	Setback of min 500 m placed around Tiliqua Nature Reserve for WTG infrastructure.	Reduction in potential for indirect impacts (shadow flicker, noise and vibration), to negligible.
Alignment with existing infrastructure	Project Area sited to align wherever practicable with existing cleared areas including roads, infrastructure and cropped land.	Approximately 61.5 ha of potential PBTL habitat avoided through this method including: • 32.13 ha of existing roads or other clearance • 29.31 ha of cropped land. Plus, an additional: 14.54 ha of exotic pasture (may constitute poor quality PBTL habitat).
	Aligning electrical layout with temporary footprint associated with existing roads and proposed access tracks.	Approximately 23.63 ha of PBTL habitat avoided through this method.
Non-conventional stringing methods	Removal of stringing corridor in areas of high value MNES habitat through application of non-conventional stringing methods (i.e. helicopter stringing).	Approximately 7.93 ha of PBTL habitat avoided through this method. Additional 19.38 ha of other MNES habitat avoided through this method (total 27.31 ha).
PBTL Surveys	The entire DF searched for PBTL to determine the extent of the population and guide final placement of infrastructure. The surveys provide high confidence in population estimates during optimal conditions, and they significantly enhance understanding of the PBTL distribution, patchiness, and habitat use across the landscape. Additionally, they result in well-informed population estimates in both the DF and DE, contributing to an overall better understanding of the Project Area context.	Determined areas of high density PBTL populations and resulted in micro-siting of turbines and roads to minimise impacts.

Avoidance / Mitigation Measure	Description	Effectiveness
PBTL Pre-clearance Surveys and micro-siting for Geotechnical Investigations	Early works (Geotechnical Investigations) included pre-clearance surveys for all test pit and bore hole sites in PBTL habitat, with requirement to avoid all PBTL identified in these areas.	No impact to individual PBTL during Geotechnical Investigations.
Construction		
Construction Environmental Management Plan (CEMP) (Umwelt, 2025f)	Comprehensive document with multiple associated sub-plans which aim to avoid or minimise indirect environmental impacts from construction such as dust emissions, erosion, altered hydrology and general site matters. Includes measures for spatial data system to minimise the chance of unauthorised or incorrect clearance areas.	Indirect impacts to PBTL effectively avoided.
PBTL Management Plan	Specific sub-plan of CEMP which details procedures to further avoid as well as minimise and mitigate potential indirect impacts to PBTL.	Direct impacts to PBTL minimised. Indirect impacts effectively avoided.
Pre-clearance check)	Pre-clearance checks in all areas of the Project Area which contain suitable habitat, with the aim to locate any PBTL individuals within DF. If substantial PBTL populations or 'hotspots' are detected, implement micro-siting procedure to avoid or minimise impact on individuals or PBTL habitat.	Determines presence and numbers of PBTL in Disturbance Footprint. Allows for micro-siting to minimise impacts.
Micro-siting infrastructure	Micro-adjustments to infrastructure to avoid populations or PBTL 'hotspots' identified during pre-clearance surveys. Will result in no net increase in impact to PBTL or PBTL habitat. Micro-siting will only be considered if it reduces impact on MNES.	No net increase in impact to PBTL or PBTL habitat. Micro-siting will only be considered if it reduces impact on MNES.
Relocation	Relocation of individual PBTL detected and marked in pre-clearance surveys, if unable to be avoided by micro-siting.	Relocation implemented for scattered individuals. Survivorship unknown, however, studies have demonstrated the ability of PBTL to survive following relocation (Umwelt, 2025g).

Avoidance / Mitigation Measure	Description	Effectiveness
Translocation	Translocation is considered as a potential alternative for larger populations of PBTL or where relocation of individuals is assessed as potentially causing negative impact to surrounding existing PBTL populations. This option will only be utilized if advice from the PBTL Recovery Team or other relevant experts indicates that translocation is the best course of action. In that case, a site specific PBTL Translocation Plan would be developed.	Translocation implemented, with individuals translocated to suitable offset site(s), to be protected in perpetuity. Short-term success of PBTL translocation demonstrated at Goyder South Wind Farm offset site (World's End Gorge), including high survivorship in the first two years and evidence of successful breeding (reference?).
Operation		
Operational Environmental Management Plan	Management measures enforced to ensure no unforeseen direct or indirect impacts occur to PBTL during the operational phase of the GNWF.	Ensures direct impacts to PBTL during operational works are avoided and indirect impacts are minimised (where possible) through appropriate management measures.
Maintenance works	Any maintenance works (including ripping of rabbit warrens for pest control) will require additional surveys to determine the presence of PBTL within the impact footprint.	Determines presence and numbers of PBTL in area affected by maintenance works. Allows for micro-siting of works or implementation of alternate methods to avoid additional direct or indirect impacts to PBTL.
On-ground Offset	Neoen has purchased or is in the process of negotiating options to purchase agreements for a number of properties to be utilized as on-ground offsets for impacts to native vegetation and MNES. This includes: • 92 Civilization Gate Road, a 1,300-ha property to the north of the GNWF Project to be utilized as a native vegetation SEB offset site. • [redacted] • [redacted]	High – in combination, the three sites provide approximately 1,192 ha of known, likely and possible PBTL habitat.

Avoidance / Mitigation Measure	Description	Effectiveness
Offset Management Plan	EPBC Offset Management Plans have been drafted for [redacted]	Provides measurable conservation gain for PBTL.
Research	Proposed research project (developed separately and proposed as approximately 15% total contribution to EPBC Offset) by Flinders University to monitor relocated portion of PBTL to determine effectiveness of mitigation strategy. GNWF research will likely focus on the effectiveness of mitigation measures including relocation and possibly translocation success, and potentially fragmentation, with broad applications to improve management of PBTL and PBTL habitat going forward.	Provides valuable species insight and informs improved future planning and management.
Decommissioning		
Reassessment and further surveys	To be developed at time of decommissioning. It is likely to include targeted PBTL surveys, Significant Impact Assessment (under relevant legislation and guidelines at the time of decommissioning) and approvals, if required.	Follows regulatory process relevant at the time of impact.

3.3.3 Residual Significant Impact on PBTL

While Project infrastructure has specifically been designed and/or located to avoid impact to PBTLs and their habitat as much as possible, assessment of current Project design information, specifically the Disturbance Footprint, has determined that the Project will directly impact (clear) up to a total of 368.10 ha of PBTL habitat, and indirectly impact up to 0.20 ha of habitat, resulting in a total residual impact to PBTL habitat of 368.30 (**Table 3.7**). Within this impact area an estimated 206 (range 192 to 274) individual PBTL may be impacted (i.e. mortality or displacement) (**Table 3.7**). Impacts associated with Stage 1 and Stage 2 of the GNWF are detailed in **Table 3.8**

Table 3.7 Summary of Potential Direct Impacts to PBTL Habitat and PBTL Individuals

	Direct Impact to Known PBTL Habitat (ha)	Direct Impact to Likely PBTL Habitat (ha)	Total Direct Impact to PBTL Habitat (ha)	Estimated Number of PBTL Impacted	Indirect Impact Area (ha)
GNWF Project Disturbance Footprint (WF and OTL)	20.04	348.06	368.10	206 (range192 to 274)	0.20 ha (from shadow flicker modelling)

Table 3.8 Residual Direct Impact For Each Stage of GNWF Project

Habitat Type	Stage 1	Stage 2	Total
Likely	202.20	145.86	348.06
Known	10.89	9.15	20.04
Total	**213.09**	**155.01**	**368.10**

However, with application of the mitigation measures outlined in **Section 3.3.2**, such as pre - clearance checks and relocation, this impact to individuals is likely to be significantly reduced and/or avoided. Additionally, targeted PBTL surveys at the GNWF Project to date were undertaken when environmental and seasonal conditions were optimal (these favourable conditions have since declined), and with additional search effort undertaken in PBTL hotspots, thus the estimated impact to 20 individuals is likely to be an overestimate.

Most indirect impacts can be effectively avoided or mitigated through implementation of a CEMP and a site-specific PBTL Management Plan. However, residual indirect impacts to PBTL associated with shadow-flicker during operation are unavoidable and are therefore accounted for as a residual impact to the species habitat. Modelling indicates that 0.20 ha of Known or Likely PBTL habitat receives between 500 and 750 hours of shadow flicker influence per year (equating to between 41.7–62.5 days spread over the year) (Neoen Australia Pty Ltd, 2025), which may represent a potentially significant impact to the species.

Methods and assumptions around survey effort, population estimates and potential impact of varying degrees of shadow flicker influence, have been validated as appropriate by relevant experts on the PBTL Recovery Team. These figures present a worst-case assessment of impacts, and efforts to reduce impacts will occur through further design refinements.

As populations of PBTL fluctuate markedly both seasonally and with environmental conditions, estimates of the number of individuals impacted by the GNWF Project will also vary considerably over time. Therefore, Neoen proposes to offset impacts to PBTL habitat, not impacts to individual PBTL.

3.3.4 PBTL Habitat Quality at GNWF Impact Site

Habitat quality at GNWF (impact site)has been assessed in accordance with the *How to Use the Offsets assessment Guide* (DSEWPaC, Undated), in addition to supplementary PBTL habitat assessment criteria information supplied by DCCEEW, currently in working draft format. The key ecological attributes of PBTL habitat summarised in **Section 3.2** have been used to help determine the overall habitat quality score of the impact areas, in relation to the three habitat quality components as outlined in DSEWPC (undated), and *Draft Habitat Quality Scoring System for Pygmy Bluetongue Lizard (Tiliqua adelaidensis)* (DCCEEW, 2025 - in draft), in relation to the three habitat quality components as outlined in (DSEWPaC, Undated):

- site condition
- site context
- species stocking rate.

Note that weighting has been applied to the three habitat quality components (site condition (4), site context (4) and species stocking rate (2)) to equate to a total score out of 10, based on preliminary habitat scoring advice from DCCEEW (DCCEEW, 2025 - in draft).

The habitat quality score for GNWF impact area has been assigned a 6.84 (rounded up to 7 out of 10), based on the assessment presented in **Appendix A**, and explained further in **Table 3.9**.

Table 3.9 Habitat Quality Score and Justification for Impacted PBTL Habitat

Component	Questions / Consideration	Impacted Areas (up to 368.30)
Site condition	**What is the structure and condition of the vegetation on the site?**	The condition of preferred habitat of PBTL (i.e. grasslands) within the GNWF Project Disturbance Footprint and Development Envelope, which consist predominantly of *Austrostipa* spp. (Spear Grass) Mixed Grassland, is highly variable. During early surveys (2022), grassland was observed to be in fair to moderate condition, especially in the south and west of the Project Area. The southern portion includes Tiliqua Nature Reserve, and several other conservation-minded landowners, or landowners which do not heavily stock their land. Large areas of the Project Area have a moderate to dense rock covering, initially presumed to be of lower suitability for PBTL, but later found to contain sparse and patchily distributed individuals. Surveys were undertaken following a period of favourable conditions, however, since then, seasonal conditions have been poor, with an extended period of low rainfall (2023–2025) which has resulted in a decline in grassland condition, especially prevalent in the north and eastern portions of the Project Area. In these areas, there is a high cover of bare ground caused by heavy grazing, exacerbated by dry conditions. Fair to moderate condition grasslands remain on the lower slopes and southern area of the Project Area, however the

Component	Questions / Consideration	Impacted Areas (up to 368.30)
		majority of the grasslands have low coverage of native tussock grasses, with grazing to the base and high cover of exotic *Avena barbata* (Wild Oat). As such, the condition of grassland is likely to vary over time depending on seasonal conditions (amount of rainfall) and grazing impacts. Nonetheless, grazing (by domestic stock) is considered to limit or reduce the condition of PBTL habitat. PBTL were found in some areas adjoining open woodlands or mallee vegetation, however, not within more densely treed areas, and these woodland areas have not been included as Likely or Known PBTL habitat. Scattered trees, including both remnant and planted trees may occur in some areas mapped as Likely PBTL habitat. With continued management for grazing, and climate change impacts it is likely that the vegetation associations within the Project Area continue to decline further in future without land management changes/adaptations.
	What is the diversity of relevant habitat species present (including both endemic and non-endemic)?	The diversity of relevant habitat species (flora) present within GNWF is considered to be moderate, with an average of 8.9 native species (6.4 introduced) per surveyed site including *Austrostipa* spp. (Spear-grasses), *Aristida behriana* (Brush Wire-grass), *Rytidosperma* spp. (Wallaby-grasses), *Themeda triandra* (Kangaroo Grass), *Ptilotus spathulatus* (Pussy-tails), *Vittadinia cuneata* var. (Fuzzy New Holland Daisy), *Vittadinia gracilis* (Fuzzy New Holland Daisy), *Lomandra effusa* (Scented Mat-rush) and *Lomandra multiflora* ssp. *dura* (Hard Mat-rush). Half of all sites surveyed contained one or more State listed Rare plant species, most commonly *Rumex dumosus* (Wiry Dock). Other relevant fauna species are the Wolf Spider (Lycosidae) and Trapdoor Spider (Mygalomorphae). Data was not specifically collected on the proportion of burrows occupied by either species, or age class of spiders, however, both species were observed, with Wolf Spiders anecdotally observed in higher abundance than Trapdoor Spiders. However, this observation may be biased as the detection of Trapdoor Spiders is more difficult (and thus may be lower) due to the more cryptic nature of these burrows.
	What relevant habitat features are on the site?	The GNWF Project Area contains native tussock grasslands varying from poor to excellent condition. Native tussock grasslands are largely contiguous and unfragmented with a presence of spider burrows deemed suitable for PBTLs. Lower slopes and hills with deeper soils are present, which contain favourable features such as deeper spider burrows. A rocky surface cover is present across much of the Project Area, which is generally considered to reduce the habitat quality for PBTL. The tops of the hills and ridges are of lower condition, due to the steep slopes, prevalence of rocks and rocky outcrops and reduced vegetation quality caused by regular utilisation by livestock.

Component	Questions / Consideration	Impacted Areas (up to 368.30)
		The density of burrows varied considerably across the site, with some areas containing an abundance of burrows, and others containing sparsely distributed or generally unsuitable (shallow) burrows. Burrow depth was not measured, however given the location of much of the Disturbance Footprint on the tops of hills, where soil is shallower, burrows are generally thought to be shallower and less favourable for PBTL. Given the large size of the GNWF Project Area, annual average rainfall varies considerably, however broadly GNWF occurs within three rainfall bands, comprising 301-400 mm (eastern), 401-500 mm (majority) and 501-600 mm (higher slopes on western side). The use of pesticides / herbicides in the vicinity is not known; however, it is expected that habitat in the vicinity of cropped areas, especially in the western half of the Project Area, may be subject to seasonal application of herbicide, pesticide and / or fertilizer from time to time.
	Site condition score (4):	**2.34**
Site context	**What is the connectivity with other suitable/known habitat or remnants?**	Within the GNWF Project Area approximately 11,154 ha of potentially suitable PBTL habitat has been mapped. Land to the east of the Project Area presents a barrier to movement due to the steep terrain and change in vegetation association from grassland to chenopod shrubland and mallee woodland. To the south, grassland merges into chenopod shrubland, and on the western side, land is predominantly utilized for cropping which likely provides a barrier to movement in a westerly direction. Thus, although GNWF itself contains a large area of more or less contiguous habitat, it is surrounded by a number of potential barriers to PBTL movement. GNWF is connected to Tiliqua Nature Reserve, managed specifically for PBTL, and known to protect a significant and dense population of PBTL. GNWF Project infrastructure is set back from this location and much of the immediately surrounding grassland. Given the low mobility, small home ranges and sedentary nature of PBTL, and typically restricted gene flow, even in small patches of continuous habitat (Smith, Gardner, Fenner, & Bull, 2009), connectivity over such large scales is unlikely to be highly important for the species.
	What is the importance of the site in relation to the overall species population or the occurrence of the community?	GNWF occurs in the middle of the north-south extent of the known range of PBTL. The southern portion of the species range has been identified as likely to be important for the persistence of the species in the face of projected impacts of climate change (DCCEEW, 2023). The PBTL population at the GNWF Project occurs on the eastern limit of the PBTL's known range, with no suitable habitat available further east of the GNWF boundary. Suitable habitat occurs in the more arable region to the west; however, this area has been largely cleared of native vegetation.

Component	Questions / Consideration	Impacted Areas (up to 368.30)
		A recent population estimate (Bilby, et al., 2025) at Tiliqua Nature Reserve in high quality habitat found an estimated density of 32.51 to 37.75 PBTL per hectare, representing high quality, ideal habitat. The PBTL density estimate reported for the Disturbance Footprint (0.51 average) is based on a higher proportional area search and therefore presents high confidence results (Umwelt, 2025c). The lower PBTL density estimate is likely a result of the lower quality habitat, being managed for agricultural output, and occurring in less favourable locations, such as on hill tops and ridges, where the majority of windfarm infrastructure is proposed. Given the above factors, in the context of the overall distribution, the PBTL population at GNWF is considered moderately important. However, as stated in the PBTL Recovery Plan (Duffy, Pound, & How, 2012), all known PBTL habitat is considered habitat critical to the survival of the species.
	What threats occur on or near the site?	GNWF is subject to key threatening processes outlined in the PBTL Conservation Advice (DCCEEW, 2023), including potential for changed land use for agriculture (e.g. ploughing, development), inappropriate grazing regimes, weeds, chemical use (pesticide, herbicide and fertilisers), introduced predators and climate change.
	Site context score (4):	**3.5**
Species stocking rate	**What is the presence of the species on the site? (i.e. confirmed / modelled).**	PBTL have been confirmed within GNWF, as they have been observed during numerous field surveys during the Project planning phase (Umwelt, 2025c). The distribution of PBTL within the GNWF Project is sparse and patchy, with some densely populated hotspots and other scattered individuals, however the total area of mapped Likely or Known habitat within the GNWF is approximately 11,154 ha. Anecdotal evidence (pers. comm. Prof M. Gardner, Flinders University, PBTL Recovery Team Chair) suggests high seasonal variability, with much lower reporting rates detected in recent surveys at GNWF, following poor seasonal environmental conditions. The species has not been reported from the adjoining Mokota Conservation Park and is assumed not to occur there due to inappropriate habitat (reported lack of spider burrows). A dense PBTL population is known to occur at Tiliqua Nature Reserve in the south of the Project Area (Bilby, et al., 2025). No PBTL are currently known to occur in the DF or Project Area north of White Hill Road, nor along the OTL to the south of the WF where the hills recede into flats and plains dominated by disturbed land and derived chenopod shrublands. PBTL are not known to occur in woodland vegetation and thus much of the eastern side of the WF is considered unsuitable, and provides a barrier to dispersal to the east, though it is likely that the WF represents the eastern extent of PBTL occurrence in this location.

Component	Questions / Consideration	Impacted Areas (up to 368.30)
		Including recent Umwelt and Flinders University as well as historical database records, there are currently 55 confirmed records of PBTL in the DF, 119 in the DE, and 1,466 in the Project Area. However, these records represent known individuals at a point in time and may not still occur in the Disturbance Footprint. Estimates, from density calculations, indicate that 206 PBTL may occur in the DF based on the density reported at the time of survey (range 192 to 274). The actual number of PBTL in the Project Area is likely to be much higher, with up to 2,001 (±400) individuals predicted to occur in the 53 ha Tiliqua Nature Reserve (Bilby, et al., 2025), and an estimated 6,519 individuals in the GNWF Project Area (based on density recorded in Umwelt targeted surveys) (Umwelt, 2025d; Umwelt, 2025c). This estimation is likely to be on the lower end, due to the concentration of survey effort in lower suitability habitat. Other population estimates published in literature include a 175-ha property near Jamestown with high quality habitat containing an estimated 14 PBTL per ha, and a 350-ha property near Peterborough in lower quality habitat with an estimated 8 PBTL per ha. This indicates that the estimated PBTL density at GNWF, within the Disturbance Footprint in particular, is lower than estimates of other known populations of the species.
	What is the density of species known to utilise the site?	Based on survey work undertaken by EBS Ecology and Umwelt to date (Umwelt, 2025c) within the GNWF, the density of PBTLs within the GNWF impact area is considered to be quite low and design has been altered to avoid areas of PBTL habitat with higher densities of PBTLs. The density of PBTL reported within the surveyed area, ranged from 0.54 per hectare in Native Grassland to 1.63 per hectare in *Maireana rohrlachii* Shrubland, as a result of identifying a PBTL 'hotspot' in one location. These density estimates are based on surveys undertaken within the Disturbance Footprint, which is concentrated on hill tops and ridges for optimal wind but is considered sub-optimal for PBTL. When compared to estimated density of PBTLs in optimal habitat, such as at Tiliqua Nature Reserve (estimated between 32.51 and 37.75 PBTL per hectare), the density of PBTL in the GNWF impact area is considered low.
	What is the role of the site population in regard to the overall species population?	There is no current reliable population estimate for PBTL. A national population estimate of 5,000 individuals was made in 2000, based on 10 known populations, however over 20 additional sub-populations have since been detected (DCCEEW, 2023) and the estimate at the GNWF Project alone, suggest a much higher population size. Given the cryptic nature of PBTL, the time, difficulty and expense of surveying for them, and their apparent ability to survive on grazed agricultural land, it is expected that the overall population size is much larger than the originally reported 5,000.

Component	Questions / Consideration	Impacted Areas (up to 368.30)
		There are few reliable populations estimates for other populations, thus it is unknown what the role of the PBTL population at the GNWF Project is in a regional context. The PBTL population at the GNWF Project is likely to form part of a broader distribution of a larger (albeit fragmented) population within the species AOO. Given the above factors, in the context of the known populations, the PBTL population at GNWF if considered moderately important. However, as stated in the PBTL Recovery Plan, all PBTL populations are considered important due to the restricted and fragmented distribution of the species (Duffy et al. 2012).
	Species stocking rate score (2):	**1**
	Additional comments:	The low number of PBTLs and patchiness of suitable spider burrows observed during field surveys within the proposed DF, is reflective of a low level of PBTL habitat quality within the GNWF impact area. The quality of habitat outside of the DF, within the broader GNWF Project Area, is likely to be considered higher, in some areas. The impact area has been subjected to long-term grazing regimes of low to high intensity (depending on landowner and seasonal conditions) with native grass tussocks observed to be intact in some locations to over-utilised and almost unidentifiable in other locations. In general, grasslands within the GNWF Project Area are highly disturbed by grazing and pasture weeds are common in most areas mapped as grassland
Habitat Quality Score:		**6.84**

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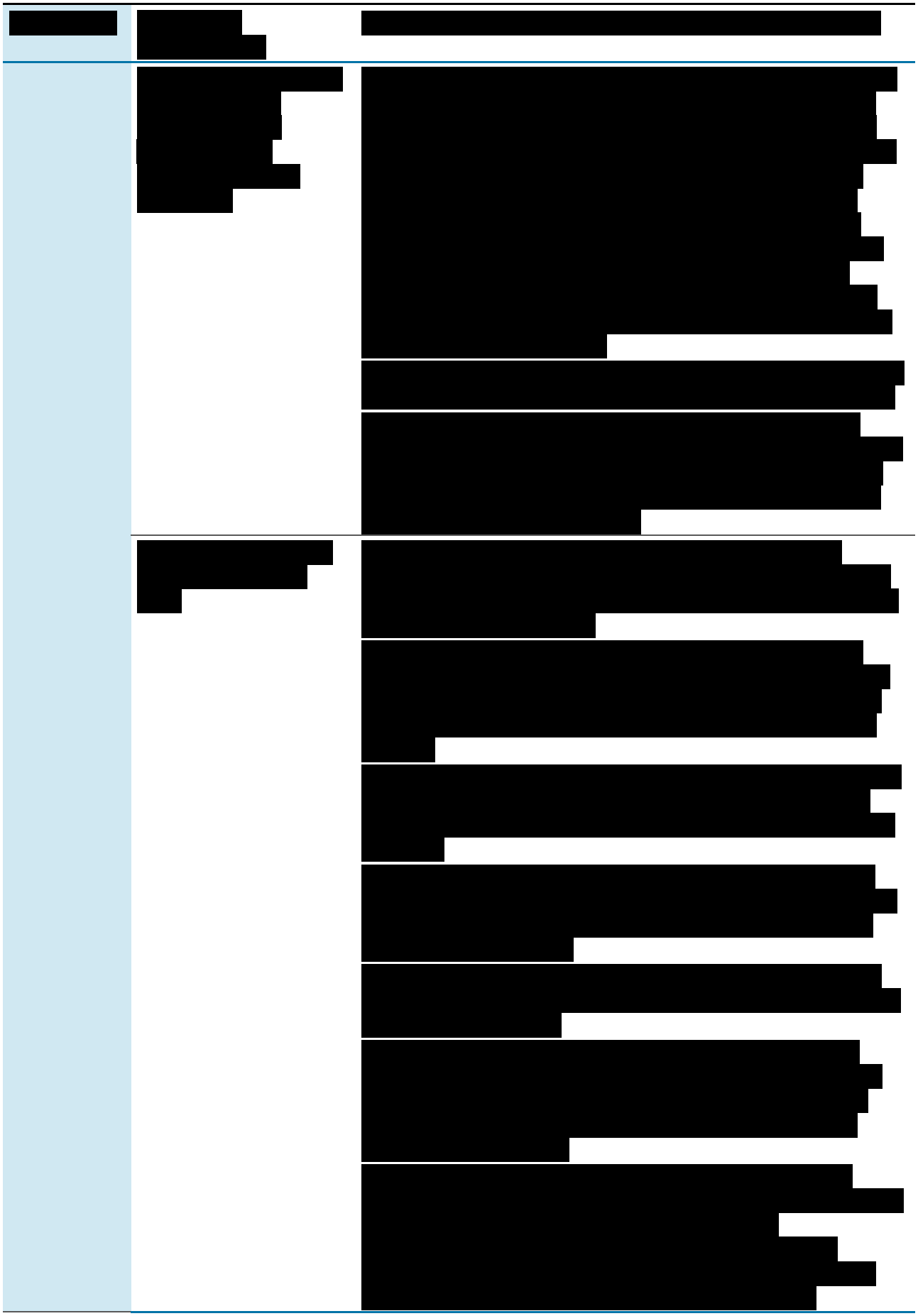

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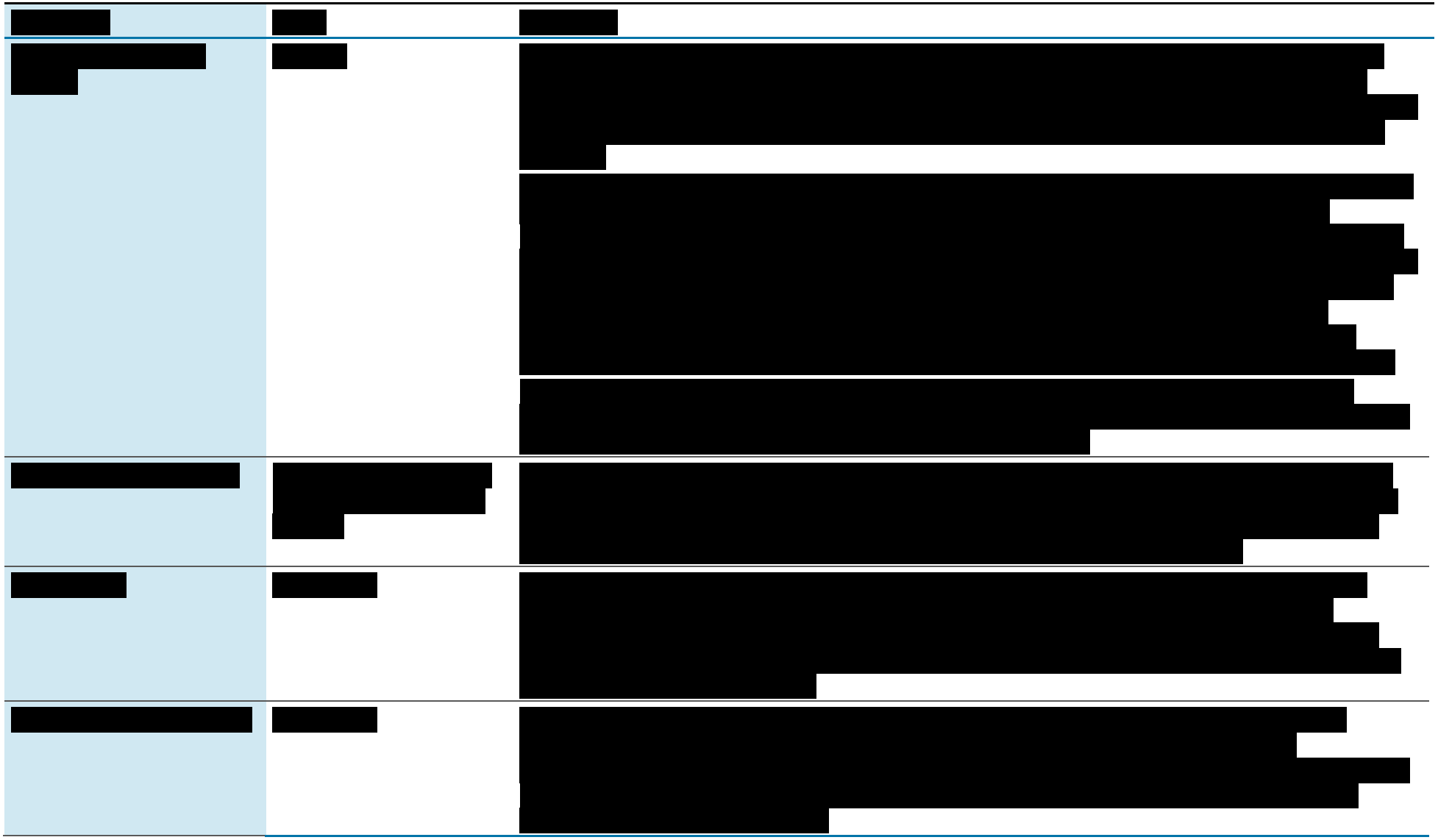

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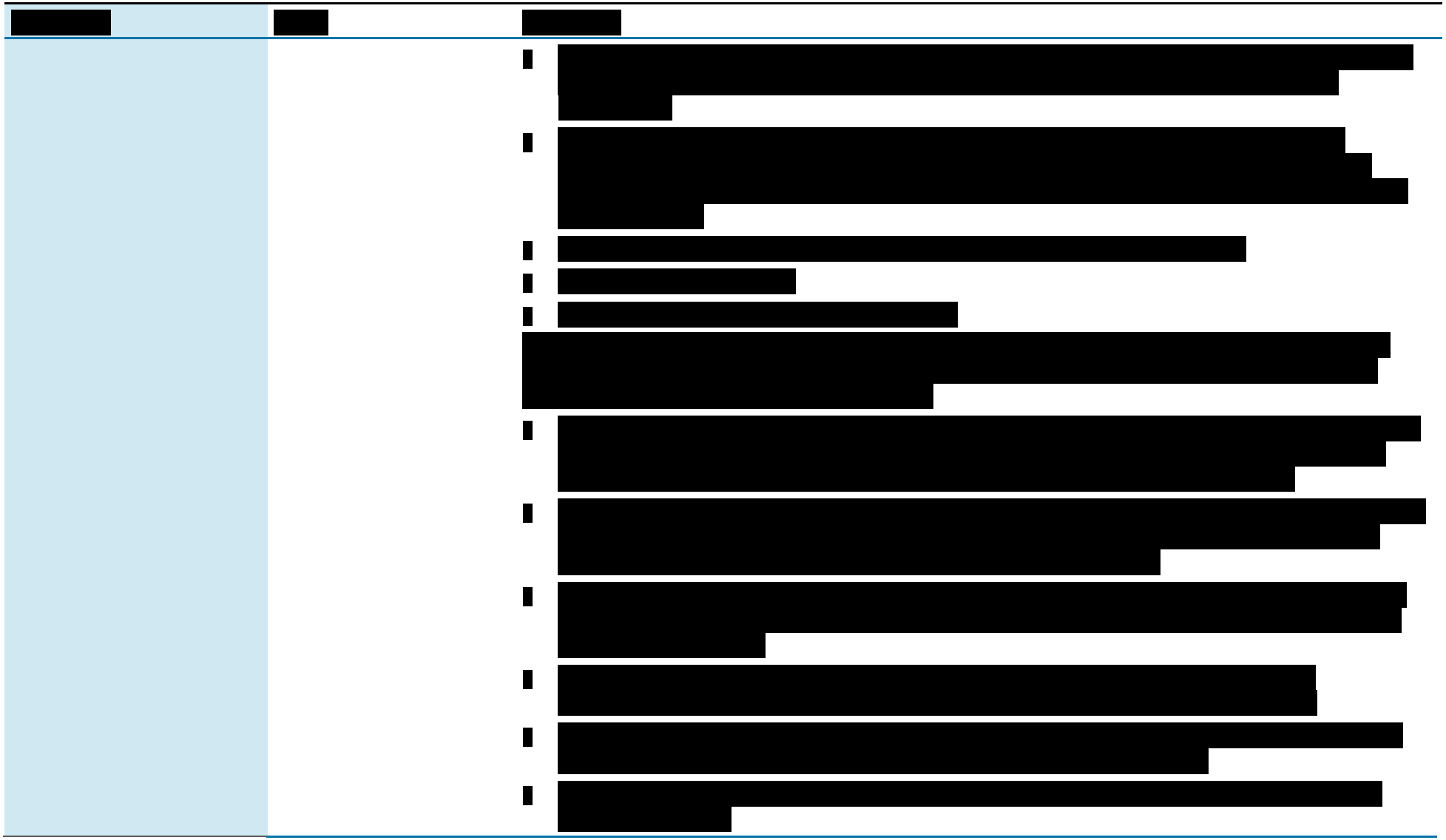

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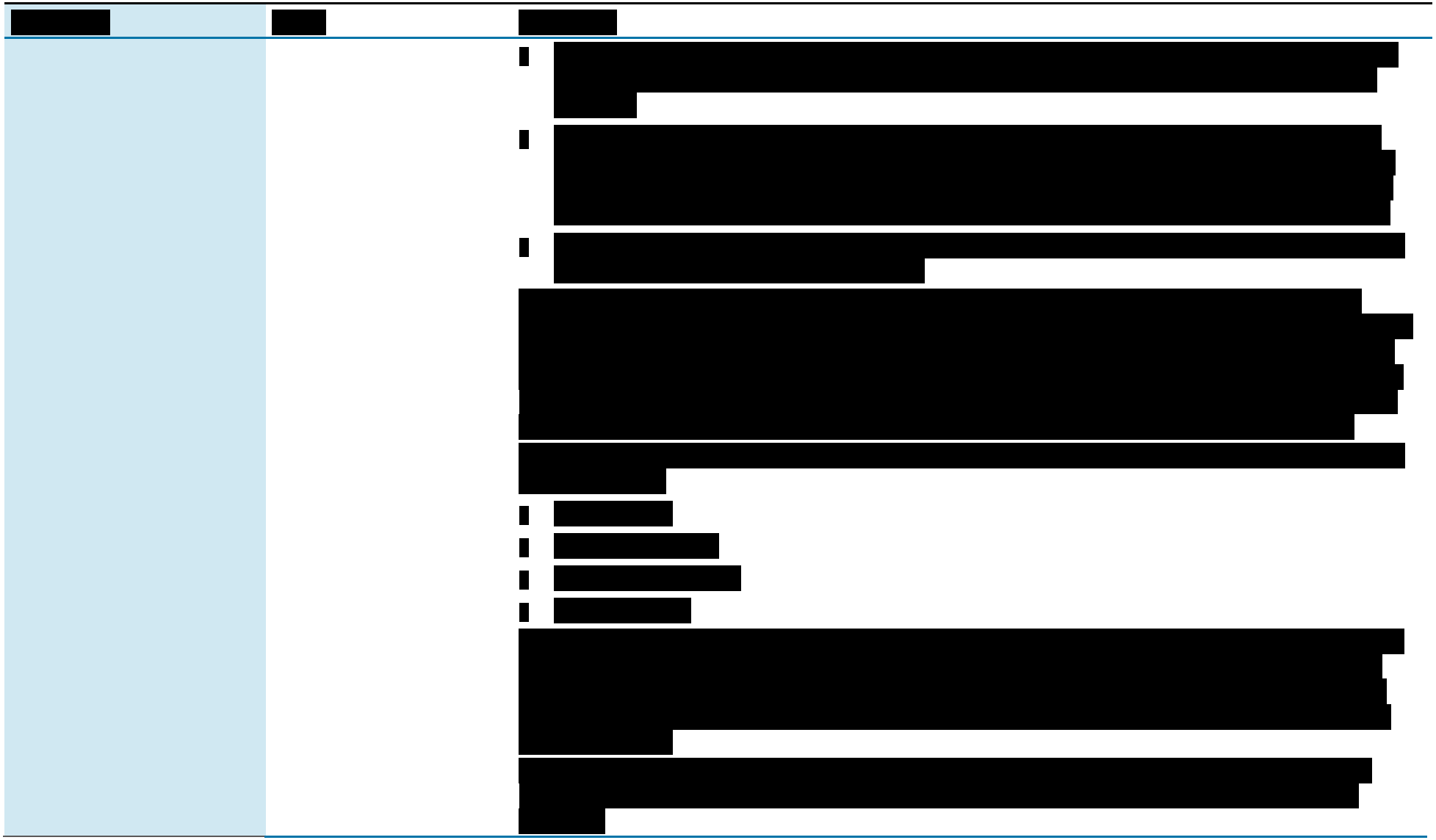

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4.3 Statement of Expected Outcomes

The expected outcomes for the PBTL Offset are:

- Formal protection of the [redacted] PBTL Offset Area for the duration of the action. However, protection is likely to be in perpetuity as the [redacted] PBTL Offset Area will be protected via a Heritage Agreement (as outlined in **Section 5.2.2**) (pending approval).
- Management of the [redacted] PBTL Offset Area in accordance with a site-specific [redacted] PBTL Offset Management Plan (this Plan), for a minimum of ten years, and then reviewed to inform the management for remainder of the duration of the action in order to:
    - create, maintain and improve (where possible) the condition/quality of the [redacted] PBTL Offset Area; and
    - increase the PBTL population(s) within the [redacted] PBTL Offset Area (where possible).
- Monitor habitat condition and PBTL population numbers within the [redacted] PBTL Offset Area.

These expected outcomes align with overall and specific objectives of the PBTL Recovery Plan (Duffy et al., 2012) by assisting in improving the long-term viability of PBTLs in the [redacted] PBTL Offset Area. In particular, the [redacted] PBTL OMP is expected to contribute to the following specific objectives from the PBTL Recovery Plan:

- Protect existing PBTL populations and habitat.
- Maintain, enhance and increase the area and quality of suitable habitat for PBTL at known populations.
- Monitor populations to evaluate the effectiveness of management and detect trends which may require a management response.

4.4 EPBC Offsets Policy

This Plan has been prepared in accordance with the EPBC Offsets Policy (DSEWPaC, 2012a). A review of the proposed Offset against the eight overarching Offset Principles has been undertaken and is presented in **Table 4.6**.

Table 4.6 Review of Proposed PBTL Offset against EPBC Offset Principles

Offset Principle	Details / Commentary	Comments on How the Proposed Offset is Consistent with the Offset Principle
Suitable offsets must deliver an overall conservation outcome that improves or maintains the viability of the aspect of the environment that is protected by national environment law and affected by the proposed action.	Offsets must directly contribute to the ongoing viability of the protected matter impacted by the proposed action and deliver an overall conservation outcome that improves or maintains the viability of the protected matter as compared to what is likely to have occurred under the status quo, that is if neither the action nor the offset had taken place. Offsets should be tailored specifically to the attribute of the protected matter that is impacted in order to deliver a conservation gain. For impacts on habitat for threatened species, migratory species and threatened ecological communities, any direct offset must meet, as a minimum, the quality of the habitat at the impact site.	The EPBC OAG has been applied to calculate the estimated direct offset area required to compensate for the maximum potential disturbance under the proposed layout, ensuring any adverse impacts to the PBTL are offset and a measurable conservation gain is achieved. Implementation of the [redacted] PBTL Offset Area will deliver an overall conservation outcome that, at a minimum, maintains a viable population of PBTLs within the offset area. This population and its habitat will be secured in perpetuity through a Heritage Agreement, eliminating the risk of habitat loss that may occur without formal protection. The Offset Management Plan outlines targeted actions to maintain and improve habitat quality, addressing threats identified in the Conservation Advice. In addition to the direct offset, compensatory measures provide an additional benefit through a dedicated research program focused on evaluating the success of mitigation measures for the wind farm itself. This research will improve understanding of PBTL ecology and guide future renewable energy projects, complementing the conservation outcomes achieved through the offset. Without the offset or compensatory measures (status quo scenario), the land of both the wind farm and offset site would likely remain under variable agricultural use, leading to continued habitat degradation, increased exposure to threats, and limited research opportunities. Active management of the [redacted] PBTL Offset Area will ensure habitat quality is improved beyond the minimum standard required, while the research component enhances long-term conservation outcomes and informs best practice for future developments.

Offset Principle	Details / Commentary	Comments on How the Proposed Offset is Consistent with the Offset Principle
Suitable offsets must be built around direct offsets but may include other compensatory measures.	Offsets must be built around direct offsets, which should form a minimum of 90 % of the total offset requirement. Other compensatory measures may satisfy up to a maximum of 10 % of the total offset requirement. Where possible, an offset should address key priority actions outlined for the impacted protected matter in any approved recovery plans, threat abatement plan, conservation advice, ecological character description or approved Commonwealth management plan. Higher priority actions are preferred to lower priority actions. Tenure The securing of existing unprotected habitat as an offset only provides a conservation gain if that habitat was under some level of threat of being destroyed or degraded, and as a result of offsetting will instead be protected in an enduring way and actively managed to maintain or improve the viability of the protected matter. The tenure of the offset should be secured for at least the same duration as the impact on the protected matter arising from the action, not necessarily the action itself. Legal mechanisms, such as conservation covenants, exist in each state and territory to enable protection of the land that is set aside for environmental purposes on a permanent or long-term basis. There is also provision under Part 14 of the EPBC Act for the Minister to enter into a conservation agreement with a third party for the conservation of a protected matter. An EPBC Act conservation agreement is a flexible instrument that can be used for implementing a range of management activities to benefit a protected matter, such as fencing off important habitat areas, undertaking weed and feral animal control or the establishment of compensatory habitat.	The PBTL Offset will predominantly be in the form of an on-ground offset for both Stages 1 and 2, with residual offset requirement to be applied to PBTL research (compensatory offset). The PBTL Offset addresses key priority actions for PBTL outlined in the PBTL Recovery Plan (Duffy, Pound, & How, 2012) by assisting in improving the long-term viability of PBTLs in the [redacted] PBTL Offset Area. In particular, the PBTL Offset will contribute to the following specific objectives from the PBTL Recovery Plan: • Protect existing PBTL populations and habitat. • Maintain, enhance and increase the area and quality of suitable habitat for PBTL at known populations. • Monitor populations to evaluate the effectiveness of management and detect trends which may require a management response. The PBTL Offset will address key priority actions outlined for the PBTL in the approved *Conservation Advice for* Tiliqua adelaidensis *(pygmy blue-tongue lizard)* (DCCEEW 2023) as well as the *Threat abatement plan for predation by feral cats 2024* (DCCEEW 2024). *Tenure* The current land tenure of the [redacted] PBTL Offset Area is freehold, and is expected to remain to be freehold into the future. The Project Owner (Neoen) will enter into a legal agreement with the land holder (property owner) to acquire the proposed [redacted] PBTL Offset Area and to engage an esteemed Accredited Third-party Provider with extensive experience in PBTL conservation to manage the offset.

Offset Principle	Details / Commentary	Comments on How the Proposed Offset is Consistent with the Offset Principle
		Additionally, up to 15.05 % of the Stage 1 EPBC Offset will be in the form of a research project focused on assessing the effectiveness of proposed mitigation measures including relocation as a mitigation strategy for PBTL. As per the Offset Policy criteria, the research would be conducted by Flinders University, focussed on key ecological questions around measuring effectiveness of PBTL relocation, condition, survivorship, dispersal and genetics, which will inform best practice relocation / translocation methodology for the species. Between Stage 1 and Stage 2 Offsets, the compensatory component is equivalent to 14.94% of the overall offset package.
Suitable offsets must be in proportion to the level of statutory protection that applies to the protected matter.	Due to the higher risk involved with protected matters of greater conservation status, the offsets required for those protected matters with higher conservation status must be greater than those with a lower status. For listed threatened species and ecological communities, this is calculated in the Offsets assessment guide by using International Union for Conservation of Nature data on the probability of annual extinction for different categories of threatened species.	The [redacted] PBTL Offset Area is considered to be in proportion to the level of statutory protection that applies to PBTL, as the OAG was used to calculate an estimate of the direct offset area required for the maximum disturbance that may occur under the proposed layout (368.30 ha, including 213.10 ha for Stage 1). The inputs into the OAG were based on advice provided by DCCEEW for scoring habitat quality for PBTL, applied to each of the outcomes including current habitat quality, quality with offset and quality without offset.
Suitable offsets must be of a size and scale proportionate to the residual impacts on the protected matter.	Offsets must be proportionate to the size and scale of the residual impacts arising from the action so as to deliver a conservation gain that adequately compensates for the impacted matter. The size and scale of an offset required for each impact is determined by taking account of a number of different considerations that are discussed in the EPBC Offsets Policy, including the: • level of statutory protection that applies to the protected matter • specific attributes of the protected matter, or its habitat, being impacted	A number of different considerations outlined in the EPBC Offsets Policy have been taken into account and entered into the OAG (where appropriate), including: • level of statutory protection to PBTL (Endangered) • specific attributes of PBTL habitat being impacted by the disturbance footprint = 368.30 ha with a quality score of 7 (scale 0-10) • quality or importance of the PBTL habitat being impacted with regard to PBTL ongoing viability (7 out of 10)

Offset Principle	Details / Commentary	Comments on How the Proposed Offset is Consistent with the Offset Principle
	• quality or importance of the attributes being impacted with regard to the protected matter's ongoing viability • permanent or temporary nature of the residual impacts • level of threat (risk of loss) that a proposed offset site is under • time it will take an offset to yield a conservation gain for the protected matter • risk of the conservation gain not being realised.	• permanent or temporary nature of the residual impacts (operational life of the GNWF Project is expected to be approximately 25-30 years • level of threat (risk of loss) that the proposed offset site is under (which is considered to be a low to moderate risk of loss without offset measures in place) • time it will take the proposed offset ([redacted] PBTL Offset Area) to yield a conservation gain for PBTLs (time until ecological benefit of up to 10 years) • risk of conservation gain not being realised (which is considered to be a low 2% as confidence in result is considered to be 90%). Therefore, the proposed direct offset ([redacted] PBTL Offset Area) is considered to be proportionate to the size and scale of the residual impacts on PBTLs arising from Stage 1 of the action.
Suitable offsets must effectively account for and manage the risks of the offset not succeeding.	The use of offsets as a compensatory measure through the assessment and approval process involves two levels or risk. The first, and highest, level of risk is that the impact on the protected matter will be too great and that an offset will not be able to compensate for the impact. The second level of risk relates to whether individual offsets are likely to be successful in compensating for the residual impacts of a particular action over a period of time. It is this risk that is considered in determining a suitable offset and has direct bearing on the scale of the offset required. The magnitude of a suitable offset will increase proportionately to the risk posed to the protected matter by the proposed action. In general terms, direct offsets present a lower risk than other compensatory measures, as they are more likely to result in a conservation gain for a protected matter.	The [redacted] PBTL Offset Area will be implemented and managed in accordance with this Plan which includes a monitoring program which will identify potential risks (such as a decrease in PBTL population(s) and/or PBTL habitat condition), as well as associated contingency measures for the successful management of the proposed [redacted] PBTL Offset Area. This Plan involves an adaptive management approach where monitoring will measure progress and allow for timely identification of any changes required to management measures (for example the grazing regime), which will help to ensure that the [redacted] PBTL Offset Area is successful. Up to 84.95% of the proposed Stage 1 PBTL Offset is a direct offset (i.e., the on-ground [redacted] PBTL Offset Area), which is considered by the EPBC Offsets Policy to

Offset Principle	Details / Commentary	Comments on How the Proposed Offset is Consistent with the Offset Principle
		present a lower risk than compensatory measures, as they are more likely to result in a conservation gain. Given the complexity of offsetting for PBTL, and the number of important research questions to be answered, DCCEEW has indicated willingness to increase the proportion of compensatory offsets to above 10%. This is supported by comments received from the PBTL Recovery Team. Furthermore, the PBTL Offset is proposed to be implemented as soon as possible prior to commencement of the action for Stage 1, which is also considered to reduce the risk profile of the offset through providing a conservation gain at an earlier point in time.
Suitable offsets must be additional to what is already required, determined by law or planning regulations or agreed to under other schemes or programs.	Offsets must deliver a conservation gain for the impacted protected matter, and that conservation gain must be new, or additional to what is already required by a duty of care or to any environmental planning laws at any level of government. It is important to note however that this does not preclude the recognition of state or territory offsets that may be suitable as offsets under the EPBC Act for the same action. Whether or not an offset is considered to be additional will be assessed on a case-by-case basis. *Links with state and territory approval processes* It is important to note that while there are many similarities between the environmental laws of the states and territories and the EPBC Act, they also differ in a fundamental way. The EPBC Act focuses on protecting MNES and only protects the broader environment in certain circumstances, while state and territory laws usually protect the environment as a whole (for example air quality, noise pollution, water quality, biodiversity, and heritage values). These differing legislative objectives result in different assessment processes and can result in different offset requirements.	The GNWF Project is required to achieve a SEB in accordance with the SA *Native Vegetation Act 1991*, for clearance of native vegetation. Neoen has already purchased approximately 1,300 ha of land (at 92 Civilization Gate Road) for a portion of the required SEB, representing an on-ground offset for approximately 92% of the Stage 1 NV SEB offset requirements. Additionally, land proposed for PBTL Offsets [redacted] will also be utilized to contribute towards the SEB balance for GNWF's Stage 2 NV SEB offset obligations on-ground, if required. PBTL specific management actions, although complementary, will be undertaken as part of the [redacted] PBTL Offset and additional actions such as woody weed control, feral herbivore control and revegetation will be implemented to contribute towards the SEB gain. As such, the PBTL Offset is in addition to the SEB Offset and vice versa.

Offset Principle	Details / Commentary	Comments on How the Proposed Offset is Consistent with the Offset Principle
	As a consequence, some proponents may need to provide offsets under both state or territory laws and the EPBC Act for the same action. A state or territory offset will count toward an offset under the EPBC Act to the extent that it compensates for the residual impact to the protected matter identified under the EPBC Act.	No other environmental schemes or programs, for example stewardship funding from a program such as Caring for our Country are currently applicable to the land parcels proposed to be used for the PBTL Offset. Therefore, the EPBC Offset will be additional to what is already required and/or determined by SA law or planning regulations (other offset requirements).
Suitable offsets must be efficient, effective, timely, transparent, scientifically robust and reasonable.	Efficient and effective offsets are those that maintain or improve the viability of a protected matter through the sound allocation of resources. An offset should be implemented either before, or at the same point in time as the impact arising from the action. This timing is distinct from the time it will take an offset to yield a conservation gain for the protected matter, which may be a point in the future. Offsets must be based on both scientifically robust and transparent information that sufficiently analyses and documents the benefit to a protected matter's ecological function or values. This includes undertaking desktop modelling of offset benefits and conducting relevant field work as appropriate.	Implementation of the [redacted] PBTL Offset Area is considered to be a highly efficient, effective, timely, transparent, scientifically robust and reasonable offset for the following reasons: • The time until ecological benefit is 10 years, as while the [redacted] PBTL Offset Area is proposed to be implemented prior to commencement of the action and the legal agreement will immediately secure the future management of the [redacted] PBTL Offset Area, for the conservation of PBTLs, it may take up to 10 years for ecological benefit to be achieved. • The risk of loss (with offset) is 0% as the [redacted] PBTL Offset Area is proposed to be protected in perpetuity via execution of a Heritage Agreement; and the site will be actively managed in accordance with this Plan. • Monitoring of the [redacted] PBTL Offset Area, in accordance with this Plan, will provide scientifically robust data which will be used to identify any changes required to management measures (for example the grazing regime). • Monitoring reports will be provided to the Department and may also be uploaded to the GNWF Project's website for public viewing (desensitised) if appropriate.

Offset Principle	Details / Commentary	Comments on How the Proposed Offset is Consistent with the Offset Principle
Suitable offsets must have transparent governance arrangements including being able to be readily measured, monitored, audited and enforced.	Offsets must be delivered within appropriate and transparent governance arrangements. Proponents, or their contractors, must report on the success of the offsets so that conditions of approval can be varied if the offsets are not delivering the desired outcome. Offset proposals will need to include clearly articulated measures of success that are linked to the purpose of the offsets and provide clear benchmarks about their success or failure. Annual reports will be required by the department and, where possible, will be made publicly available. Performance of offsets will be reviewed as part of the monitoring, compliance and audit program for all proposals considered under the EPBC Act.	This Plan, including the [redacted] PBTL Offset Area monitoring program, clearly outlines the following: • the management responsibilities between the Project Owner and the Accredited Third Party Provider (land manager), as well as an ecological consultancy (**Section 5.4**); • the ecological indicators to be monitored and a proposed monitoring methodology to audit the implementation of the management actions and identify any changes to management actions that might be required (**Section 6.1**); and • the reporting responsibilities, which include submission of a monitoring report to the Department (**Section 6.4**). All environmental reporting and records will be available for auditing by the Department if required.

5.0 Offset Management

The management aspects addressed in this Plan include the following:

- Establishment and implementation of this Plan.
- Security mechanism, including securement and long-term protection of the [redacted] PBTL Offset Area.
- Grassland management (including management of grazing regime).
- Weed and pest animal control.
- Fire prevention.
- Restricting access and preventing poaching.
- Monitoring, reporting and adaptive management.
- Review and update of this Plan.

These management aspects and the management actions associated with them, are outlined in this section, while more detail is provided in the sub-sections further below. The measurable outcomes, timeline and responsibility associated with each management action are also included in **Section 5.3**, **Section 5.3.9** and **Section 5.4** respectively.

Management actions associated with each management aspect will be implemented in accordance with the PBTL Recovery Plan (Duffy et al. 2012) and the Pygmy Blue-tongue Lizards: Best Practice Management Guidelines for Landholders (PBTL Best Practice Management Guidelines) (Schofield 2006).

The associated offset monitoring, evaluation, reporting and review schedule is addressed separately in **Section 6.0**.

5.1 Establishment and Implementation

The current land tenure of the [redacted] Offset Site is freehold and is expected to remain to be freehold into the future.

Neoen propose to enter into a legal agreement or contract with the landowner to secure land options to purchase agreements for the proposed offset property with timeframe optionality to allow for staging of the offset (as described in **Section 2.4**) and to allow for alignment with financial close of the respective stage of the Project. These contracts will be provided to DCCEEW once in place and will outline Neoen's exclusive right to purchase land during the defined period of the agreement.

Following a Financial Investment Decision by Neoen, the property will be formally secured (i.e. purchased), and a Heritage Agreement (HA) application will be submitted to the Native Vegetation Branch (NVB) for consideration and then commence registration of the HA with the South Australian Land Titles Office (Land Services SA). Neoen have agreed with DCCEEW that the site will be effectively secured to enable breaking ground at the GNWF Project for each respective stage, when the [redacted] Offset Site is formally secured and the NVB has accepted the application for the HA over the relevant offset land and commences the process for registration of the agreement.

Neoen will engage an Accredited Third-party Provider to manage the land according to this Plan, thereby preventing occurrence of known and/or potential threats to the proposed [redacted] Offset Site, such as, but not limited to, potential changes in land use (including altered grazing regimes), weed invasion, exotic animals, use of pesticides, herbicides and fertilisers, wildlife poaching, new infrastructure and developments, and climate change (via adaptive grazing management) within the [redacted] PBTL Offset Area.

Table 5.1 Offset Management Summary

Option	Key Points	Description
Neoen Purchases land and enters into Agreement with Accredited Third-party Provider. Neoen purchases a parcel of land from a willing landholder and places all or part of the area under a Heritage Agreement to be managed.:	Heritage Agreement	Neoen will place the purchased land under a Heritage Agreement (**Section 5.2.2**).
	Offset Management Plan	The land will be managed in accordance with a detailed [redacted] PBTL OMP (this Plan).
	Third Party Management	An Accredited Third-party Provider will be engaged to implement the management, monitoring and reporting activities as specified in the [redacted] PBTL OMP (this Plan). At their discretion, they may engage independent contractors to undertake portions of the work including monitoring and reporting.
	Neoen Oversight	Neoen will oversee the activities of the Accredited Third-party Provider to ensure compliance with the [redacted] PBTL OMP (this Plan). At their discretion, Neoen may engage independent accredited ecological consultants to undertake any monitoring and reporting.

5.2 Security Mechanism

5.2.1 Securement of the [redacted] Offset Site

As the GNWF Project will be constructed in stages, Neoen will coordinate the timing of each development phase with the securement of corresponding portions of the offset site, as outlined in **Section 2.4**. To mitigate the risk of not acquiring all required offset sites, Neoen proposes to establish either an option to purchase or a contract with extended settlement periods for the offset property (or components of it). This approach will grant Neoen exclusive rights to purchase the land within the agreed timeframe. Each Offset Area will be formally secured prior to the commencement of construction for its respective stage as described in **Section 2.4**.

5.2.2 Long-term Protection Mechanism

Once the property has been legally secured by the above means, Neoen propose to execute a Heritage Agreement, in accordance with the South Australian NV Act, over the Offset Area(s), which will provide protection in perpetuity. The NVB within the SA DEW manages the implementation of HAs.

A HA is a conservation area on private land, which is subject to the NV Act and established by agreement (or contract) between a landowner and the (SA) Minister for Sustainability, Environment and Conservation. Agreements are ongoing or perpetual and are binding on future landowners. Even if the property is sold or ownership is transferred, the conservation status of the land under agreement will continue. Native plants and animals within the specified HA area must be protected from the time the agreement is made, thus preventing known and / or potential threats to the Offset Area(s), including change in land use, use of pesticides, insecticides or fertilisers and habitat fragmentation.

It will be the responsibility of the landowner to conduct weed and feral animal control and they must abide by relevant legislation such as the LSA Act. If an activity could adversely impact native flora and fauna in a HA area, then the Minister will need to grant approval before it can be performed. In addition to this, the planting of vegetation, regardless of whether it is native or exotic, requires Ministerial approval. The Minister is likely to grant approval if an activity is to provide a net benefit for the conservation of the area.

A HA will not preclude livestock (such as sheep) grazing from occurring within the [redacted] PBTL Offset Area. However, it is likely that implementation of the OMP, which includes specific grazing management measures such as limiting livestock to sheep and excluding cattle, as well as limiting grazing rates and timeframes, will be a condition of approval / execution of the HA.

Best practice management measures are incorporated into this Plan, based on the available literature and consultation with relevant stakeholders with expertise in the region, and will be undertaken as an adaptive management approach to ensure the management is fit for purpose under a range of environmental conditions.

Neoen has liaised with the NVB to formalise the steps to formalise a HA:

1. Neoen submit the HA Application: Shapefile of the HA boundary, maps, photos, description of the vegetation condition, conservation values and any management plans.
2. NVB assess the application:
    a. If the HA application is eligible and recommended, the NVB will notify Neoen via email that the HA application is accepted and the NVB Will commence the process to register the agreement.
    b. If the HA application is not eligible and / or not recommended, the NVB may negotiate with the landowner to get an acceptable outcome or it may go to the Native Vegetation Council (NVC) to decide whether to approve or refuse the application. Neoen / the landowner will be notified of the decision.

*At point 2a, the HA is effectively secured, and the following steps are administrative only.

3. If the HA application is accepted, the NVB will work with the Land Services SA to produce a HA plan (General Registry Office plan).
4. The HA plan is incorporated into the draft Memorandum of Agreement (the Heritage Agreement)
5. The draft Memorandum of Agreement is provided to Neoen / the landowner for signature.
6. The draft Memorandum of Agreement is provided to delegates to the NVC and Minister for signature.
7. The signed agreement is provided to the Crown Solicitor for verification and lodgement on title.

8. Once the HA is registered, the Crown Solicitor's Office will notify the NVB, who will then notify Neoen / the landowner and provide a copy of the executed agreement.

5.3 PBTL On-ground Management Actions

The expected outcomes for the PBTL Offset, outlined in **Section 4.3** will be achieved via implementation of specific on-ground management aspects and associated management actions which will focus on:

- Management of grazing regime, in accordance with the Best Practice Management Guidelines (Schofield J. , 2006), and expert advice.
- Pest animal control (i.e. feral predators such as cats and foxes).
- Fire prevention.
- Installation of artificial PBTL burrows to increase carrying capacity of [redacted] PBTL Offset Area (if required).
- Restricting access and preventing poaching for illegal wildlife trade.

These management aspects and associated measurable outcomes are listed in **Table 5.2**.

Table 5.2 Management Aspects,Measurable Outcomes and Corrective Actions

Management Aspect	Measurable Outcome	Corrective Management Action
Securement and Protection of the Site	Heritage Agreement Secured on [redacted] Offset Site	• Adjust Heritage Agreement area proposed to satisfy requirements of the Department for registration.
Grassland Management	Improved grassland condition based on ecological indicators outlined in **Section 6.1**.	• Adapt grazing regime accordingly depending on outcome of ecological monitoring, as detailed in **Table 6.2.** • Engage specialist advice for restoration if indicators show persistent decline.
	Maintain or increase population of PBTL, where possible.	• Investigate potential cause of decline (predation, burrow availability etc.) • Review conditions adapt management accordingly as detailed in **Table 6.2**, for example targeted or increased predator control, or investigate habitat enhancement.
	Increased proportion of Trapdoor Spiders to PBTL individuals (>10 per individual PBTL) or alternatively increased proportion of suitable burrows to PBTL individuals.	• Investigate soil compaction or vegetation cover issues which may limit burrow creation. • Review most up to date literature and / or engage specialist advice. • Review and consider suitability of installing supplementary artificial burrows.
Weed Control	Reduced cover and diversity of existing grassland weed species.	• Adapt grazing regime accordingly to reduce weed dominance.

Management Aspect	Measurable Outcome	Corrective Management Action
		• Implement targeted weed control actions if required (herbicide, biocontrol), for persistent species, based on specialist advice.
	No new weed species detected.	• Immediate targeted removal of new species, if detected. • Investigate source of introduction. • Strengthen biosecurity measures (vehicle hygiene protocols).
Pest Animal Control	Reduced detection of pest predators over time.	• Increased intensity and frequency and variety of pest control measures. • Engage with neighbouring landholders to coordinate pest management.
Fire prevention	No unplanned fires in the [redacted] PBTL Offset Area.	• Investigate cause of unplanned fire. • Review and update any fire management plan to address any identified gaps (i.e. access routes or response procedures). • Implement additional fire prevention measures such as increased monitoring during extreme fire danger or reducing fuel load. • Undertake additional monitoring of PBTL populations as required post-fire to assess impact.
Access restrictions and prevention of illegal wildlife trade	No PBTL illegally poached from the site. If poaching detected, surveillance sufficient to inform police investigation.	• Review effectiveness of surveillance systems, for example, did it relate in detection of poaching and was it useful in police investigation. • If not, increase surveillance coverage or upgrade technology; or • If effective investigate other deterrent measures such as signage or fencing. • Engage with neighbouring landholders to report suspicious activity.
Supplementary PBTL infrastructure (artificial burrows)	If installed, artificial infrastructure occupied by PBTL consistently.	• Investigate cause of non-occupancy (Design, material, placement) • Trial alternative burrow designs or materials. • Continue to monitor to assess for success of any modifications.

If the measurable outcome is not achieved, then corrective action will be undertaken, for example, adaptive management (adjustment of grazing regime), increased weed control, pest animal control, as indicated above.

5.3.1 Baseline Assessment

A baseline assessment of the [redacted] PBTL Offset Area will be undertaken at the earliest opportunity outside of the PBTL brumation season (June to August) and prior to implementation of the management actions including installation of artificial burrows, management of grazing regime, and weed and feral animal control detailed in this Plan, to:

- Identify up to 12 0.25 ha (50 m x 50 m) sites suitable for monitoring of PBTL population trajectory, based on the existing data, and additional on-site survey to detect PBTL. At least one PBTL must be detected within each selected monitoring location, thus number of sites may be reliant upon initial baseline surveys.
- Collect baseline data on the location and abundance of PBTLs within the identified monitoring sites.
- Collect baseline data on PBTL habitat condition via assessment of grassland condition.
- Collect baseline data on the contents and depth of existing burrows.
- Install artificial burrows if burrow density or dimensions are determined to be a limiting factor for PBTL population maintenance and / or growth.

5.3.2 Grassland Management

Implementation of suitable grassland management regime is a key part of managing the [redacted] PBTL Offset Area to maintain optimal habitat conditions for PBTLs. Grassland management actions will likely vary across the [redacted] PBTL Offset Area according to the vegetation present, as well as between years, in response to varying climatic conditions. Thus, a set grassland management plan is not proposed, rather a set of tools are provided which can be applied at the discretion of the land manager, in consultation with the experienced ecological advisor, to achieve the desired outcomes, including grazing management, cultural burning and ecological slashing.

The overarching objectives of grassland management for PBTL are to:

- Reduce density of non-native annual grasses such as *Avena barbata*, which creates a dense thatch over the ground in spring and summer, and restricts basking and dispersal opportunities for PBTL.
- Increase density of native perennial grass tussocks and other native herbaceous species, to stabilise the soil, reduce bare ground during dry periods (targeting <50%), increase water infiltration, and support a range of associated invertebrates (food resources).
- Ensure that grass density (annual or perennial) is maintained at a moderate density (with >10% bare ground), containing inter-tussock spaces suitable for PBTL basking, but providing enough cover from potential predators.

Initially, stock fencing may be erected to partition areas of the broader [redacted] Offset Site from the PBTL Offset Area which require differing management schemes, such as Woodland and Lomandra Grassland.

Any grassland management actions undertaken within the PBTL Offset Area must be recorded on a Management Activity Datasheet, such as that presented in **Appendix G** and **Appendix F.**

5.3.2.1 Fencing

Fencing repair, replacement, construction and maintenance is proposed as part of this Plan. The current fencing arrangement is indicated on **Figure 4.1**. At a minimum, fencing management will include regular monitoring for condition, to ensure that fences are in good stock-proof condition to enable effective management of grazing regimes. Additional fencing may be required to partition ecologically sensitive areas in the [redacted] Offset Site from the PBTL Offset Area, such as Peppermint Box Grassy Woodland.

Any new fences and their locations will be determined by the land manager in consultation with relevant experts (e.g., the PBTL Recovery Team or ecological consultants), based on the proposed grazing regime, including the number of sheep available and the size of paddocks required to achieve optimal high intensity short duration grazing, or as otherwise advised. All fencing will be carefully considered to minimize ground disturbance and micro sited to avoid any known PBTL locations. Minimal impact methods should be utilised and any new fence lines should not result in their use as regular light vehicle tracks. Fencing of this type in ecologically sensitive PBTL habitat has been successfully implemented previously (pers. comms PBTL Recovery Team Chair M. Gardner, 4/12/2025).

5.3.2.2 Grazing

The timing, duration and frequency of grazing has the ability to significantly modify the structure and condition of grasslands, and if done correctly, can alter grassland structure to the benefit of PBTL, and native vegetation (Schofield J. , 2006). Grassland management has been based on a combination of resources including conversations with relevant experts and the available literature, including, but not limited to:

- Pygmy Blue-tongue Lizard: Best Practice Management Guidelines for Landholders (Schofield J. , 2006).
- How to make money out of grass (Mid North Grasslands Working Group, Undated).
- Management of the Pygmy Bluetongue Lizard (*Tiliqua adelaidensis*) on private grazing properties, Mid-North SA (Clarke, 2000).
- Impacts of sheep grazing on burrow use by spiders and pygmy bluetongue lizards (*Tiliqua adelaidensis*) (Clayton , 2018).
- Changes in grassland composition with grazing management in the Mid-North of South Australia: Continuous, Rotational and Pulse Grazing (Earl, Kahn, & Nicholls, 2003).

Grazing at certain times (i.e. late winter and early to mid-spring) targets repeated consumption of non-native annual grass species such as *Avena barbata* prior to setting seed in spring. Coupled with rest periods over summer and autumn, perennial native grasses can then set seed and resume dominance in the grassland. When undertaken in this manner over multiple years, the seed bank of non-native species should decline in favour of native grasses.

The intensity of stocking (i.e. number of livestock) influences the grazing pattern, with high density of livestock resulting in a more even and less selective grazing event. When undertaken in high density in restricted areas over short periods of time, effectively planned rotational grazing can reduce undesirable vegetation density and create open inter-tussock spaces for other plants to grow.

Low stocking density, especially of sheep, can result in selective grazing of the most palatable species and may reduce grassland quality in the long term.

Grazing, when managed appropriately, is a valuable tool for grassland conservation. Strategic grazing can:

- Reduce dominance of invasive or non-native grasses (like annual weeds), which often outcompete native species and create dense thatch that limits biodiversity.
- Promote native perennial grass growth by allowing these species to set seed and regenerate, especially when grazing is timed to target weeds before they seed.
- Maintain open inter-tussock spaces that are important for many grassland fauna, such as reptiles and invertebrates, by preventing excessive build-up of plant material.
- Control fuel loads and reduce the risk of uncontrolled fire.
- Mimic natural disturbance regimes that many grassland ecosystems evolved with, supporting a mosaic of habitat structures.

The objectives of grazing management are to:

- Enhance native grass and forb diversity and cover.
- Reduce cover of invasive annual grasses (*Avena barbata*) and weeds.
- Maintain suitable habitat structure for target fauna.

Specific grazing management aspects, actions, indicators and triggers proposed to be implemented as part of this Plan are outlined in **Table 5.3**.

Table 5.3 Grazing Management Considerations and Triggers

Aspect	Action	Indicator / Trigger
Timing	Graze in late winter or early spring to target annual weeds before they set seed. Rest paddocks in summer and autumn to allow native perennials to flower and set seed.	Initiate grazing after onset of breaking rain if grass height above 10 cm. Limit grazing to between months of May and September in accordance with rainfall and grass height. Minor grazing events may occur outside of these times if deemed appropriate, according to the conditions at the time (i.e. if late spring rain encourages a new flush of weed growth, or grass height reaches over 15 cm). Height of grass will determine the amount of feed available and thus the stocking capacity / duration of grazing required, as outlined in **Appendix F.**
Intensity	Use high-intensity, short-duration grazing ("pulse grazing") to create patchiness and avoid overgrazing. Adjust stocking rates to avoid excessive bare ground or, conversely, dense thatch. 11 paddocks currently occur within the eight management parcels.	As above. Ensure stock density is sufficient to have a high impact on the grassland within a short timeframe (7 days).

Aspect	Action	Indicator / Trigger
Duration	Grazing duration should be minimised, ideally less than 7 days, however duration may be modified depending on the utilisation observed in the paddock.	Remove stock before grass height reaches 5 cm, unless otherwise advised. Ensure intensity is sufficient to prevent selective grazing on palatable species. Prevent grazing periods longer than 14 days to prevent selective grazing of palatable species.
Frequency	Rotate livestock between paddocks to allow recovery and regeneration of native plants.	Recovery period should be in excess of 30 days, or until no visible sign of the previous grazing period is evident. Longer rest periods should be utilised over summer to enable native grass to seed set (>90–180 days).
Monitoring	Regularly assess grassland condition (e.g., tussock density, bare ground percentage, weed cover). Adjust grazing regime based on monitoring results and seasonal conditions.	Do not allow the average leaf height of grasses to be less than 5 cm or more than 15 cm in height.
Exclusion Zones	Fence off sensitive areas (e.g., sites with threatened species or recent restoration plantings) as needed.	Peppermint Box Grassy Woodland Iron-grass Natural Temperate Grassland
Adaptive management	Be prepared to modify timing, intensity, or duration of grazing in response to observed outcomes or changing conditions.	As above, grazing regime entirely dependent on seasonal conditions and results of previous grazing efforts.

5.3.2.3 Cultural Burning

Burning can be used in a similar way to other grassland management tools, by timing the event to coincide with certain ecological indicators such as prior to seed set of undesirable species, with the aim to reduce the seed set from that season and open up inter-tussock spaces. This method is only likely to be appropriate where existing cover of perennial native grasses occurs in moderate density, to ensure that sufficient vegetation remains to provide shelter and resources over the following summer and autumn.

The impacts of fire on PBTL have been scarcely studied. However, one study found that a wildfire in PBTL habitat did not result in mortality of adult lizards, nor reduce fecundity of females, but it did result in reduced activity and subsequent body condition (Fenner & Bull, 2007).

Any cultural burning would only be undertaken as a managed, cool season burn, in moderate condition grasslands as described above. The impacts of burning on PBTL is not yet fully understood, and any cultural burning should be done with reference to the most recent information and in consultation with the PBTL Recovery Team and other relevant experts.

Paddocks potentially suitable for cultural burning include [redacted] where grassland occurs interspersed between patches of woodland making additional fencing difficult to achieve and grazing less suitable due to the sensitivity of the woodland and shrubland habitats.

Any cultural burning would need to consider the location of artificial burrows and ensure that these are not damaged.

5.3.2.4 Slashing

Slashing can be used in a similar fashion to grazing management, especially as an alternative where fencing may not be desirable (i.e. around patches of woodland), but where ground is not too steep or rocky. Well timed slashing should occur in winter and prior to seed-set of non-native annual grasses, year on year, and can improve grassland condition by enabling native perennial grasses and forbs to set seed.

For PBTL, considerations would need to be made around the type and size of machinery utilised so as to ensure its movement over the ground did not cause disturbance, such as crushing, to spider and PBTL burrow entrances. Additionally, the impact of thatch from slashed grass on the ground would need to be considered and assessed to ensure that thatch does not impede burrow entrances.

Slashing is the least preferred method of grassland management in this scenario, but may be utilised to manage exotic grasses in areas which are otherwise determined to be unsuitable for grazing or cultural burning.

5.3.3 Weed Control

Weed control is a key part of managing the [redacted] PBTL Offset Area to maintain optimal habitat conditions for PBTLs. Declared weeds such as *Echium plantagineum* (Salvation Jane) are present within the [redacted] PBTL Offset Area, which, in accordance with the LSA Act is required to be controlled. As such, targeted weed control within the [redacted] PBTL Offset Area will be required to be undertaken, particularly for Declared weeds. However, non-declared weeds that are not specifically required to be controlled under the LSA Act, will also be required to be controlled as part of this Plan. This includes control of grassy weeds, such as *Avena barbata*, as dense growth can reduce the suitability of habitat for PBTLs (Duffy, Pound, & How, 2012).

Weed control methods for PBTL are likely to be limited to grassland management. However, additional weed management will be undertaken as part of a broader program of works for the [redacted] Offset Site in relation to the SEB component of the Offset.

Weed control methods should be selected to have minimal impact on PBTL habitat and be in accordance with the PBTL Recovery Plan (Duffy et al. 2012) and PBTL Best Practice Management Guidelines (Schofield J. , 2006) as follows:

- Use minimal disturbance weed control methods wherever possible.
- Minimise use of herbicide, however, if herbicide use is required to treat small scale infestations or individuals of Declared weeds such as *Reseda lutea* (Cutleaf mignonette), *Cynara cardunculus* (Wild Artichoke) or *Lycium ferocissimum* (African Boxthorn):
    - Read and adhere to the guidelines and recommended quantities stated on the label of the herbicide containers.
    - Ensure application occurs on a calm day to minimise drift and off-target damage.
    - Wherever possible, spot spray directly onto the target species.
    - Avoid broadscale application of herbicide.

If a sub-contractor is engaged to undertake weed control, ensure that they are aware of the above requirements.

High disturbance weed control, such as some physical removal techniques, is likely to be detrimental to PBTL habitat by causing soil disturbance and destruction of burrows and so should be avoided.

A moderate level of grazing (by native and introduced grazers) may help control weeds. Other methods include slashing or the application of specific herbicides at certain times of the year. Whilst there is no direct evidence that herbicide use will harm PBTLs, it is known to cause fertility problems for small vertebrates (which PBTLs eat) and should only be used with caution (Schofield J. , 2006).

Any weed control actions undertaken within the PBTL Offset Area must be recorded on a Management Activity Datasheet, such as that presented in **Appendix G.**

5.3.4 Pest Animal Control

Feral predator control (cats and foxes) will form part of the management actions for PBTL, either through the land manager or by a suitably qualified sub-contractor engaged by the land manager. Any control methods, such as burrow / warren destruction should consider the potential for harm to PBTL. Any control methods should avoid ground disturbing activities, or otherwise the action site should be surveyed for PBTL prior to undertaking ground disturbing works. If PBTL (or suitable spider burrows) are detected in the immediate vicinity of the proposed ground disturbing works, alternative methods should be considered, such as baiting or shooting.

Additional pest animal control, such as feral herbivore control (i.e. deer, goats, rabbits and overabundant macropods) may be undertaken as part of the SEB obligation of the site. As above, any works which require ground disturbance should be avoided, or surveyed prior, to avoid potential impact to PBTL.

Opportunistic observations of any pest animals and / or pest animal signs such as burrows must be recorded as detected, including GPS location, date, time and species.

Any pest animal control actions undertaken within the PBTL Offset Area must be recorded on a Management Activity Datasheet, such as that presented in **Appendix G.**

5.3.5 Fire Prevention

Fire is not currently used as a management tool on the property. The risk of uncontrolled / unplanned fire can be minimised via grazing (by native and introduced grazers) to reduce fuel loads. Gates within fence lines, and existing access roads will be maintained in a trafficable condition, allowing for access for fire-fighting activities if required. Any persons undertaking fire management activities on the property should be informed of the sensitivity of the habitat to ground disturbance. Ground disturbance should only be undertaken if absolutely necessary for fire control works. Any occurrence of an unplanned fire event within the [redacted] PBTL Offset Area should be reviewed as part of the monitoring and reporting process.

Fire can also be utilised as a management tool, such as in the case of cultural burning (**Section 5.3.2.3**). Cultural burning may be utilised, in consultation with relevant experts including Ngadjuri, the PBTL Recovery Team, National Parks and Wildlife Service South Australia and Country Fire Service. Cultural burning should be avoided during active times of PBTL including summer, autumn and spring. Any burn should be a cool burn, targeted to specific locations (i.e. not widespread), and any populations of PBTL within those areas should be monitored closely. Cultural burning should only be undertaken as a specific management tool to improve the condition of grassland for PBTL.

5.3.6 Access Restrictions and Prevention of Illegal Wildlife Trade

The [redacted] PBTL Offset Area will occur on private land, within a fenced boundary, and will not be outwardly advertised or sign-posted as a site which protects PBTL, and their presence and location will not be communicated or made accessible to the general public in order to minimise risk of poaching PBTLs. Any management plan, reporting or other documentation to be made publicly available, will have sensitive information such as the location of PBTLs, redacted.

As the GNWF Project is large and well known in the local region, and the presence and status of PBTL has garnered significant public attention, a higher risk may be associated with the [redacted] PBTL Offset Area. Thus, to minimize the risk of poaching and illegal collection of PBTL within the [redacted] PBTL Offset Area a number of additional actions outlined in **Table 5.4** will be implemented.

[redacted] the Plan will implement enhanced surveillance and deterrent measures at trail intersections and road access points, including discreet monitoring devices, signage indicating active surveillance, and coordination with local authorities and trail managers to ensure compliance with access restrictions. Visitor education initiatives may also be considered to raise awareness of conservation values without disclosing sensitive species information. All measures will be designed to minimize disturbance to habitat while reducing the likelihood of illegal activity. These measures collectively reduce the likelihood of poaching by making burrow locations less obvious, deterring illegal activity through visible surveillance, and increasing the perceived risk of detection for potential offenders. This approach supports the long-term protection of PBTL populations and aligns with best practice guidelines for threatened species management.

Any surveillance activity undertaken within the PBTL Offset Area must be recorded on a Management Activity Datasheet, such as that presented in **Appendix G.** This is likely to include the date, location of any installed surveillance equipment or signage, checking of camera footage, and camera maintenance (such as battery replacement or data download).

Table 5.4 Actions to Restrict Access and Prevent Illegal Poaching of PBTL

Action	Detail
Surveillance Installation and Monitoring	• Install surveillance equipment (e.g., trail cameras, motion sensors) at strategic locations [redacted]

Action	Detail
	• Regularly monitor and review surveillance footage (frequency dependent on type of technology utilised, but at least quarterly unless triggered by detection of illegal or suspicious activity) to detect unauthorised access or suspicious activity.
Installation of Surveillance Signs	• Erect signage at key entry points and along boundaries of the [redacted] PBTL Offset Area to inform the public that the area is under active surveillance.
Burrow marking	• All PBTL burrows identified during surveys or monitoring will be marked in a manner that is discreet and not easily visible to the public. • Permanent markers will not be used for burrows or monitoring sites located near public access points, such as gazetted roads, to avoid drawing attention to sensitive sites.

5.3.7 Supplementary Habitat Infrastructure (if required)

If the baseline assessment determines that availability of suitable spider burrows is a limiting factor for PBTL, or if ongoing monitoring finds that the proportion of suitable burrows (i.e. Trapdoor Spider burrows) to PBTL individuals is not increasing, artificial burrows may be installed to improve and extend PBTL habitat and the availability of suitable burrows in the short term. The intention of artificial burrows is to be an interim measure, with the aim that improvements to grassland conditions will simultaneously benefit existing spider populations and thus increase spider populations and availability of natural burrows over time.

Density and placement of artificial burrows within the [redacted] PBTL Offset Area will be determined at a later stage, however, if utilised, will only be placed in areas to be monitored over time (i.e. permanent monitoring sites), to ensure that data on occupancy and trajectory of spider populations is recorded over time and informs ongoing requirement for artificial burrows.

Artificial burrows are likely to be constructed of 30 cm lengths of 3 cm diameter wooden doweling with a 2 cm diameter central hole, and will be installed into the ground by drilling a 3 cm diameter hole approximately 30 cm deep with a drill or auger and then hammering the artificial burrow into the hole, with the top or entrance of the burrow flush with the ground surface. A burrowscope with an illuminated articulating camera will be used to check the integrity of installed artificial burrows immediately after installation. Other artificial burrows are currently in development (including clay burrows) (pers. comm. Prof M. Gardner, PBTL Recovery Team member) and may be utilised in conjunction with or instead of the abovementioned wooden burrows, depending on the advice at the time.

5.3.8 Monitoring and Reporting

A collaborative monitoring and reporting approach involving the Land Manager, Project Owner (Neoen) and a suitably qualified and experienced ecological consultancy (as required) will be implemented as outlined below, to enable an adaptive management approach. The approach will include:

- Management Activity Record Sheet (**Appendix G**) and Grazing Record Sheet(**Appendix G** and **Appendix F** for more detail): to be completed by Land Manager and provided to the Project Owner on an agreed timeframe (quarterly).

- Effective monitoring program to be implemented by Land Manager (Accredited Third Party Provider) and, if required, supported by an independent, suitably qualified and experienced ecological consultancy or organisation (at the discretion of the Land Manger or Neoen), to audit the implementation of the management actions and quantify and assess changes brought about by the management actions.

Monitoring, as described in **Section 6.0**, will be utilised to inform the success of the above management actions in relation to PBTL ecological indicators and to identify if any triggers have been met for adaptive management. Monitoring for non-ecological indicators are described in the relevant sections, with measurable outcomes and corrective actions identified in **Table 5.2**.

5.3.9 Schedule of Management Actions

A proposed schedule of management actions is provided in **Table 5.5**.Year 1 is proposed to commence at the same time that the action commences.

Table 5.5 Schedule of Management Actions

Action Item	Yr 0	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	Yr 8	Yr 9	Yr 10
Finalise agreement with Accredited Third Party Provider (land manager) and finalise OMP (this Plan) with them.	■	■									
Execute option to purchase agreement contracts with landholder for respective stage/s proceeding (**Section 5.1, Section 5.2.1**)	■	■									
Initiate Heritage Agreement application with DEW (**Section 5.2.2**)		■									
Engage with Northern and Yorke and Murraylands and Riverland Landscape Boards for ongoing consultation and review of management plan, management implementation and monitoring outcomes.	■	■	■	■	■	■	■	■	■	■	■
Replace any sections of boundary or internal fence, as required, and install new fences to reduce paddock sizes, if required (**Section 5.3.2.1**).		■	■								
Install signage and security monitoring apparatus (**Section 5.3.6**). Monitor on a regular basis, yet to be determined (dependent on technology used).		■	■	■	■	■	■	■	■	■	■
Engage suitably qualified ecological consultant to undertake baseline ecological assessment and set up permanent monitoring sites (**Section 5.3.8**, **Section 6.0**). This activity may be undertaken by the Accredited Third Party provider if adequately qualified.		■	■								
Implement Grassland Management regime (**Section 5.3.2**)		■	■	■	■	■	■	■	■	■	■
Monitor condition of boundary fence and ensure it is in good stock-proof condition (**Section 5.3.2.1**).		■	■	■	■	■	■	■	■	■	■
Monitor condition of gates and roads to ensure fire access routes are clear and accessible (**Section 5.3.5**).		■	■	■	■	■	■	■	■	■	■
Monitor for the presence of Red Fox and Cat and control if present / detected (**Section 5.3.4**).		■	■	■	■	■	■	■	■	■	■
Record any new species, location or outbreak of Declared weeds on site. Control as part of grassland management or target control if required.		■	■	■	■	■	■	■	■	■	■
Ecological Monitoring **(Section 6.0)**.		■	■	■	■	■	■	■	■	■	■
Reporting (**Section 6.4**)		■	■	■	■	■	■	■	■	■	■
Review of and update of the [redacted] PBTL OMP (this Plan) (**Section 6.4.1**)					■	■				■	■

5.4 Roles and Responsibilities

There will be two to three primary roles associated with implementation of this Plan, including the Project Owner (Neoen), the Land Manager (Accredited Third-party Provider) and potentially an Ecological Consultancy (at the discretion of the Land Manager and / or the Project Owner). The aspects and/or tasks that each role is likely to be responsible for are summarised in **Table 5.6**.

Table 5.6 Roles and Responsibilities Associated with Implementation of this Plan

Role	Aspects and / or Tasks the Role Is Responsible For
Project Owner (Neoen)	Neoen is the Project developer and Project Owner who continue to be long-term owners and operators of many of their assets. Neoen is responsible for the planning of the entire GNWF Project, including seeking and obtaining relevant planning and environmental approvals under State and Federal legislation as well as construction and operation of the Project. The Project Owner will be ultimately responsible for implementing this Plan, which involves planning and establishing the proposed [redacted] PBTL Offset Area as well as engaging a suitably qualified land manager. In particular, the Project Owner is responsible for ensuring that reporting responsibilities are completed. Implementation of this Plan will be the responsibility of the Project Owner. Should the Project Owner change in future, implementation of this Plan will remain the responsibility of whoever is the Project Owner.
Accredited Third-party Provider / Land Manager	It is proposed that the Accredited Third-party Provider (or Land Manager) will be responsible for undertaking the day-to-day management of the [redacted] PBTL Offset Area on behalf of the Project Owner (Neoen), including management of grazing regime, native grazers (if required), weed and pest animal control, fire prevention and restricting access. The Land manager will also likely be responsible for delivering on the following*: • Undertaking, or engaging a suitably qualified ecological consultancy to complete monitoring and reporting activities and to review and analyse monitoring data and results to determine the success (or failure) of management actions and recommending adaptive management and refinement/improvement, if required. • Engaging with relevant experts to obtain up to date best practice management and advice on PBTL management. • Reporting on management actions undertaken. • Complete annual activity, compliance and monitoring reporting to the satisfaction and timeframes of DCCEEW, to be delivered to the Project Owner for submission as per their agreed reporting timeframes *A suitably qualified and experienced Ecological Consultancy may be engaged to support or undertake these activities by either the Project Owner or Land Manager depending on the final agreement.

Role	Aspects and / or Tasks the Role Is Responsible For
Ecological Consultancy	Depending on the final agreement, the Project Owner or Land Manager, at their discretion, may engage a suitably qualified Ecological Consultancy to deliver or support the following: • Monitoring the [redacted] PBTL Offset Area, including the installation of artificial PBTL burrows. • Undertake monitoring and reporting activities, reviewing and analysing monitoring data and results to determine the success (or failure) of management actions and recommending adaptive management and refinement/improvement, if required.

As stated previously, Neoen propose to negotiate a legal agreement with an Accredited Third-party Provider to manage the [redacted] PBTL Offset Area. Whilst the Land Manager will be responsible for implementing management actions within this Plan, the Project Owner will retain overall responsibility for ensuring the entire [redacted] PBTL OMP is implemented and that management objectives are on track to being achieved. Neoen will also be responsible for ensuring finalisation of this Plan. This includes periodic review of the [redacted] PBTL OMP's success, including updates and improvement (adaptation) of management actions if required, to achieve the OMP objectives. This may involve Neoen providing further direction to the Land Manager or utilising the resources of an external contractor to implement specific tasks.

6.0 Offset Monitoring and Evaluation Program

An effective monitoring program will be implemented by the Accredited Third Party Provider, on behalf of the Project Owner (Neoen) and may be supported by an independent, suitably qualified and experienced ecological consultancy to audit the implementation of the management actions, and to quantify and assess changes brought about by the management actions. Data will be collected on both PBTL population(s) and PBTL habitat (grassland) condition at 12 50 x 50 m sites within the PBTL Offset Area.

This Plan proposes a monitoring program for the life of the Project (i.e. 25 to 30 years), scaled to be most intensive for the first 10-years, and then with reduced frequency once the expected outcomes (**Section 4.3**) are demonstrated to have been achieved or progressing to being achieved. To ensure the expected outcomes are being achieved, an adaptive management approach will be adopted. This approach requires regular monitoring and review of the Plan in the first 10 years, allowing for review and corrective action of management strategies if required. The monitoring program (duration, frequency and methods) will also be adapted if required to best capture the required information.

The data collected will assist in making adaptive management decisions to ensure that PBTL habitat and PBTL population(s) within the [redacted] PBTL Offset Area remain healthy and viable. This is likely to include recommendations on the timing, frequency and duration of grazing, which is likely to fluctuate according to season and environmental conditions.

Several non-ecological indicators will also be subject to monitoring, however monitoring of these are considered to be part of the management actions, namely pest animal control and prevention of illegal poaching of PBTL. Details of each of these is presented in the respective section being **Section 5.3.4** and **Section 5.3.6**. This section relates specifically to monitoring of PBTL population health and trajectory to achieve the conservation gain with offset outlined in **Appendix E.**

6.1 Ecological Indicators

The expected outcomes, to manage the [redacted] PBTL Offset Area in order to create, maintain and improve (where possible) PBTL habitat and increase the PBTL populations, will be assessed via collection of data on six specific ecological indicators to be monitored in the [redacted] PBTL Offset Area, along with the accompanying desired outcomes outlined in **Table 6.1**. Note that the desired outcomes (i.e. increase / decrease / maintenance) may vary somewhat depending on the results of the initial baseline assessment, when compared to the desired condition.

Table 6.1 Ecological Indicators and Associated Measurable Outcomes

Ecological Indicator	Importance	Measurable Outcomes
PBTL population(s)	Increase in the PBTL population(s) within the [redacted] PBTL Offset Area over the long-term is one of the desired outcomes of this Plan. This can be measured within each monitoring site by systematically counting the number of individuals within each 50 x 50 m quadrat. Natural fluctuations in PBTL populations are expected depending on resource availability (i.e. food, shelter sites), which may be influenced by drought conditions (Duffy, Pound, & How, 2012).	Maintain and/or increase the current population levels over the long-term.
Spiders and spider burrows	Increase in the number of spiders and spider burrows and increase in the proportion of Trapdoor Spider burrows is a desired outcome of the OMP, indicating a healthy grassland ecosystem and increase in shelter resource for PBTL. As above, external influences outside of the control of the OMP, may impact spider populations, such as climatic conditions or neighbouring use of pesticide / insecticide.	Presence of live Trapdoor Spiders (of varying age classes) and Wolf Spiders. Increase in the proportion of Trapdoor Spiders across the site from <5 per PBTL to >10 per PBTL or higher. Desired ratio of >20 Trapdoor Spider burrows per PBTL individual.
Grassland health **(% dead material; tussock height, basal width, litter cover %)**	Grassland health is related to health of the grass tussocks, amount of bare ground and litter (i.e. dead plant material / thatch) on the surface. Monitoring will partly focus on whether the tussocks are actively growing over time (increase in basal width), and whether plant leaf height is desirable for PBTL habitat, as influenced by intensity, duration and timing of grazing (or slashing) events.	Increased proportion of living material / decreased proportion of thatch on mature native perennial grass tussocks based on initial baseline assessment. Increase in size of perennial native plants (height and basal width) compared to initial baseline assessment, but vegetation maintained at or below 15 cm height (leaf).
Dominant species cover and abundance (tussock spacing; tussocks per hectare)	Cover and abundance can be measured fairly simply along a permanent 100 m transect (within each 50 x 50 m quadrat), using a 1 x 1 m quadrat at 10 m intervals, to count tussocks per square metre. This can be averaged out over a number of repeated counts. Juvenile plants can also be recorded using this methodology. However, a grassland community with a high density of tussocks already, may not show any significant change from year to year. Changes to exotic species levels can also be measured here.	Maintenance of perennial native grass tussock spacing is representative of moderate to sparse vegetation cover, which is preferred by PBTLs. No decrease in perennial native grass tussocks per hectare to reference site levels in

Ecological Indicator	Importance	Measurable Outcomes
		grassland communities compared to initial baseline assessment.
Soil surface condition (% cryptogam cover, % bare ground)	Inappropriate grazing, including heavy grazing by hard-hoofed stock, can impact the cryptogram and soil structure within PBTL habitat, and crush/damage spider and/or PBTL burrows. Cryptogam cover is used as an indicator as they contribute to increased soil stability where they occur and impacts from hard-hoofed stock will be evident if grazing has been inappropriate. The percentage of cryptogram and bare ground cover will be estimated along each 50 m transect within a 1 x 1 m quadrat at 5 m intervals and averaged out over a number of repeated counts.	No loss of soil surface cryptogram cover and structure due to grazers based on initial baseline assessment. No significant increase in the cover of bare ground based on initial baseline assessment. Preferably between 10% (minimum) and 50% (maximum) bare ground.

The status of each of the ecological indicators and associated desired outcomes will help determine if the habitat quality score is increasing in line with the objective of the OMP, over the initial 10 years of the Offset implementation. If required, corrective action will be undertaken to ensure the objectives are being met and / or continue to be met.

Undesirable outcomes will be triggers for adapting management actions. Adaptive management actions likely to be implemented to ensure the desired outcomes are achieved are outlined in **Table 6.4.**

Table 6.2 Desired Outcomes for Each Ecological Indicator, Undesireable Outcomes and Associated Likely Adaptive Management Actions

Ecological Indicator	Desired Outcome(s)	Undesirable Outcome(s) / Trigger for Adapting Management Actions	Likely Adaptive Management Action(s)
PBTL population(s)	Maintain and/or increase the current population levels over the long-term.	Significant decrease in PBTL population level (in one year) based on comparison with initial baseline assessment.	Review results for other ecological indicators to determine potential cause of decrease in PBTL population. If necessary, discuss results with the SA Museum and / or Flinders University and / or PBTL Recovery Team. If required, adjust management actions as determined by the suitably qualified and experienced ecological consultancy.
Spiders and spider burrows	Presence of live Trapdoor Spiders (of varying age classes) and Wolf Spiders. Increase in the proportion of Trapdoor Spiders across the site. Desired ratio of >20 Trapdoor Spider burrows per PBTL individual.	Reduced presence of live Trapdoor and Wolf Spiders compared to baseline assessment. Significant decline in ratio of Trapdoor Spider burrows to number of PBTL individuals.	Review results for other ecological indicators to determine potential cause of decrease in Trapdoor and Wolf Spider populations. Investigate potential external causes of decline, such as nearby insecticide / pesticide use.
Grassland health (% dead material; tussock height, basal width; litter cover %)	Increased proportion of living material / decreased proportion of thatch on mature native perennial grass tussocks. Increase in size of perennial native plants (height and basal width) compared to initial baseline survey, but vegetation maintained at or below 15 cm height (leaf). No significant increase in litter cover based on initial baseline survey.	Vegetation below 5 cm height; or Vegetation above 15 cm height. Increase (>20%) in proportion of dead material on mature tussocks (in one year) based on initial baseline assessment. Increase (>20%) in the % of litter cover (i.e. native and exotic dead plant material / thatch).	Review climatic data and grazing undertaken to determine likely cause of decrease in grassland health indicators (based on initial baseline assessment); and if required, adjust management actions as determined by the suitably qualified and experienced ecological consultancy, such as, but not limited to: • Altered grazing regime (timing / frequency / duration). • Increase pest herbivore control measures.

Ecological Indicator	Desired Outcome(s)	Undesirable Outcome(s) / Trigger for Adapting Management Actions	Likely Adaptive Management Action(s)
Dominant species cover and abundance (tussock spacing; tussocks per hectare)	Maintenance of perennial native grass tussock spacing is representative of moderate to sparse vegetation cover, which is preferred by PBTLs. No decrease in perennial native grass tussocks per hectare to reference site levels in grassland communities compared to initial baseline survey.	Tussock spacing of more than, or less than, moderate to sparse vegetation cover (in one year) based on initial baseline assessment; and/or decrease (>20%) in tussocks per hectare to reference site levels in grassland communities (in one year) based on initial baseline assessment.	Review climatic data and grazing undertaken to determine likely cause of undesirable change in tussock spacing and / or decrease in number of tussocks per hectare (based on initial baseline assessment); and if required, adjust management actions as determined by the suitably qualified and experienced ecological consultancy, such as, but not limited to: • Altered grazing regime (timing / frequency / duration). • Increase pest herbivore control measures.
Soil surface condition (% cryptogam cover, % bare ground)	No loss of soil surface cryptogram cover and structure due to grazers based on initial baseline survey. Preferably between 10% (minimum) and 50% (maximum) bare ground. No significant increase in the cover of bare ground based on initial baseline survey.	Loss of (>20%) or decrease in soil surface cryptogam and structure due to grazers (i.e. hoofed species such as sheep / goats) (in one year), compared to initial baseline assessment. Significant increase (>25%) in cover of bare ground (in one year) compared to baseline assessment. Bare ground should not exceed 50% nor be less than 10%.	Review climatic data and grazing undertaken to determine likely cause of loss of soil surface condition (based on initial baseline survey); and if required, adjust management actions as determined by the suitably qualified and experienced ecological consultancy, such as, but not limited to: • Altered grazing regime (timing / frequency / duration). • Increase pest herbivore control measures.

6.2 Monitoring Methodology

The proposed method for monitoring each of the ecological indicators described in **Section 6.1** is outlined in **Table 6.3** for each desired outcome. Detailed monitoring methods, including the number and location of selected sites will be detailed in the first (baseline) monitoring report. Monitoring methodology is subject to change slightly, if updated information or advice is received which indicates that alternative methodologies may be more effective.

In addition to targeted monitoring described below, any opportunistic observations observed within monitoring quadrats or surrounding Offset Area will be recorded (type and location) and reported upon. For example, observations of native or pest grazers (kangaroos, goats, rabbits) and their scats, tracks or warrens; pest predators such as foxes or cats; or significant weed outbreaks or infestations.

Table 6.3 Monitoring Methodology

Ecological Indicator	Method
PBTL population(s)	Establishment of up to12 50 m x 50 m permanent monitoring quadrats, contained within a representative 50 ha or two representative 25 ha plots of suitable PBTL habitat, as determined by the distribution of PBTL reported during the baseline assessment. Each quadrat systematically traversed on foot by two surveyors at 2–4 m intervals. Each burrow suitable for PBTL marked with a GPS and individual survey peg. All marked burrows subsequently examined using a burrow scope to determine occupancy, with peg subsequently removed to avoid double counting. If PBTL is observed, the age of the individual will be estimated (adult, sub-adult / juvenile) and recorded.
Spiders and spider burrows	Using method described above, contents and depth of each marked burrow will be recorded using the following categories: Depth: 1 = 0–0 cm, 2 = 10– cm, 3 = 20–30 cm; 4 = >30 cm Contents: PBTL = Pygmy Blue-tongue Lizard; WS = Wolf Spider; WSj = Wolf Spider Juvenile; TS = Trapdoor Spider; TSj = Trapdoor Spider Juvenile; C = Centipede; W = Weevil; E = Empty / debris; A = Ant(s); O = Other invertebrate.
Grassland health (% dead material; tussock height, basal width; litter cover %)	50 m permanent transect established at each 50 m x 50 m PBTL monitoring sites, with a combination of two methods used to measure grassland health: • 10 1 m x 1 m quadrats placed every 5 m along the transect to measure percentage litter cover (and other attributes described below) (**Figure 6.1**). • Point-centred Quarter Method (PCQM), at every 5 m along the transect the point is divided into four quarters (**Figure 6.2**) at which the nearest perennial native grass tussock to the centre point is measured to collect the grass attributes (% dead material, tussock height, basal width). Only the four (or five) most dominant grass species are recorded, excluding juvenile grasses (described as tussocks with basal width <1 cm). • A dedicated photo monitoring point will be set up at each end of the 50 m transect to visually track condition of the grassland over time.

Ecological Indicator	Method
Dominant species cover and abundance (tussock spacing; tussocks per hectare)	As above, the PCQM will be used to estimate the dominant species cover (relative importance), tussock spacing (i.e. average distance from the centre point) and number of tussocks per hectare.
Soil surface condition (% cryptogam cover, % bare ground)	As above with: Cryptogam cover and bare ground cover will be estimated as a percentage at each of the 10 1 m x 1 m quadrats. >100% cover may be recorded as each of these attributes may overlap.

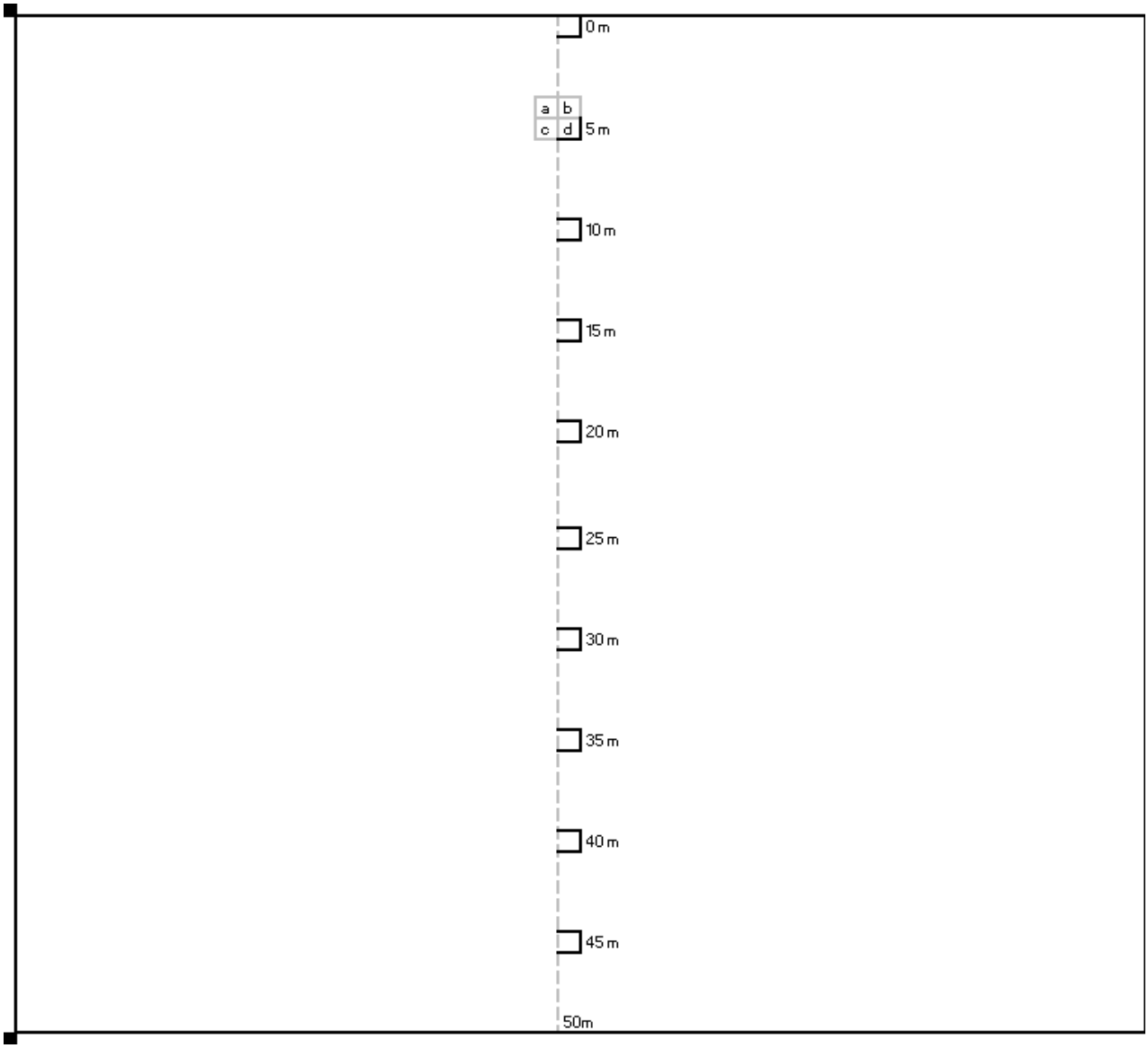

Figure 6.1 Indicative PBTL Monitoring Quadrat, Showing 50 m x 50 m Search Quadrat, 50 m Permanent Transect, 10 1 m x 1 m Quadrats and PCQM Quarters (a, b, c, d) (indicated at 5 m only, but undertaken across all 10 monitoring points.

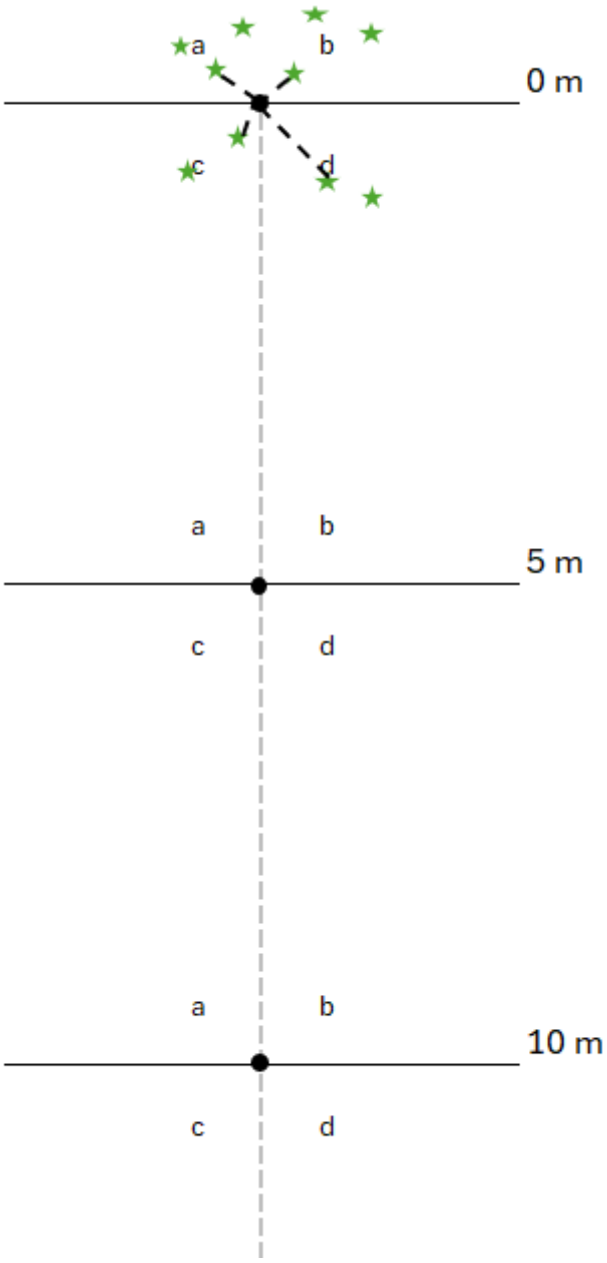

Figure 6.2 Indicative PCQM, Used to Collect Data On The Closest Tussock Grass (Indicated by a Green Star) Located In Each Of The Four Quarters (a, b, c and d) of a Quadrat, at Each Sample Point, Along The Transect (image adapted from Tongway & Hindley 2005)

6.3 Frequency and Timing of Monitoring

Monitoring events will initially be implemented once a year for the first four years (providing a total of four monitoring events), with field work for monitoring events likely to be undertaken in autumn (i.e., April–May, after juvenile dispersal and prior to brumation). Field work for each monitoring event will be completed in one session (i.e., over five consecutive days) to ensure that the number of PBTLs counted is accurate. Intervals between survey days should be avoided as this may result in an inaccurate count of PBTLs if they move between burrows. The surveys will be conducted by one team of two people.

The results of each monitoring event will be analysed post field survey and used to assess the status of PBTL habitat and PBTL population(s) and the effectiveness of management actions, and identify any management failures or areas for improvement in a timely manner. However, the very first monitoring event as part of the initial four years of monitoring, will be a baseline survey which records the status of the PBTL population and PBTL habitat within a representative area of the [redacted] PBTL Offset Area, proposed as two 50-ha plots, within which 12, 50 m x 50 m monitoring sites will be established, to detect any fluctuations in PBTL population size. This proposed survey effort is based on a recent paper by Bilby et al. (2025) at Tiliqua Nature Reserve, which determined that a density of 25 50 m x 50 m quadrats per 1 square kilometre (or 100 ha), was the most effective method for detecting statistically significant population changes. Monitoring site selection and the initial (baseline) survey will be undertaken prior to implementation of management actions. Although this baseline survey will inform the success of management actions, it is acknowledged that population numbers fluctuate over time in response to environmental conditions; therefore, a true baseline is likely to be established over the first few years

After completion of the initial monitoring described above, monitoring events will be implemented once every two years over six years (i.e. in years 6, 8 and 10), after which the need for ongoing monitoring will be reviewed and discussed with the Department. If monitoring determines that the future quality target for the PBTL Offset Area (**Section 4.2.1**) has not been achieved within the proposed ten-year management timeframe, then Neoen will undertake further management in accordance with this Plan beyond the initial ten years proposed, until the future quality target score is achieved. Monitoring and reporting will also continue until the future quality target score is achieved.

The proposed [redacted] PTBL OMP monitoring schedule is presented in **Table 6.4.**

Table 6.4 [redacted] PBTL OMP Monitoring Schedule

Year	Activity	Comments
Year 1	Establish survey sites and baseline condition / population.	Prior to implementation of management actions.
Year 2 to Year 4	12, 50 m x 50 m PBTL search plots at sites established in Year 1. Grassland Condition Monitoring.	Review results of each survey session and make adaptive management recommendations (if Year 2, 3 or 4 monitoring results suggest they are required).
Year 6, Year 8	12, 50 m x 50 m PBTL search plots at sites established in Year 1. Grassland Condition Monitoring.	Review results of each survey session and make adaptive management recommendations accordingly (if Year 6 or 8 monitoring results suggest they are required).
Year 10	12, 50 m x 50 m PBTL search plots at sites established in Year 1. Grassland Condition Monitoring.	Review if EPBC Offset Gain has been achieved. Plan future management and monitoring events as required. Review and update this Plan.

6.4 Reporting Schedule

Monitoring results will be documented within a PBTL Offset Area Implementation Report (or similar), which will detail the results of the monitoring program and any minor amendments to management actions, such as grazing regime, and be submitted to the Department, on an annual and then biennial basis (as outlined in **Table 6.4**), up to year 10 (as a minimum) of the PBTL Offset.

The PBTL Offset Area Implementation Report (or similar) will:

- Summarise management actions (for example grassland management, weed and pest animal control) undertaken in the PBTL Offset Area during that reporting period and discuss the outcome of those actions (including whether actions are adequate or inadequate).
- Summarise the status of measurable outcomes associated with each ecological indicator (as indicated in **Table 6.1** and **Table 6.2**).
- Detail the monitoring methodology.
- Present and analyse the monitoring results.
- Compare the monitoring results to previous monitoring results collected to date.
- Identify any trends in the PBTL population(s) and/or PBTL habitat (grassland) condition.
- Recommend any minor amendments to management actions, for the Project Owner (Neoen) to consider and if appropriate, direct the Land Manager to implement.
- Document any minor amendments to management actions, which are to be implemented by the Land Manager (after consideration and approval by the Project Owner (Neoen)).

Monitoring data will be prepared in accordance with the *Guidelines for biological survey and mapped data* (Commonwealth of Australia, 2018) and provided to the Department on an annual (Years 1–4) or biennial basis (Years 6, 8 and 10), likely as an attachment to the PBTL Offset Area Implementation Report.

6.4.1 Review and Update of the [redacted] PBTL OMP

This Plan will be reviewed and updated (if required), separately to the monitoring reports mentioned above, at five year intervals, for the first ten years (as a minimum) (see **Table 5.5**). The first review will occur five years after implementation of the PBTL Offset Area (i.e. within the fifth year, after the fourth year of survey and monitoring results have been reported) to assess whether it is on track to achieve the expected outcomes. A second review will take place in year ten following the monitoring, using compiled monitoring results to evaluate the measurable outcomes and success of current management actions and identify any amendments to management actions and/or the monitoring program needed to ensure outcomes continue to be met. These reviews will also determine what ongoing management or monitoring is required. Each review will draw on monitoring data collected to date, input from the Land Manager and Ecological Consultant (where relevant), expert advice such as from the PBTL Recovery Team, and the Project Owner (Neoen).

Each review will be documented within an amended version of this Plan and include:

- the review process
- the status of measurable outcomes associated with each management action

- the monitoring results to date
- the status of achieving the [redacted] PBTL OMP expected outcomes
- any amendments to the management actions, if required
- any amendments to the monitoring program, and
- any recommendations for future reviews.

The amended version of this Plan will be provided to the Land Manager and submitted to the Department for reference. Any significant changes to this Plan may require approval from the Department.

6.5 Adaptive Management

An adaptive management approach will be adopted to ensure the expected outcomes (**Section 4.3**) of this Plan are being met. This involves adapting management actions associated with the management aspects outlined in **Section 5.0** in response to the results of the monitoring program (**Section 6.0**) and to unforeseen or unplanned management threats and issues, as well as to reflect advances in ecological research and land management technologies that may arise during implementation of the Plan.

For example, if the results of the monitoring program suggest that PBTL habitat and/or PBTL population(s) within the PBTL Offset Area are not being maintained, then it is likely that management aspects and actions associated with grassland management and/or weed control will need to be reviewed and adapted to ensure that PBTL habitat and/or PBTL population(s) are being maintained and/or improved.

Natural variation in PBTL habitat condition and PBTL population numbers is expected, however, if necessary, the results of each monitoring event will be discussed with the Flinders University and / or the PBTL Recovery Team to ensure that any fluctuations observed are within the natural limits for the species. If a reduction in population numbers is considered to be outside of natural fluctuations, then management actions will be reviewed in conjunction with the climatic and vegetation (including grazing) data to determine possible causes. Management actions, for example grazing management, where required, will be altered and updated.

The Land Manager or Ecological Consultancy will review the results of the monitoring program and, if required, recommend changes to relevant management actions. Where appropriate, the Project Owner (Neoen) will direct the Land Manager to implement minor amendments to management actions, upon advice from the Ecological Consultancy.

Monitoring results will be documented within the PBTL Offset Area Implementation Report (or similar), which will be provided to the Department for reference and used to direct the Land Manager's management of the PBTL Offset Area to work towards continued maintenance, and where possible, improvement of the PBTL habitat (grassland) condition and PBTL population(s).

6.5.1 Corrective Actions

In the event that measurable outcomes are not being achieved, corrective actions associated with each specific measurable outcome, will be undertaken, as outlined in **Table 5.2**. The desired ecological indicators may be individually addressed via adaptive management as described in **Table 6.2** to achieve the overarching measurable outcomes of the OMP.

As stated in **Section 6.4**, the Implementation report will summarise the status of ecological indicator trajectory (with respect to their desired outcome) and measurable outcomes associated with each management action. If any measurable outcomes are not achieved or not on track to being achieved, this will be documented, along with appropriate corrective action to ensure that the measurable outcome will be achieved, within the report which is submitted to the Department.

7.0 Risk Management

This Plan has identified and considered any risks that may prevent achievement of the expected outcomes stated in **Section 4.3**. The risks have been assessed against the Risk Matrix in **Table 7.1** and rating in **Table 7.2**, based on the DCCEEW Environmental Management Plan Guidelines (DCCEEW, 2024). The risk analysis:

- Identifies events and threats that will, may, or are likely to impact the achievement of the expected environmental outcomes.
- Assesses threat levels both before (initial risk rating) and after (residual risk rating) risk mitigation strategies are applied.
- Identifies appropriate risk mitigation strategies, with trigger criteria for corrective actions should risks eventuate.

The risk assessment for the Offset is presented in **Table 7.3**.

7.1 Risk Matrix

A risk matrix (**Table 7.1**) and subsequent risk rating based on the likelihood of occurrence and consequence if the event occurs (**Table 7.2**) are used to guide a risk assessment for the [redacted] PBTL Offset Area, presented in **Section 7.2**.

Table 7.1 Risk Matrix

Risk Matrix	
Likelihood (L): A qualitative measure of likelihood: how likely is it that this event / circumstances will occur both before and after an offset is secured	
Highly likely	Is expected to occur in most circumstances
Likely	Will probably occur during the life of the Project
Possible	Might occur during the life of the Project
Unlikely	Could occur but considered unlikely or doubtful
Rare	May occur in exceptional circumstances
Consequence (C): Qualitative measure of what will be the consequence / result if the event / circumstances does occur	
Minor	Failure to identify or secure suitable offsets causes minor impact to achieving positive outcome (e.g. short-term delays to achieving strategy objectives, implementing low-cost, well-characterised corrective actions)
Moderate	Failure to identify or secure suitable offsets causes moderate substantial impact to achieving positive outcome (e.g. short-term delays to achieving strategy objectives, implementing well-characterised, high cost/effort corrective actions)
High	Failure to identify or secure suitable offsets causes substantial impact to achieving positive outcome (e.g. medium-long term delays to achieving strategy objectives, implementing uncertain, high-cost/effort corrective actions)

Risk Matrix	
Major	Failure to identify or secure suitable offsets causes major impact to achieving positive outcome (e.g. strategy objectives are unlikely to be achieved, with significant legislative, technical, ecological and/or administrative barriers to attainment that have no evidenced mitigation strategies)
Critical	Failure to identify or secure suitable offsets causes severe unrecoverable impact to achieving positive outcome (e.g. strategy objectives are unable to be achieved, with no evidenced mitigation strategies)

Table 7.2 Risk Rating Based on the Conesequence and Likelihood in the Risk Matrix

Final Risk Rating (R): A Function of Multiplying Likelihood (L) and Consequence (C)					
Consequence → Likelihood ↓	Minor	Moderate	High	Major	Critical
Highly likely	Medium	High	High	Severe	Severe
Likely	Low	Medium	High	High	Severe
Possible	Low	Medium	Medium	High	Severe
Unlikely	Low	Low	Medium	High	High
Rare	Low	Low	Low	Medium	High

7.2 Risk Assessment

A risk assessment for the offset is presented in **Table 7.3** including:

- Force majeure events
- Standard risks
- Risks associated with securing the offset (adapted from Lathwida 2025, unpublished)
- Risks associated with staging the offset (adapted from Lathwida 2025, unpublished).

Table 7.3 Risk Assessment for the [redacted] PBTL Offset Area

Risk Event or Circumstance	Risk Description (e.g. Cause and Effect)	Initial Risk Rating			Risk Mitigation Strategy(ies)	Residual Risk Rating			Management Trigger(s)	Monitoring Mechanism(s)	Corrective Action(s)
		L	C	R		L	C	R			
Force Majeure Events											
Climate change	Prolonged unfavourable weather conditions, such as drought, reducing PBTL habitat quality.	Possible	High	Medium	Monitor Offset condition and adapt management (in accordance with OMP), for example, reduce grazing pressure (if appropriate), or implement other adaptive management measures.	Possible	Moderate	Medium	Decrease in Offset condition observed during monitoring.	Monitoring Program (in accordance with OMP).	Implement adaptive management (in accordance with OMP).
Sale of property	Landowner sells property containing PBTL Offset, threatening achievement of environmental outcomes.	Possible	Major	High	A legal agreement will be in place, which will include appropriate measures to protect the PBTL Offset in any proposed change of land ownership or control over the land. Furthermore, a Heritage Agreement will be executed over the Offset Area and require future landowner to meet the requirements of the Heritage Agreement.	Possible	Minor	Low	Sale of Property.	Landowner required to inform Project Owner of sale of the property.	Project Owner to ensure new landowner is aware of legal agreement and Heritage Agreement.
Standard Risks											
Inadequate implementation of the OMP	Land manager (landowner) not having or allocating sufficient resources or time to implement management actions they are responsible for.	Possible	Minor	Low	Project Owner will implement a legal agreement with the Accredited Third Party Provider (Land Manager) to manage the Offset in accordance with this OMP. This includes Project Owner providing an annual budget to the Land Manager to manage the Offset in accordance with this OMP.	Unlikely	Minor	Low	Landowner's management actions not undertaken in accordance with OMP – as observed via monitoring or discussion with landowner.	Monitoring Program (in accordance with OMP).	Project Owner to remind Land Manager of their responsibilities under the legal agreement. Project Owner to consider engaging separate party to carry out landowner's responsibilities (such as monitoring, reporting or management).
Decrease in the condition of the Offset	Decrease in the condition of the Offset observed during monitoring (cause may be unknown until investigated further).	Possible	Moderate	Medium	Baseline assessment of Offset condition undertaken prior to implementation of management actions in OMP. Monitoring Program used to quantify and qualify changes in Offset condition over time. Implement adaptive management (in accordance with OMP), for example, reduce grazing pressure (if appropriate), or implement other adaptive management measures to improve condition.	Possible	Minor	Low	Decrease in Offset condition observed during monitoring.	Monitoring Program (in accordance with OMP).	Investigate potential / likely causes of decrease in condition of Offset site. Implement adaptive management (in accordance with OMP), for example, reduce grazing pressure (if appropriate), or implement other adaptive management measures to improve condition.
Significant decrease in PBTL population	Significant decrease in PBTL population (beyond natural fluctuation) and the cause may be unknown.	Possible	High	Medium	Baseline assessment of PBTL population undertaken prior to implementation of management actions in this Plan. PBTL Monitoring Program used to quantify and qualify changes in PBTL population over time. Implement adaptive management (in accordance with OMP) to maintain PBTL population.	Possible	Moderate	Medium	Decrease in habitat quality observed during monitoring.	PBTL Monitoring Program (in accordance with OMP).	Investigate potential / likely causes of decrease in habitat quality. Consult with PBTL Recovery Team members.

Risk Event or Circumstance	Risk Description (e.g. Cause and Effect)	Initial Risk Rating			Risk Mitigation Strategy(ies)	Residual Risk Rating			Management Trigger(s)	Monitoring Mechanism(s)	Corrective Action(s)
		L	C	R		L	C	R			
Risks Associated with Securing the Offset											
Inability for offset land to be protected in perpetuity. **Risk event is due to challenges with the required timing of offset land purchase and Project Financial Investment Decision (FID) leading to agreement that 'securing' offsets occurs prior to the HA taking effect. This is based on Neoen's Financial Investment Decision timing and the length of time to establish a Heritage Agreement (HA), noting that establishing a HA could take up to 12 months, or likely 6 months.**	Neoen have broken ground on the GNWF Project resulting in impacts to MNES having met the agreed definition of 'securing' offsets and NVB accepting HA application, but then HA does not get enacted at the offset site.	Possible	Major	High	Neoen establishes option to purchase, lease agreements, or standard contracts with extended settlement periods with land holders for the proposed offset property(ies) and provide agreements/contracts to DCCEEW once in place. These will outline Neoen's exclusive rights to purchase land during the defined period of the agreement. Submit HA application(s) to Native Vegetation Branch (NVB) for the proposed offset property following Financial Investment Decision. Neoen execute right to purchase/lease or financial close of the offset property prior to breaking ground for the respective stage and thereby have secured legal tenure of the offset land before breaking ground. Confirmation via email from NVB that provides acceptance of HA (Step 2a in the defined process provided by NVB (**Section 5.2.1**) upon Neoen meeting criteria for the HA application process to remove the administrative process of registering the HA with the South Australian Land Titles Office (Land Services SA) from the Project's critical path. Reassurance from NVB that once NVB have accepted the HA application at Step 2a, as delegates of the Minister and NVC, the HA is effectively a 'done deal'. Neoen and NVB will monitor each subsequent step in the process for enacting Heritage Agreement and actively manage those to ensure process is progressing as usual. Neoen will expedite inclusion of and enacting NV edits to the General Registry Office (Plan (LSSA 2025) and HA MP.	Unlikely	Moderate	Low	The triggers for this risk are known: the award of the HA over the offset land parcel(s) will delay contractors and have significant financial implications for Neoen, and thus the mitigations are required to be implemented.	Ensure Project development schedule is regularly reviewed and updated with accurate information. Regular 'check-in's' with the NVB / NVC regarding progress of the HA application and expected date of signing by the Minister for Climate, Environment and Water (SA). Regular updates to DCCEEW regarding the HA process.	Keep relevant stakeholders, including DCCEEW, informed of progress of HA application. Confirmation with DCCEEW that DCCEEW is satisfied with the information provided by NVB regarding the HA application, including a supporting letter from NVB. If DCCEEW, at any stage, become unsatisfied that the HA will be awarded over the proposed offset sites (including full financial investment from Neoen).
Risks Associated with Staging the Offset											
Inability to secure adequate offsets at time of 'staged construction' (i.e. deferred offset acquisition for stage 2 construction.	If Neoen's Stage 1 (or Stage 2) offset falls through (e.g. due to change in availability of land or expiry of agreement, or breach of contract from landholder), resulting in Neoen having to find a new Stage 1 or 2 offset before commencing works at that respective stage, requiring DCCEEW to resource approval of the new Stage 1 or Stage 2 Offset Management Plan.	Possible	Minor	Low	The full offset requirement for the GNWF Project is outlined in this Plan and will be approved by DCCEEW prior to breaking ground for either stage of construction. If either of the Stage 1 or 2 offset emerged as no longer viable, Neoen would carry schedule risk to find a new suitable offset site, develop a revised OMP and ensure that this site and the proposed OMP was acceptable to DCCEEW.	Unlikely	Minor	Low	Offset site not secured for the planned stage of construction.	Monthly updates to DCCEEW on status and key terms of options to purchase with landholders for the offsets. Active audits of construction footprints for each stage of construction to ensure that disturbance does not go beyond that agreed for each stage of construction.	No construction of subsequent stages of the GNWF Project to commence until Offset sites which compensate for the impacts of that stage are secured. Notification to DCCEEW (and written approval) once subsequent offset sites have been secured, prior to commencing construction of that stage. Identify and secure adequate offset in a timely manner.

Risk Event or Circumstance	Risk Description (e.g. Cause and Effect)	Initial Risk Rating			Risk Mitigation Strategy(ies)	Residual Risk Rating			Management Trigger(s)	Monitoring Mechanism(s)	Corrective Action(s)
		L	C	R		L	C	R			
					Neoen have some contingencies in place for alternate sites such as utilising Stage 2 offset for Stage 1 and potentially supplementing with 92 Civilisation Gate Road as a potential offset site as well as increasing the Other Compensatory Measures component to meet the full obligations for the relevant stage. Neoen would need to ensure that this all occurred prior to breaking ground on the respective stage. Offset sites will be secured prior to breaking ground for any stage of construction (i.e. Stage 1 = 48 WTGs, Stage 2 = 51 WTGs). Neoen are in the process of establishing land purchase or lease agreements or standard land purchase contracts with landholders for all defined offset sites, including [redacted]. Neoen will provide evidence of these agreements to DCCEEW and exercise the right to purchase on these agreements following FID for each stage as part of securing all offset sites. This will ensure that subsequent offset stages are viable and will proceed following financial settlement for the respective stage with Neoen. Neoen will seek to maximise the term of the option agreements to reduce risk of Stage 2 FID occurring after land option has expired. Neoen will also seek to build in financial penalty for landholder in agreement, should they breach the agreement. Offsets for each stage of construction will be commensurate, or in excess of, impacts rising to MNES from that stage of construction (i.e. specific areas of impact for PBTL to be offset as outlined in the OMPs, unless excess offset has already been achieved by a prior offset stage.						
Construction contractors disturb ground beyond the delineated Stage 1 construction area (i.e. beyond area with current approved offset in place).	Clearance of native vegetation and potentially flora MNES and/or MNES habitat that has not been adequately offset. Injury or fatality of fauna MNES. This could be due to confusion of scope boundaries between Stage 1 and Stage 2.	Possible	Major	High	Revised CEMP (to be approved by DCCEEW) to ensure on-ground construction and development occurs in accordance with updated requirements as set out by DCCEEW. Construction boundaries associated with staging of the Project to be clearly delineated. Signage and other physical delineation of interfaces between stages of construction will be implemented. Detailed design for Stage 2 would not be included in the design for Stage 1, and thus there would be no reason for contractors to extend into the Stage 2 areas during construction of Stage 1.	Unlikely	Moderate	Low	Impacts / ground disturbance to areas outside of the approved Stage 1 construction area.	Audits of Disturbance Footprint boundary to be undertaken post disturbance. Identification of impacts to key habitats to be undertaken by suitably qualified ecologist to quantify the extent.	Stop works until all subsequent offset stages are secured and in place. Reporting and rehabilitation measures as outlined in the CEMP, INTG MP and PBTL MP (e.g. internal reporting mechanisms as outlined by the Contractor and Neoen, external reporting mechanisms to DCCEEW and NV Branch (where applicable).

Risk Event or Circumstance	Risk Description (e.g. Cause and Effect)	Initial Risk Rating			Risk Mitigation Strategy(ies)	Residual Risk Rating			Management Trigger(s)	Monitoring Mechanism(s)	Corrective Action(s)
		L	C	R		L	C	R			
					The interface between Stage 1 and Stage 2 has intentionally included very limited number of physical interface points (4 interfaces), and physical boundaries will be erected at these interface points. Implementation of existing risk mitigation strategies, as well as additional risk mitigation strategies specifically relevant to staged construction, which will be outlined in the updated CEMP, INGT MP, and PBTL MP and include clear delineation of no-go areas during staged construction, such as: • Where the Disturbance Footprint intersects with, or comes within proximity to, key habitats supporting EPBC species or communities, identify and indicate agreed construction footprint boundary (using spatial mapping as a minimum) to avoid unintentional disturbance outside of defined construction areas. Signage or other physical indication will be used where appropriate. • between stage 1 and stage 2 construction). • Inductions: All staff and contractors will complete a detailed, site-specific induction which provides an overview of PBTLs and potential impacts to PBTLs, as well as management measures associated with protection of PBTLs, including spatial areas of known and likely PBTL habitat in relation to staging of construction (i.e. clear delineation between stage 1 and stage 2 construction). • Known PBTL habitat spatial layers and maps to be provided to all contractors as part of the CEMP and OEMP. Awareness training to be provided during site inductions. Spatial data to clearly define construction stages (i.e. clear delineation between stage 1 and stage 2 construction areas).						

Initial Risk Rating: L = Likelihood, C = Consequence, R = Risk.

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Appendix A

PBTL Habitat Quality Assessment at the Impact Site (GNWF)

umwelt

Indicator	Metric	Criteria	Maximum Score if 'yes'	GNWF
Site Condition (Max score: 4)	Spiders	Presence of live Trapdoor Spiders (of varying age classes) and Wolf Spiders.	0.67	Yes
		Presence of live Trapdoor Spiders, Wolf Spiders may be present	0.50	
		Few live Trapdoor Spiders , all of the same age class. No Wolf Spiders present.	0.33	
		No spider burrows and no Trapdoor or Wolf Spiders present	0.00	
	Spider Burrows	Multiple Trapdoor burrows (≥ 20 per PBTL individual).	0.67	
		Multiple Trapdoor burrows (10-20 per PBTL individual).	0.50	
		Limited Trapdoor burrows (≤10 per PBTL individual)	0.33	
		Limited Trapdoor burrows (≤5 per PBTL individual)	0.17	Yes
		No spider burrows and no Trapdoor or Wolf Spiders present.	0.00	
	Vegetation Density	Ideal density, presence of invertebrates and food resources.	0.67	
		Moderate density, presence of invertebrates and food resources.	0.50	
		Low density, limited food resources.	0.33	Yes
		Vegetation comprises >50% bare ground; <10% bare ground; >15cm vegetation height.	0.17	
		No suitable vegetation and no food resources	0.00	
	Insecticide Use	No usage within the previous 12–18 months	0.67	
		Used within the last 6–12 months	0.50	Possible
		Used within the previous 3–6 months	0.33	
		Used within previous 3 months	0.17	
		Consistently used on site	0.00	
	Tree canopy	No trees or tall (>1 m) shrubs present within the site or immediately adjacent to it.	0.67	Yes
		Scattered trees or tall (>1 m) shrubs may be present.	0.50	
		> 20% canopy cover of trees or tall (> 1 m) shrubs.	0.33	
		> 40% Canopy cover of trees or tall (> 1 m) shrubs.	0.00	

Indicator	Metric	Criteria	Maximum Score if 'yes'	GNWF
	Rainfall	South/Southwest of Goyder's line, [receives at least 400 mm average rainfall p.a.] and in a zone expected to remain non-marginal for rainfall over the 20-year lifetime of the offset.	0.67	
		Site is on Goyder's line, [receives at least 250 mm average rainfall p.a.] and in a zone expected to remain non-marginal for rainfall over the next 20 years.	0.33	Yes
		Site is North/Northeast of Goyder's line, [receives less than 250 mm average rainfall p.a.] **and** in a zone expected to become marginal for rainfall in the next 20 years.	0.00	
Total Site Condition				**2.34**
Site Context (max 4)	Fragmentation	Site is connected to contiguous habitat on all sites allowing for dispersal, with no fragmentation, and no barriers to dispersal offsite.	2.00	
		Site is connected to contiguous habitat on multiple sides allowing for dispersal, with some habitat fragmentation and/or barriers to dispersal offsite.	1.50	Yes
		Site is connected to contiguous habitat on one side allowing for dispersal, with some habitat fragmentation and/or barriers to dispersal offsite.	1.00	
		Site does not allow for dispersal but could be connected to contiguous habitat with intervention. E.g. site is separated from other suitable grassland habitat by cleared areas or by barriers to dispersal.	0.50	
		Site does not allow for dispersal and no intervention proposed and/or possible.	0.00	
	Size / Area	Site area is larger than 70 ha.	2.00	Yes
		Site area is between 50 and 70 ha.	1.50	
		Site area is between 30 and 50 ha.	1.00	
		Site area is between 5 and 30 ha.	0.50	
		Site area is less than 5 ha.	0.00	
Total Site Context				**3.5**
Species Stocking Rate (max 2)	Usage or density of species	High densities of individuals of varying age classes (i.e., juvenile, sub-adult, adult) detected on site. Population serves a key role for the species.	2.00	

Indicator	Metric	Criteria	Maximum Score if 'yes'	GNWF
		Low density of individuals of varying age classes (i.e., juvenile, sub-adult, adult) detected on site.	1.00	Yes
		No historical record of species presence on site.	0.00	
Total Species Stocking Rate				**1.00**
Total Habitat Quality Score				**6.84**

Appendix B

[redacted] Field Survey Flora Species List

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Scientific Name	Common Name	EPBC Act	NPW Act	Declared
Native Species				
Acacia pycnantha	Golden Wattle			
Acaena echinata	Sheep's Burr			
Acaena echinata	Sheep's Burr			
Allocasuarina verticillata	Drooping Sheoak			
Amyema sp.	Mistletoe			
Anthosachne scabra	Native Wheat-grass			
Aristida behriana	Brush Wire-grass			
Arthropodium fimbriatum	Nodding Vanilla-lily			
Arthropodium strictum	Common Vanilla-lily			
Asperula conferta	Common Woodruff			
Atriplex semibaccata	Berry Saltbush			
Atriplex stipitata	Mallee Saltbush			
Atriplex suberecta	Sprawling Saltbush			
Austrostipa blackii	Crested Spear-grass			
Austrostipa drummondii	Cottony Spear-grass			
Austrostipa elegantissima	Feather Spear-grass			
Austrostipa eremophila	Rusty Spear-grass			
Austrostipa nitida	Balcarra Spear-grass			
Austrostipa scabra group	Falcate-awn Spear-grass			
Austrostipa scabra ssp.	Rough Spear-grass			
Austrostipa sp.	Spear-grass			
Boerhavia dominii	Tar-vine			
Brachyscome ciliaris	Variable Daisy			
Bursaria spinosa ssp. spinosa	Christmas Bush			
Bursaria spinosa	Sweet Bursaria			
Calostemma purpureum	Garland Lily			
Cheilanthes lasiophylla	Woolly Cloak-fern			
Cheilanthes tenuifolia	Curly Fern			
Chenopodium desatorum	Frosted Goosefruit			
Chrysocephalum apiculatum	Common Yellow Button			
Chrysocephalum semipapposum	Clustered Everlasting			
Clematis microphylla	Old Man's Beard			
Clematis leptophylla	Fine-leaved Clematis			
Convolvulus angustissimus	Australian Bindweed			
Convolvulus remotus	Grassy Bindweed			
Cotula australis	Australian Waterbuttons			
Cryptandra amara	Long-flower Cryptandra		Rare	
Cymbonotus preissianus	Australian Bear's ear			
Cymbopogon ambiguus	Lemon-grass			

Scientific Name	Common Name	EPBC Act	NPW Act	Declared
Daucus glochidiatus	Australian Carrot			
Dodonaea viscosa	Hop Bush			
Einadia nutans ssp.	Climbing Saltbush			
Enchylaena tomentosa var.	Ruby Saltbush			
Enneapogon nigricans	Black-head Grass			
Eryngium ovinum	Blue devil		Vulnerable	
Eucalyptus leucoxylon ssp. pruinosa	Inland South Australian Blue Gum			
Eucalyptus odorata	Peppermint Box			
Eucalyptus porosa	Black Mallee Black			
Euphorbia drummondii				
Galium gaudichaudii	Rough bedstraw			
Geranium potentilloides var. potentilloides	Downy Geranium			
Geranium retrorsum	Grassland Geranium			
Glycine rubiginosa	Twining Glycine			
Gonocarpus tetragynus	Common Raspwort			
Gonocarpus tetragynus	Common Raspwort			
Goodenia pinnatifida	Cut-leaf Goodenia			
Hydrocotyle laxiflora	Stinking Pennywort			
Hydrocotyle sp.	Pennywort			
Isotoma petraea	Rock Isotome			
Lagenophora gunniana	Coarse Bottle-Daisy			
Leptorhynchos squamatus	Scaly Buttons			
Leptorhynchos squamatus ssp. squamatus	Scaly Buttons			
Lomandra densiflora	Soft Tussock Mat-rush			
Lomandra effusa	Scented Mat-rush			
Lomandra multiflora ssp.	Many-flower Mat-rush			
Lycium australe	Australian Boxthorn			
Maireana aphylla	Cotton Bush			
Maireana brevifolia	Short-leaf Bluebush			
Maireana enchylaenoides	Wingless Fissure-plant			
Maireana georgei	Satiny Bluebush			
Maireana rohrlachii	Rohrlach's Bluebush		Rare	
Melicytus angustifolius ssp. divaricatus	Gruggly Bush			
Minuria sp.	Minuria			
Myoporum parvifolium	Creeping boobialla		Rare	
Oxalis perennans	Native Sorrel			
Phyllanthus sp.	Spurge			
Pimelea sp.	#N/A			

Scientific Name	Common Name	EPBC Act	NPW Act	Declared
Plantago gaudichaudii	Colony Plantain			
Poa sp.	(blank)			
Ptilotus sp.	(blank)			
Ptilotus spathulatus	Pussy-tails			
Rhagodia parabolica	Mealy Saltbush			
Rhodanthe pygmaea	Pigmy Daisy			
Rumex brownii	Slender Dock			
Rumex dumosus	Wiry Dock		Rare	
Rytidosperma caespitosum	Common Wallaby-grass			
Rytidosperma setaceum	Small-flower Wallaby-grass			
Salsola australis	Buckbush			
Scleranthus pungens	Prickly Knawel			
Scleranthus sp.	Knawel			
Senecio anethifolius	Feathery Groundsel			
Sida corrugata var.	Corrugated Sida			
Stackhousia sp.	Candlestick			
Vittadinia blackii	Narrow-leaf New Holland Daisy			
Vittadinia cuneata var.	Fuzzy New Holland Daisy			
Vittadinia gracilis	Woolly New Holland Daisy			
Vittadinia megacephala	Giant New Holland Daisy			
Vittadinia sp.	New Holland Daisy			
Wahlenbergia luteola	Yellow-wash Bluebell			
Wahlenbergia sp.	Native Bluebell			
Wurmbea sp.	Star-lily			
Introduced / Exotic Species				
Aira sp.	Hair-grass			
Arctotheca calendula	Cape Weed			
Asphodelus fistulosus	Onion Weed			
Avena barbata	Bearded Oat			
Bromus diandrus	Great Brome			
Bromus hordeaceus	Soft Brome Grass			
Bromus rubens	Red Brome			
Carduus tenuiflorus	Slender-flower thistle			
Carrichtera annua	Ward's Weed			
Carthamus lanatus	Saffron Thistle			
Centaurea solstitialis	Star thistle			
Convolvulus arvensis	Field Bindweed			Yes
Crataegus monogyna	Hawthorn			
Cynara cardunculus ssp. flavescens	Artichoke Thistle			Yes

Scientific Name	Common Name	EPBC Act	NPW Act	Declared
Echium plantagineum	Salvation Jane			Yes
Erodium cicutarium	Cut-leaf Heron's-bill			
Galium aparine	Cleavers			
Holcus lanatus	Yorkshire Fog			
Hordeum vulgare	Barley			
Hypochaeris glabra	Smooth Cat's Ear			
Hypochaeris radicata	Flatweed			
Lactuca serriola	Prickly lettuce			
Lepidium africanum	Common Peppercress			
Linum strictum ssp. strictum	Upright Yellow Flax			
Lolium rigidum	Annual ryegrass			
Lycium ferocissimum	African Boxthorn			Yes
Marrubium vulgare	Horehound			Yes
Medicago polymorpha	Burr-medic			
Medicago truncatula	Barrel Medic			
Moraea setifolia	Thread Iris			
Moraea sp.				
Neatostema apulum	Hairy Sheepweed			
Petrorhagia dubia	Hairy Pink			
Reseda lutea	Cut-leaf Mignonette			Yes
Romulea sp.	Onion-grass			
Salvia verbenaca var.	Wild Sage			
Sisymbrium erysimoides	Smooth Mustard			
Sisymbrium irio	London Mustard			
Sisymbrium orientale	Indian Hedge Mustard			
Sisymbrium sp.	Wild Mustard			
Solanum nigrum	Black Nightshade			
Sonchus oleraceus	Common Sow-thistle			
Spergularia rubra	Red Sandspurry			
Trifolium angustifolium	Narrow-leaf Clover			
Trifolium arvense var. arvense	Hare's-foot Clover			
Trifolium repens	White Clover			
Vulpia sp.	Fescue			
Romulea	Onion-grass			

Appendix C

Desktop Assessment Results

Scientific Name	Common Name	EPBC Act[1]	NPW Act[1]	Bioregional Status[1]	PMST Likelihood	Source[2]	Number of Records	Last Record (Year)
TEC								
Iron-grass Natural Temperate Grassland of South Australia		CE			Likely	2, 3		
Peppermint Box (*Eucalyptus odorata*) Grassy Woodland of South Australia		CE			Likely	2, 3		
FLORA								
Acacia glandulicarpa	Hairy-pod Wattle	VU			May	2		
Acacia menzelii	Menzel's Wattle	VU			May	2		
Acacia trineura	Three-nerve Wattle		EN			1	1	1900
Austrostipa gibbosa	Swollen Spear-grass		RA			1	1	2022
Brachyscome ciliaris var. *subintegrifolia*			RA	NE		1	2	1994
Caladenia tensa	Greencomb Spider-orchid, Rigid Spider-orchid	EN			Likely	2		
Codonocarpus pyramidalis	Slender Bell-fruit, Camel Poison	VU			Likely	2		
Cryptandra campanulata	Long-flower Cryptandra		RA	RA		1, 3	2	2022
Cullen parvum	Small Scurf-pea		VU	LC		1	1	1999
Dodonaea procumbens	Trailing Hop-bush	VU			May	2		
Dodonaea subglandulifera	Peep Hill Hop-bush	EN			May	2		
Eremophila subfloccosa ssp. *glandulosa*	Green-flower Emubush		RA	EN		1	1	1993
Eucalyptus bicostata	Southern Blue Gum		VU	EN		1	2	2008
Festuca benthamiana	Bentham's Fescue		RA	VU		1	5	1993
Frankenia cupularis			RA	RA		1	1	1993
Lepidium pseudotasmanicum	Shade Peppercress		VU	VU		1	7	1994
Maireana excavata	Bottle Fissure-plant		VU	RA		1	3	2006
Maireana rohrlachii	Rohrlach's Bluebush		RA	RA		1	2	2022

Scientific Name	Common Name	EPBC Act[1]	NPW Act[1]	Bioregional Status[1]	PMST Likelihood	Source[2]	Number of Records	Last Record (Year)
Myoporum parviflorum	Creeping Boobialla		RA			3	1	2025
Olearia pannosa ssp. pannosa	Silver Daisy-bush	VU	VU	EN	Known	1, 2	3	1993
Philotheca angustifolia ssp. *angustifolia*	Narrow-leaf Wax-flower		RA	RA		1	1	1998
Poa drummondiana	Knotted Poa		RA	RA		1	2	2004
Pterostylis despectans	Mt Bryan Greenhood	EN	EN	EN	Likely	1, 2	299	2007
Pterostylis xerophila	Desert Greenhood	VU			May	2		
Ptilotus erubescens	Hairy-tails		RA	RA		1	1	2018
Rhodanthe anthemoides	Chamomile Everlasting		EN	CR		1	15	2008
Rumex dumosus	Wiry Dock		RA	VU		1, 3	3	2020
Rytidosperma tenuius	Short-awn Wallaby-grass		RA	NE		1	2	2018
Senecio megaglossus	Superb Groundsel	VU			Likely	2		
Swainsona behriana	Behr's Swainson-pea		VU	EN		1	1	2022
Swainsona pyrophila	Yellow Swainson-pea	VU			May	2		
Veronica decorosa	Showy Speedwell		RA	EN		1	1	1993
FAUNA								
Aphelocephala leucopsis leucopsis	Southern Whiteface	VU		LC	Known	1, 2, 3	16	2022
Aprasia pseudopulchella	Flinders Ranges Worm-lizard	VU			Likely	2		
Ardeotis australis	Australian Bustard		V	EN		1	1	1995
Calidris acuminata	Sharp-tailed Sandpiper	VU, Mi(W)			May	2		
Calidris ferruginea	Curlew Sandpiper	CE, Mi(W)			May	2		
Corcorax melanorhamphos	White-winged Chough		R	RA		1, 3	6	2010
Falco hypoleucos	Grey Falcon	VU			Likely	2		
Falco peregrinus macropus	Peregrine Falcon		R	RA		1	2	2004

Scientific Name	Common Name	EPBC Act[1]	NPW Act[1]	Bioregional Status[1]	PMST Likelihood	Source[2]	Number of Records	Last Record (Year)
Galaxias rostratus	Flathead Galaxias, Beaked Minnow, Flat-headed Galaxias, Flat-headed Jollytail, Flat-headed Minnow	CE			May	2		
Gallinago hardwickii	Latham's Snipe, Japanese Snipe	VU, Mi(W)			May	2		
Grantiella picta	Painted Honeyeater	VU			May	2		
Melanodryas cucullata cucullata	South-eastern Hooded Robin, Hooded Robin (south-eastern)	EN			Likely	2		
Neophema chrysostoma	Blue-winged Parrot	VU			Likely	2		
Nyctophilus corbeni	Corben's Long-eared Bat, South-eastern Long-eared Bat	VU			May	2		
Pedionomus torquatus	Plains-wanderer	EN			May	2		
Rostratula australis	Australian Painted Snipe	EN			May	2		
Stagonopleura guttata	Diamond Firetail	VU			Known	2		
Tiliqua adelaidensis	Pygmy Blue-tongue Lizard, Adelaide Blue-tongue Lizard	EN	E	EN	Known	2, 3	29	2008
MIGRATORY FAUNA								
Actitis hypoleucos	Common Sandpiper	Mi(W)			May	2		
Apus pacificus	Fork-tailed Swift	Mi(M)			Likely	2		
Calidris melanotos	Pectoral Sandpiper	Mi(W)			May	2		
Motacilla cinerea	Grey Wagtail	Mi(T)			May	2		
Motacilla flava	Yellow Wagtail	Mi(T)			May	2		
Pandion haliaetus	Osprey	Mi(W)			May	2		

[1] Conservation Status: CE / CR: Critically Endangered, EN: Endangered; VU; Vulnerable, Mi (M): Migratory Marine, Mi(W): Migratory Wetlands, Mi(T): Migratory Terrestrial; RA: Rare, LC: Least Concern

[2] 1 = NatureMaps, 2 = PMST, 3 = Observed

Appendix D

[redacted] Field Survey Fauna Species List

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Scientific Name	Common Name	EPBC Act	NPW Act	Sum of No. individuals
Native Species				
Acanthiza chrysorrhoa	Yellow-rumped thornbill			35
Anthochaera carunculata	Red Wattlebird			4
Anthus australis	Australasian Pipit			5
Aphelocephala leucopsis leucopsis	Southern Whiteface	Vulnerable		38
Aquila audax audax	Wedge-tailed eagle			8
Artamus cyanopterus	Dusky Woodswallow			4
Barnardius zonarius	Australian Ringneck			9
Cincloramphus cruralis	Brown Songlark			2
Colluricincla harmonica	Grey Shrikethrush			2
Coracina novaehollandiae	Black-faced Cuckooshrike			2
Corcorax melanorhamphos	White-winged Chough		Rare	2
Corvus mellori	Little Raven			7
Dacelo novaeguineae novaeguineae	Laughing Kookaburra			2
Dicaeum hirundinaceum hirundinaceum	Mistletoebird			5
Eolophus roseicapilla	Galah			54
Epthianura albifrons	White-fronted Chat			5
Falco berigora	Brown Falcon			1
Falco cenchroides	Nankeen Kestrel			1
Gavicalis virescens	Singing Honeyeater			1
Gymnorhina tibicen	Australian Magpie			29
Hirundo neoxena neoxena	Welcome Swallow			2
Lalage tricolor	White-winged Triller			6
Macropus (Osphranter) robustus	Euro			1
Macropus (Osphranter) rufus	Red Kangaroo			2
Macropus fuliginosus	Western Grey Kangaroo			76
Malurus leucopterus leuconotus	White-winged Fairywren			2
Melithreptus brevirostris	Brown-headed honeyeater			2
Melopsittacus undulatus	Budgerigar			4
Menetia greyii	Dwarf Skink			2
Ninox novaeseelandiae	Boobook Owl			1
Ocyphaps lophotes lophotes	Crested Pigeon			2
Pardalotus striatus	Striated pardalote			14

Scientific Name	Common Name	EPBC Act	NPW Act	Sum of No. individuals
Petrochelidon nigricans	Tree Martin			8
Platycercus elegans	Crimson Rosella			2
Psephotus haematonotus	Red-rumped parrot			9
Ptilotula penicillata	White-plumed Honeyeater			4
Smicrornis brevirostris	Weebill			6
Struthidea cinerea cinerea	Apostlebird			4
Taeniopygia guttata castanotis	Zebra Finch			2
Tiliqua adelaidensis	Pygmy Blue-tongue Lizard	Endangered	Endangered	7
Tiliqua rugosa	Shingleback Lizard			2
Trichoglossus moluccanus	Rainbow Lorikeet			2
Morethia sp.	(blank)			1
Delma sp.	(blank)			1
Barnardius zonarius barnardi	Mallee Ringneck			4
Introduced / Exotic Species				
Alauda arvensis	Eurasian Skylark			2
Bos taurus	Cow			Not counted
Capra hircus	Goat (Feral Goat)			8
Columba livia	Feral Pigeon			4
Manorina melanocephala	Noisy Miner			2
Oryctolagus cuniculus	European Rabbit			Not counted
Ovis aries	Sheep			Not counted
Passer domesticus	House Sparrow			17
Sturnus vulgaris vulgaris	Common Starling			11

Appendix E

Offset Area [redacted] Habitat Quality Score

Indicator	Metric	Criteria	Maximum Score if 'yes'	Current	Without Offset	With Offset
Site Condition (Max score: 4)	Spiders	Presence of live Trapdoor Spiders (of varying age classes) and Wolf Spiders.	0.67	Yes		Yes
		Presence of live Trapdoor Spiders, Wolf Spiders may be present	0.50			
		Few live Trapdoor Spiders , all of the same age class. No Wolf Spiders present.	0.33		Possible	
		No spider burrows and no Trapdoor or Wolf Spiders present	0.00			
	Spider Burrows	Multiple Trapdoor burrows (≥ 20 per PBTL individual).	0.67			
		Multiple Trapdoor burrows (10-20 per PBTL individual).	0.50			Yes
		Limited Trapdoor burrows (≤10 per PBTL individual)	0.33			
		Limited Trapdoor burrows (≤5 per PBTL individual)	0.17	Yes		
		No spider burrows and no Trapdoor or Wolf Spiders present.	0.00		Possible	
	Vegetation Density	Ideal density, presence of invertebrates and food resources.	0.67			Possible
		Moderate density, presence of invertebrates and food resources.	0.50			
		Low density, limited food resources.	0.33			
		Vegetation comprises >50% bare ground; <10% bare ground; >15cm vegetation height.	0.17	Yes		
		No suitable vegetation and no food resources	0.00		Possible	
	Insecticide Use	No usage within the previous 12 -18 months	0.67	Yes		Yes
		Used within the last 6-12 months	0.50			
		Used within the previous 3-6 months	0.33			

Indicator	Metric	Criteria	Maximum Score if 'yes'	Current	Without Offset	With Offset
		Used within previous 3 months	0.17			
		Consistently used on site	0.00		Possible	
	Tree canopy	No trees or tall (>1 m) shrubs present within the site or immediately adjacent to it.	0.67			
		Scattered trees or tall (>1 m) shrubs may be present.	0.50	Yes	Yes	Yes
		> 20% canopy cover of trees or tall (> 1 m) shrubs.	0.33			
		> 40% Canopy cover of trees or tall (> 1 m) shrubs.	0.00			
	Rainfall	South/Southwest of Goyder's line, [receives at least 400 mm average rainfall p.a.] and in a zone expected to remain non-marginal for rainfall over the 20-year lifetime of the offset.	0.67			
		Site is on Goyder's line, [receives at least 250 mm average rainfall p.a.] and in a zone expected to remain non-marginal for rainfall over the next 20 years.	0.33	Yes	Yes	Yes
		Site is North/Northeast of Goyder's line, [receives less than 250 mm average rainfall p.a.] **and** in a zone expected to become marginal for rainfall in the next 20 years.	0.00			
Total Site Condition				**2.48**	**1.16**	**3.34**
Site Context (max 4)	Fragmentation	Site is connected to contiguous habitat on all sites allowing for dispersal, with no fragmentation, and no barriers to dispersal offsite.	2.00			
		Site is connected to contiguous habitat on multiple sides allowing for dispersal, with some habitat fragmentation and/or barriers to dispersal offsite.	1.50	Yes		Yes
		Site is connected to contiguous habitat on one	1.00		Possible	

Indicator	Metric	Criteria	Maximum Score if 'yes'	Current	Without Offset	With Offset
		side allowing for dispersal, with some habitat fragmentation and/or barriers to dispersal offsite.				
		Site does not allow for dispersal but could be connected to contiguous habitat with intervention. E.g. site is separated from other suitable grassland habitat by cleared areas or by barriers to dispersal.	0.50			
		Site does not allow for dispersal and no intervention proposed and/or possible.	0.00			
	Size / Area	Site area is larger than 70 ha.	2.00	Yes	Yes	Yes
		Site area is between 50 and 70 ha.	1.50			
		Site area is between 30 and 50 ha.	1.00			
		Site area is between 5 and 30 ha.	0.50			
		Site area is less than 5 ha.	0.00			
Total Site Context				**3.5**	**3.0**	**3.5**
Species Stocking Rate (max 2)	Usage or density of species	High densities of individuals of varying age classes (i.e., juvenile, sub-adult, adult) detected on site. Population serves a key role for the species.	2.00			
		Low density of individuals of varying age classes (i.e., juvenile, sub-adult, adult) detected on site.	1.00	Yes	Yes	Yes
		No historical record of species presence on site.	0.00			
Total Species Stocking Rate				**1.00**	**1.00**	**1.00**
Total Score				**6.98**	**5.16**	**7.84**

Appendix F

Grazing Management

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Neoen has engaged with relevant INTG TEC and native grassland experts including the Northern and Yorke Landscape Board and Murraylands and Riverland Landscape Board and anticipate that ongoing engagement will occur as part of this Offset Management Plan, which may include:

- Engagement to undertake an on-ground start-up meeting between relevant experts, Neoen, the on-ground Offset Area land manager (and ecological consultants) to broadly assess the sites to be grazed and provide guidance on the indicators to look for to trigger for various points in the grazing regime (for example to initiate grazing or prevent over grazing).
- Periodic engagement to review monitoring results and provide advice and recommendations.
- Periodic engagement (suggest biennial) for on-ground meetings to assess progress.

Grazing Regime Justification

A grazing regime is adopted to provide beneficial land management as a whole, however grazing management is particularly targeted to improve outcomes for native grasslands including Iron-grass, and to improve habitat for occupation by Pygmy Blue-tongue Lizard.

For PBTL agricultural grazing is considered important to maintain a suitable habitat structure. The PBTL Recovery Plan (Duffy, Pound, & How, 2012) states:

"Action 1.2: Encourage private land conservation agreements and other measures to secure protection of Pygmy Blue-tongue populations and habitat…If managed appropriately, agricultural grazing is often compatible with Pygmy Blue-tongue Lizard conservation requirements, and in many cases it will be important to continue grazing management in order to maintain a suitable habitat structure." (page 25)

"Action 3.2: Implement measures to increase suitable Pygmy Blue-tongue habitat at known populations…Examples of opportunities to increase habitat extent or quality may include adjustments to grazing management regimes, installation of artificial burrows or related recovery actions for the grassy habitats themselves." (page 27)

"Action 5.2: Undertake land management trials to refine regimes required to improve habitat quality (grazing, fire)." (page 30)

Additionally, the conservation advice (DCCEEW, 2023) states that:

"*Moderate grazing keeps grasslands open and with scattered bare areas. These are essential attributes of pygmy blue-tongue habitat, providing lizards access to direct sunlight which is important for basking and likely provides good visibility of predators and prey (Pettigrew & Bull 2014, Nielsen et al. 2017; Bull & Hutchinson 2018). However, overgrazing by large numbers of sheep, where all surrounding vegetation is removed and widespread sheep trampling occurs, has a detrimental effect on the species (Pettigrew & Bull 2011; Clayton & Bull 2015).*

Nielsen and Bull (2017) found that pygmy blue-tongues occurring in moderately grazed paddocks produced significantly more yolk sacs (had a higher reproductive output) than those in hard-grazed paddocks. Individuals in moderately grazed paddocks also gave birth significantly earlier in the year than the latter, which is advantageous for young as they must establish their own burrows and accumulate enough energy reserves for the winter (Nielsen & Bull 2017). Another study by Nielsen & Bull (2020) showed that lizard body condition decreased with increasing grazing intensity within habitat areas. The detrimental effects of overgrazing on body condition and reproductive success may result from decreased abundance of invertebrate prey (Nielsen 2017), or increased predation due to decreased grass cover (Nielson & Bull 2017).

Insufficient grazing at sites where pygmy blue-tongues occur may also be detrimental to the species, as a moderate grazing regime may manage weed growth and create intertussock spaces enabling foraging and basking opportunities (Duffy et al. 2012).

Grazing trials conducted through a collaborative project between the South Australian Government Department of Environment and Natural Resources (DENR) and the Mid North Grassland Working Group determined that rotational grazing does not result in accelerated deterioration of burrows in comparison to traditional grazing regimes (Sharp et al. 2010; Duffy et al. 2012). Therefore, rotational grazing within pygmy blue-tongue sites appears to be compatible with the conservation of the species (Sharp et al.2010).”

Draft Grazing Regime

The grazing regime implemented will be reviewed and revised along with condition monitoring of the PBTL Offset Area, to ensure that they are favourable to maintain and increase (where possible) condition and quality of grassland vegetation. For example, to allow for native grasses and forbs to grow and set seed and for sheep to graze on introduced grasses (e.g. *Avena barbata*), grazing is likely to be limited to periods between May and September, with stocking rates (measured in Dry Sheep Equivalents; DSE) calculated based on the carrying capacity (growth rate and productivity) of each paddock (measured as kilograms of dry matter per hectare; kg DM/ha), reviewed on a regular basis. Example calculation and activity datasheets are provided below including:

- Stocking Rate and Available Feed in Each Paddock at Time of Monitoring
- Feed Budget Planning Sheet (Summer Rest Period: 90 - 120 days)
- Paddock Monitoring Sheet.

The timing of grazing will be dependent on the seasonal conditions, with appropriate timing and indicators for grazing commencement to be based on **Table 5.3**, and as advised by relevant experts. Given the large size of paddocks currently, additional fencing may be required to reduce the paddock sizes sufficiently to ensure adequate impact of grazers (i.e. dependent on mob size) over the recommended short grazing timeframes.

Unless otherwise approved by the PBTL Recovery Team or other relevant experts, no other domestic grazing stock, such as but not limited to, cattle or horses, may graze the Offset Area, as they are likely to cause a decrease in condition/quality to the soil condition.

To enable regeneration of native grassland species, the following grazing regime is suggested to be implemented:

- Short duration, periodic high intensity grazing events of the Offset Area except during late spring / early summer when no grazing is to occur. An upper limit to grazing periods should be established to provide an outcome which is both ecologically beneficial and practically manageable, for example 7 days of grazing in each paddock followed by a minimum rest period of 4 weeks, to be guided by grass height and grassland recovery.
- The duration of grazing will need to be monitored by the land manager so native vegetation is not grazed to less than 5 cm in height. This will be dependent on number of sheep used, height of vegetation and seasonal conditions.

The current duration of grazing and/or the current stocking rate may be altered (increased or decreased). The aim is that the sheep will graze the introduced annual species particularly hard after germination and prior to seed set. This allows native grasses and herbs to grow and set seed and for

sheep to graze on annual introduced grasses (i.e. *Avena barbata*) and hence reduce their dominance over time.

The introduced annual species will set less seeds which, over time, will favour the native species. The native species will also be grazed, but as most perennial native species set seed later in the year (late spring / early summer), they will have sufficient growing time from the last grazing event (i.e. in August) to set seed. Grazing of perennial native grass species will also reduce the amount of thatch and ensure the grassland area is reinvigorated each year. A short duration of grazing will reduce the impact of the hard sheep hooves on the soil as well.

Stock proof fencing will be utilized to ensure that livestock remain excluded from sensitive vegetation, or vegetation where grazing is not thought to be beneficial. Fencing will also be utilized to manage the movement of livestock throughout the areas proposed for grazing.

Relevant Grazing Regime Terminology and Definitions, Adapted from Mid North Grasslands Working Group: How to Make Money Out Of Grass: A Farmers Guide to Grazing Management of Native Pastures in the Northern Agricultural Districts of SA (Mid North Grasslands Working Group, Undated)

Term or Calculation	Description / Definition
Carrying capacity (kg DM/ha)	How much a property can produce for an infinite time, dependent on soil type, rainfall and timing, pasture type. Measured as kilograms of dry matter per hectare; kg DM/ha).
Dry Sheep Equivalent (DSE)	10DSE/ha = 10 sheep on one hectare for 365 days
Dry Sheep	50 kg wether, eating approximately 1kg of feed per day
Stocking rate (DSE/ha)	Number of Dry Sheep per hectare
Sustainable stocking rate	No more than 50% of the grass grown to be consumed by animals in order to: • Prevent soil erosion • Prevent weed establishment • Retain seeds • Provide base for new pasture growth. Determined by the quantity of pasture in paddock (kg DM/ha).
Available feed	The quantity of pasture in a paddock that controls the feed intake of animals and pasture regrowth rate. Low: <1,000 kg DM/ha (feed intake and pasture growth restricted and desirable species will not persist) Ideal = 1,000–3,000 kg DM/ha (feed intake, diet selection and pasture growth rates are optimised) High = >3,000 kg DM/ha (No advantage for feed intake, pasture quality and growth rates decline, shading may reduce number of plants). **To measure:** *For green pasture,* measure height from the top of the bulk of the grass to the ground (do not extend leaves or measure tops of seed heads). 1cm = 200kg DM/ha (i.e. 6cm of pasture equates to 6 x 200 = 1,200 kg DM/ha) *For dry pasture,* estimate the number of handfuls of pasture in an area the size of approximately 33 cm x 33 cm, where 1 handful = 1,000 kg DM/ha.

Term or Calculation	Description / Definition
	Calculation: Multiply the kg DM/ha by the area of the paddock (ha) and then divide by two (for 50% utilisation rate). Divide by the number of sheep in the flock (i.e. 20,000 kg DM/ha / 250 DSEs (50kg sheep) = 80 days of feed for 250 sheep.
Recovery Period	Time taken for pastures to recover following grazing. Variable according to the season. In spring (active growth) 30–40 days may be adequate, but in summer 90–180 days may be required. Recommended 60 days in winter, 30 days in spring and 90 days in summer and autumn. Leaf tussock height should not be grazed below 5 cm to ensure that >1,000 kg DM/ha remains.

How to calculate graze periods when paddocks are of varying size

Example: 10 paddocks varying in size from 100ha–400ha with the average paddock size of 250ha = Total grazing area of 2500ha
(For this example assume a 60 day recovery period)

1. Size factor = $\frac{\text{Paddock size}}{\text{Average paddock size}}$

Example 1: $\frac{400}{250}$ = 1.6 Size Factor

2. Graze period = $\frac{\text{Recovery period x size factor}}{\text{No of paddocks recovering}}$

Example 1: $\frac{60 \times 1.6}{9}$ = 10.66 Day Graze Period

This equals a 10 day graze period for this 400ha paddock

1. Size factor = $\frac{\text{Paddock size}}{\text{Average paddock size}}$

Example 2: $\frac{100}{250}$ = 0.4 Size Factor

2. Graze period = $\frac{\text{Recovery period x size factor}}{\text{No of paddocks recovering}}$

Example 2: $\frac{60 \times 0.4}{9}$ = 2.66 Day Graze Period

This equals a 2 day graze period for this 100ha paddock

Example Stocking Rate and Available Feed in Each Paddock at Time of Monitoring (Baseline Assessment)

Paddock	Area (ha)	Assessment Sites	Sheep Number and Type	DSE Rating	Total DSE of Mob	Current Stocking Rate (DSE / Ha)	Average Perennial Tussock Height (cm) at Baseline Assessment	Average kg DM/ha (1cm = 200 kg feed)	Comment
[redacted]	[redacted]	1	1000 ewes with lambs at foot	2.8	2,800	2.39	6	1,200	Low grass cover

Example Feed Budget Planning Sheet (Summer Rest Period: 90–120 days)

Date (of assessment)	Paddock Name	Paddock Size	Estimate of Available Feed (kg DM/ha)	Amount of feed to be utilised (<30%)	Total amount of feed to be utilised (kgs)	Sheep number and type	DSE Rating	Total DSE of mob	Days of Grazing Available
1/12/2022	[redacted]	[redacted]	1,200	400	46,936	1,000 ewes with lambs at foot	2.8	2,800	16

Example Paddock Monitoring Sheet

Paddock	Area	Date In	Date Out	Grazing Days	Average kg DM/ha	Sheep Number and Type	D.DSE Rating	E.DSE of Mob	F. Feed Utilised (kgs)	Rest Period	H.DSE Days / ha	I.DSE Days / ha / year
[redacted]	[redacted]	1/6/25	10/6/25	10	1,200	1000 ewes with lambs	2.8	2,800	28,000	90	238	0.65

Appendix G

Activity Record Sheets

Management Activity Record Sheet

Date	Activity Type	Location	Details	Duration	Personnel involved	Notes	Follow-up required	Details
DD/MM/YYYY	e.g. weed control, firebreak maintenance, surveillance	[redacted]	e.g. targeted spraying of Declared weeds	e.g. 3 hours	Name / Role	e.g. X number of weeds treated	Yes / No	e.g. Follow up in 4 weeks

Grazing Record Sheet

Paddock / Location	Number Of Stock	Stock Type	Start Trigger	Start Date	End Date	Duration (Days)	Objective	End Trigger
[redacted]	e.g. 500	e.g. Ewes with / without lambs	e.g. winter rainfall and growth of oat grass	DD/MM/YYYY	DD/MM/YYYY	e.g. 7 days	e.g. suppression of oat grass / prevention of seeding	e.g. oat grass seeds removed and grass height remains between 5 and 15 cm height.

umwelt

P 1300 793 267 E info@umwelt.com.au W umwelt.com.au

NSW | ACT | WA | QLD | VIC | SA ABN 18 059 519 041