Akaysha Energy

Biodiversity Management Plan

Orana BESS

March 2026



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Biodiversity Management Plan
Orana BESS

Akaysha Energy

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C	04-04-2024	Draft RevC for issue to BCS
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G	07-11-2024	RevG - update to combine BCS Response
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We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Terms and abbreviations

Akaysha	Akaysha Energy
BC Act	*Biodiversity Conservation Act 2016* (NSW)
Biosecurity Act	*Biosecurity Act 2015* (NSW)
BCS	Biodiversity and Conservation and Science Division of the NSW Department of Planning and Environment
BDAR	Biodiversity Development Assessment Report
BMP	Biodiversity Management Plan
CEMP	Construction Environmental Management Plan
DPE	Department of Planning and Environment
EEC	Endangered ecological community
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
MOMP	Masked Owl Management Plan
Pesticides Act	*Pesticides Act 1999*
Subject land	Construction footprint or area of direct disturbance
TEC	Threatened ecological community
TRPZ	Tree root protection zone
WoNS	Weeds of National Significance

1 Introduction

1.1 Background

The New South Wales (NSW) Government, through the Energy Corporation of NSW (EnergyCo) and Akaysha Energy, is developing the 'Orana Battery Energy Storage System' (the project) to ensure NSW continues to have reliable, affordable energy supplies. On 22 December 2023, the Executive Director granted consent to the development application for the Orana Battery Energy Storage System subject to conditions, under delegation from the Minister for Planning and Public Spaces and section 4.38 of the Environmental Planning and Assessment Act 1979 (the Act).

This Biodiversity Management Plan (BMP) has been prepared for the project using information provided within the supporting BDAR Report (NGH, February 2025). This BMP is an update to the BDAR (version F) and is provided to support a Modification Application (mod 2). It applies to the construction and operation stage of the Battery Energy Storage System development in line with the Modified Development Application submission. Any other modification request to the DA will trigger an update to the BMP accordingly.

1.2 Purpose and scope

This Biodiversity Management Plan (BMP) has been developed for the Orana Battery Energy Storage System (the project) on behalf of Akaysha Energy (Akaysha).

This BMP addresses Schedule 2 (Part B), Condition B14 of the project's state Infrastructure Approval SSD 45242780 (project approval), which requires EnergyCo to prepare and implement a BMP. Under Condition B14 of the project approval, the BMP must satisfy a set of requirements including, protection of vegetation and habitats outside the approved disturbance areas and minimising impacts to fauna within the subject land (area of direct disturbance).

Management measures and procedures contained in this BMP provide a framework for managing biodiversity values in the subject land, whilst protecting adjacent vegetation and habitat throughout construction of the project. The BMP is applicable to all activities associated with the construction phase of the project.

As per condition C20, all items stated in this BMP will be made publicly available on the Akaysha Energy website once approval has been granted.

1.3 Objectives

The key objective of the BMP is to ensure that appropriate environmental controls and procedures are implemented and maintained during construction activities to avoid or minimise potentially adverse impacts to fauna and flora within the subject land. To achieve this objective, the project will undertake the following:

- ensure appropriate environmental controls and procedures are implemented during construction to minimise fauna and flora impacts.
- ensure appropriate measures are implemented to address relevant project approval conditions and the safeguards detailed in the project Environment Impact Assessment (EIA) (NGH, April 2023) and associated Biodiversity Development Assessment Report (BDAR) (NGH, February 2025).
- ensure appropriate measures are implemented to comply will relevant legislation and other requirements as detailed in Section 2 of this BMP.

1.4 Associated documents

The associated and supporting documents to this BMP are detailed in Table 1.1.

Table 1.1 Associated documents

Document	Reference
Biodiversity Development Assessment Report – Orana BESS	(NGH, February 2025)
Environmental Impact Assessment – Orana BESS	(NGH, April 2023)
Orana BESS Development Consent – SSD 45242780	(NSW Department of Planning and Environment, December 2023a)
Orana Battery Energy Storage System – State Significant Development Assessment Report	(NSW Department of Planning and Environment, December 2023c)
Notice of Decision – Orana BESS	(NSW Department of Planning and Environment, December 2023b)

1.5 Consultation

In accordance with Condition B14 of Schedule 2 of the project's Infrastructure Approval, this BMP must be prepared in consultation with the Biodiversity and Conservation Science and Division (BCS) of the Department of Planning and Environment (DPE). BCS provided comments and recommendations on 4 June 2024, 9 July 2024 and 22 October 2024 and the summary of updates is provided in Table 1.2.

Table 1.2 BCS recommendations

BCS recommendation	BMP update
Map of management domains	Section 5.1
Management areas linked to specific and appropriate performance criteria, completion criteria, performance indicators, management actions and remedial actions. Targets are refined for enhancement of biodiversity values	Sections 6.3.1 and 6.4
BMP amended to include targets triggers that are quantitative, unambiguous and relate to performance criteria.	Section 6.4
Performance criteria, completion criteria and indicators for each domain meet the 'SMART' principles, are drafted in consideration of current baseline conditions and are supported by suitable monitoring methods.	Section 6.4
Develop a strategy to protect and maintain remnant native vegetation and fauna habitat on the site long term and track the condition of native vegetation on site.	Section 6
Realistic completion criteria linked to benchmark of PCT 266.	Sections 6.3.1 and 6.4
Clearing should occur outside the period June to November.	Section 5.3.2
Where a measurement is referred to, this must be supported by a quantitative measure.	Throughout document
Document retiring or purchasing of credits to DPHI	Appendix C
Description of staging	Section 1.1
Include statement that BMP must be made publicly available	Section 1.2

BCS recommendation	BMP update
Update the BMP to provide additional detail on what the masked owl protocol entails, including the process followed should a masked owl nest be located within the Development Site.	Section 5.4.5, 6.4 and Appendix D
Update the revised BMP to include details on how pink-tailed legless lizard and superb parrot habitat would be managed post-construction.	Section 6.4
Check and update the information and figures throughout the BMP and MOMP to ensure consistency within and between management plans.	Throughout document
Update Figure 3 to align with the text provided in Section 2.2 confirming the number of hollows suitable for masked owl versus the number of hollow bearing trees within the Development Footprint.	Section 3.3
Update the BMP with the outcomes of the Pre Clearance Report completed in June 2024, and provide detail on how this information was used to inform updates around decision making within both management plans.	Section 3.3 & 6.4
Provide the proposed number and location of supplementary nest boxes and/or recovered hollows to be installed within 100m of the Development Footprint in both the BMP and MOMP. Provide details on the number of hollows that remain unblocked and need to be inspected as part of the pre-clearance survey.	Section 6.4 & Appendix B
Install nest boxes prior to commencement of clearing to ensure fauna can be relocated if necessary, and relocate salvaged hollows post clearing in accordance with the Pre Clearance Report.	Section 5.4.2
Update Section 5.8.4.3 of the BMP to refer to the Dubbo region.	Section 5.8.4.3
Update Section 5.8.4.4 of the revised BMP to include areas that are excluded of grazing. If grazing is proposed to be a management action, prepare a grazing management plan in accordance with the Biodiversity Conservation Trust's Livestock grazing guidelines for private land conservation (November 2021).	Section 5.8.4.4 and 5.3.6
Clearing of HBTs should occur outside the period June to November, however if this is included, then update the revised BMP to include detailed pre-clearing protocols to prevent death and injury of threatened fauna during clearing.	Appendix B
Avoid the use of language such as "where not possible", "where feasible", "if available" or "not reachable", and clearly define under which circumstances these scenarios would occur.	Throughout document
Add Species credit requirement table	Section 3.2
Update Appendix C to show updated retired credits	Appendix C



Figure 1.1 Modified Development Footprint *(source: Modification Application (NGH 2025))*

2 Legislation and other requirements

2.1 Relevant legislation and guidelines

The main legislation relevant to biodiversity management for the project is:

- *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act)
- *Biodiversity Conservation Act 2016* (NSW) (BC Act)
- *Biosecurity Act 2015* (NSW) (Biosecurity Act)
- *Pesticides Act 1999* (Pesticides Act).

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* was not triggered during the Environmental Assessment.

2.2 Project Infrastructure Approval conditions

The Infrastructure Approval conditions relevant to this BMP are listed in Table 2.1. A cross reference is also included to indicate where the condition is addressed within this BMP (Table 2.2).

Table 2.1 Project infrastructure approval conditions relevant to this BMP

Condition	Condition requirement	BMP Reference
B11	***Vegetation Clearance*** The Applicant must not clear any native vegetation or fauna habitat located outside the approved disturbance areas described in the EIS.	Section 5.3.1
B14	***Biodiversity Management Plan*** Prior to commencing construction, the Applicant must prepare a Biodiversity Management Plan for the development in consultation with BCS, and to the satisfaction of the Planning Secretary. This plan must: **a** be prepared in accordance with the revised Biodiversity Development Assessment Report (dated 6 October 2023); **b** include a description of the measures and timeframes that would be implemented for: **i** protecting vegetation and fauna habitat outside the approved disturbance areas; **ii** managing the remnant vegetation and fauna habitat on site; **iii** minimising clearing and avoiding unnecessary disturbance of vegetation that is associated with the construction and operation of the development; **iv** avoiding the removal of hollow-bearing trees during spring to avoid the main breeding period for hollow-dependent fauna; **v** minimising the impacts to fauna on site and implementing fauna management protocols, including design of temporary fencing; **vi** rehabilitating and revegetating temporary disturbance areas with species that are native to the area; maximising the salvage of vegetative and soil resources within the approved disturbance area for beneficial reuse in the enhancement or the rehabilitation of the site; and	Section 5.3.1 Section 5.3.2 Section 5.3.1 Section 5.3.2 and Appendix B Section 5.3.1, Section 5.8.1, and Appendix B Section 5.8

Condition	Condition requirement	BMP Reference
	vii controlling weeds, feral pests and pathogens.	Section 5.6
	c include a program to monitor and report on the effectiveness of mitigation measures;	Section 6
	d include an incidental threatened species finds protocol to identify the avoid and/or minimise and/or offset options to be implemented if additional threatened species are discovered on site; and	Section 5.4.5
	e include details of who would be responsible for monitoring, reviewing and implementing the plan.	Section 6.1
	Following the Planning Secretary's approval, the Applicant must implement the Biodiversity Management Plan.	

2.3 Requirements from the Environmental Assessment

The approved Submissions Report (NGH, 2023) specified a number of biodiversity mitigation measures to be implemented during construction phases of the project. The requirements relevant to the management of biodiversity are summarised in Table 2.2.

Table 2.2 Requirements from the Environmental Assessment

Mitigation number	Mitigation measure	Project stage	Section
B1	Completion of Biodiversity Management Plan to minimise impacts on biodiversity. The Biodiversity Management Plan needs to include the following: — Hollow-bearing tree protocol — Pink-tailed Legless Lizard management plan — Superb Parrot — Identification of temporary fencing location based on the development footprint. — Unexpected Finds Protocol — Staff training and induction measures which include Masked Owl, Powerful Owl, Pink-tailed Legless Lizard, Superb Parrot and Grey-headed Flying Fox, Diamond Firetail and Turquoise Parrot. — Management of biodiversity mitigation measures for indirect and prescribed impacts.	Pre-Construction	This document Appendix B Section 5.4.4 Section 5.4.3 Section 5.3.1 Section 5.4.5 Sections 5.3.2–5.3.5
B2	Timing works to avoid critical life cycle events such as breeding or nursing. — Hollow bearing tree removal should be timed to avoid breeding season for the highest number of species such as Superb Parrot — Rock removal to be completed when Pink-tailed Legless Lizard is not breeding	Pre-clearance surveys prior to construction	Section 5.4.3 Section 5.4.4

Mitigation number	Mitigation measure	Project stage	Section
B3	Superb Parrot management plan — Pre-clearance surveys of HBTs to determine if Superb Parrot are breeding on site. — Avoid HBT removal if any Superb Parrot breeding on site — Ecologist present during tree removal — Threatened species protocol	Pre-construction	Section 5.4.3
B4	Pink-tailed Legless Lizard management plan — Consultation with the species expert to determine timing for relocation of this species prior to construction — Any proposed relocation undertaken by an appropriately qualified ecologist — Pre-clearance surveys — Relocation of scattered rocks in the development site from the development footprint by an experienced ecologist — Threatened species protocol for managing individuals if construction occurs when species are likely to be underground — Avoid creation of rock piles. Rocks should be loosely scattered in the development site — Avoid any relocation during breeding season (December–March)	Sept-Nov (Springtime)	Section 5.4.4
B5	Pre-clearing protocols — Instigating clearing protocols including pre-clearing surveys, daily surveys and staged clearing, the presence of a trained ecological or licensed trained spotter catcher during clearing events. — Staged clearing, supervised by Ecologist or trained spotter catcher to allow for resident fauna to relocate or be relocated where required. — A hollow bearing tree clearing protocol has been included for the 51 HBTs. The clearing protocol includes pre-clearance surveys and a protocol for managing fauna during clearing or if any harm or injury may occur but also how to avoid and minimise harm to wildlife.	Construction	Sections 5.3.2–5.3.5 Appendix B
B6	Relocation of habitat features (fallen timber, hollow logs and rock) from within the Development Site. — All rock, fallen timber and hollow logs should be relocated outside of the construction area under the supervision of an Ecologist or spotter catcher.	Construction	Section 5.3, Section 5.3.4
B7	Staff inductions — Induct all staff prior to construction to identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance.	Prior to and during construction	Section 5.1

Mitigation number	Mitigation measure	Project stage	Section
B8	Clearing protocols — Clearing protocols that identify vegetation to be retained, prevent inadvertent damage and reduce soil disturbance; for example, removal of native vegetation by chainsaw, rather than heavy machinery, is preferable in situations where partial clearing is proposed. — Documented clearance protocols to mark and protect vegetation to be retained. — Use handheld machinery where possible and have elevated work platform check hollows prior to tree felling	Pre-construction	Section 5.1, Sections 5.3–5.6
B9	Install temporary fencing to protect significant environmental features such as riparian zones. Prior to construction commencing, exclusion fences and signage would be installed around habitat to be retained.	Construction	Section 5.1
B10	Hygiene protocols to prevent the spread of weeds or pathogens between infected areas and uninfected areas. Ensure machinery and equipment as clean and free from pathogens and weeds prior to entering site	Construction	Section 5.6
B11	Preparation of a Biodiversity Management Plan (BMP) for the site to include: — How to remove and dispose of vegetation and topsoil containing weeds declared under the Biosecurity Act 2015 during and after construction. — Reporting any occurrences of pathogens such as Myrtle Rust and Phytophthora.	Construction, operation	Section 5.6
B12	Sediment barriers and spill management procedures to control the quality of water runoff released from the site into the receiving environment. An erosion and sediment control plan would be prepared and implemented.	Construction	Section 5.1
B13	Use of temporary fencing to protect significant environmental features.	Pre-construction Construction	Section 5.1, Section 5.3.1
B14	Introduce speed limits to reduce vehicle strike	Pre-construction Construction	Section 5.1

3 Existing environment

The development site consists of undulating topography with grazing being the dominant land use at 6945 Goolma Road, Montefiores, approximately 2 km north of Wellington, NSW. The development site (63.18 ha) includes Lot 1 DP1226751, Lot 2 DP1226751, and Lot 2 DP 1136578. The BESS infrastructure layout would cover an area of approximately 18.3 ha of these combined lots.

3.1 Vegetation types

Most of the project area contains a single, large area of remnant Plant Community Type (PCT) and small areas of exotic vegetation. Two small areas of exotic vegetation were recorded in the development site. The first was around the substation and the second was a small area downhill from the existing dam. The road reserve contained patches of exotic vegetation (NGH, February 2025).

The PCT identified within the project area is:

- PCT 266 'White Box grassy woodland in the upper slopes sub-region of the NSW Southwestern Slopes Bioregion'.

No ecosystem credits were generated for PCT 266 due to the low diversity and cover of native species in the understorey at the site resulting in a low vegetation integrity score and therefore no offsets are required for this PCT.

One threatened ecological community (TEC) listed as critically endangered under both the Commonwealth EPBC Act and the NSW BC Act was recorded in the project area during biodiversity field surveys informing the Environmental Assessment (NGH, 2023). PCT 266 was consistent with the key diagnostic criteria listed in the Conservation Advice for the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC.

Vegetation types are shown in Figure 3.1.

3.2 Flora and fauna species

Targeted threatened flora and fauna surveys were undertaken based upon candidate species determined within the BDAR report (NGH, February 2025). Twenty-eight (28) threatened flora and fauna species were assessed, with 22 targeted during field surveys.

During the survey effort no threatened flora species, and four threatened fauna species were shown to be present:

- Masked Owl (*Tyto novaehollandiae*) (Vulnerable under the BC Act)
- Superb Parrot (*Polytelis swainsonii*) (Vulnerable under the EPBC Act and BC Act)
- Pink-tailed Legless Lizard (*Aprasia parapulchella*) (Vulnerable under the EPBC Act and BC Act)
- Grey-headed Flying Fox (*Pteropus poliocephalus*) (Vulnerable under the EPBC Act and BC Act).

Species credits were generated for two of these species, the Superb Parrot and Pink-tailed Legless Lizard due to the presence of breeding habitat. Species credits were not generated for the Masked Owl or Grey-headed Flying Fox as the habitat was determined to be foraging habitat only, although consultation with BCS recommended the development of a Masked Owl Management Plan (NGH, 2024). Evidence of payment into the Biodiversity Conservation fund for the Superb Parrot and Pink-tailed Legless Lizard species credits are provided in Appendix C.

An additional six plant species and one invertebrate were assumed present for between 0.94 to 7.21 ha of vegetation due to time constraints preventing further targeted surveys. As such the following species require offsets:

- Key's Matchstick Grasshopper (*Keyacris scurra*) (Endangered under the EPBC Act and BC Act)
- *Euphrasia arguta* (Critically Endangered under the EPBC Act and BC Act)
- Tumut Grevillea (*Grevillea wilkinsonii*) (Endangered under the EPBC Act, Critically Endangered under the BC Act)
- *Prasophyllum sp. Wybong* (Critically Endangered under the EPBC Act)

- Small Purple-pea (*Swainsona recta*) (Endangered under the EPBC Act and BC Act)
- Silky Swainson-pea (*Swainsona sericea*) (Vulnerable under the BC Act)
- Ausfeld's Wattle (*Acacia ausfeldii*) (Vulnerable under the BC Act).

Threatened flora within the development site is provided in Figure 3.2.

Prasophyllum sp. Wybong cannot be offset as this species is listed under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* and payments are only accepted for species listed under the *Biodiversity Conservation Act 2016*. As such, the offset obligation for this species has been swapped for *Prasophyllum* sp. *Petilum*. Species credits were generated for all of these species (Table 3.1), and have been purchased. Evidence of payment is provided in Appendix C.

Table 3.1 Species credit requirements (source: Modification Application (NGH 2025))

Species Credit Species	**Credits Required**
Pink-tailed Legless Lizard (*Aprasia parapulchella*)	49
Superb Parrot (*Polytelis swainsonii*)	46
Masked Owl (*Tyto novaehollandiae*)	33
Key's Matchstick Grasshopper (*Keyacris scurra*)	7
Ausfeld's Wattle (*Acacia ausfeldii*)	9
Tumut Grevillea (*Grevillea wilkinsonii*)	13
Prasophyllum sp. Wybong	13
Silky Swainson pea (*Swainsona sericea*)	9
Small Purple pea (*Swainsona recta*)	9
Euphrasia arguta	10

3.3 Fauna habitat

An area of native vegetation 10.62 ha with potential habitat resources for native fauna would be cleared for the project. The clearing of 10.62 ha of native woodland and forest includes the removal of 51 trees containing hollows (Figure 3.3) and two rocky habitat areas where Legless Lizard were recorded (Figure 3.4). A total of 218 hollow bearing trees were recorded across the Development Site, of which, 51 hollow bearing trees were within the Development Footprint. Seventeen of these hollow bearing trees contained hollows potentially suitable for Masked Owl, specifically 20 large hollows (15-25 cm entrance diameter) and 3 extra-large hollows (>25cm diameter). Hollow bearing trees present on site were also determined to be potentially suitable breeding habitat for the Superb Parrot.

At the time of the pre-clearance surveys, Masked Owls and Superb Parrots were recorded foraging at the site with no indications of nesting within the 51 hollow bearing trees to be removed. See Appendix D for locations of Masked Owl sightings and suitable hollow bearing trees identified in the pre-clearance assessment. During removal of hollow bearing trees in June 2024, an unidentified, inactive nest was discovered and later confirmed by the Queensland Museum to be a Powerful Owl nest.

3.4 Weeds

Eleven high threat weeds (HTEs) and one weed of national significance were identified (WoNS) as listed below in Table 3.2.

Table 3.2 HTEs and WoNs within the project area

Common name	Scientific name	HTE	WoNS
Sheep Sorrel	*Acetosella vulgaris*	y	n
Browntop Bent	*Agrostis capillaris*	y	n
Bipennate Beggar's Ticks	*Bidens bipinnata*	y	n
Great Beggars Ticks	*Bidens subalternans*	y	n
Great Brome	*Bromus diandrus*	y	n
Saffron Thistle	*Carthamus lanatus*	y	n
Rhodes Grass	*Chloris gayana*	y	n
St. John's Wort	*Hypericum perforates*	y	n
African Boxthorn	*Lycium ferocissimum*	y	y
Paspalum	*Paspalum dilatatum*	y	n
Bathurst Burr	*Xanthium spinosum*	y	n

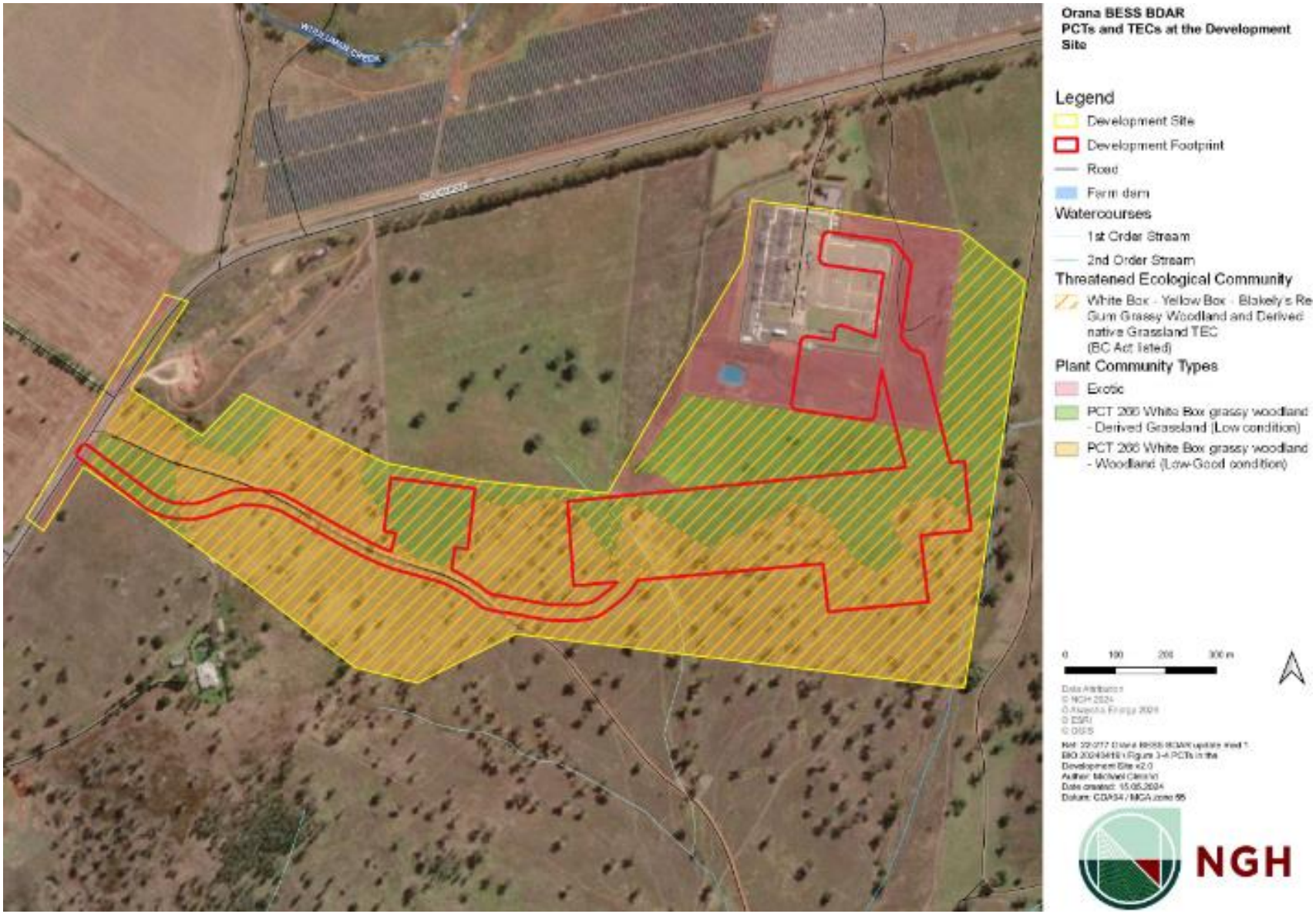


Figure 3.1 Field verified plant community types *(source: Modification Application (NGH 2025))*

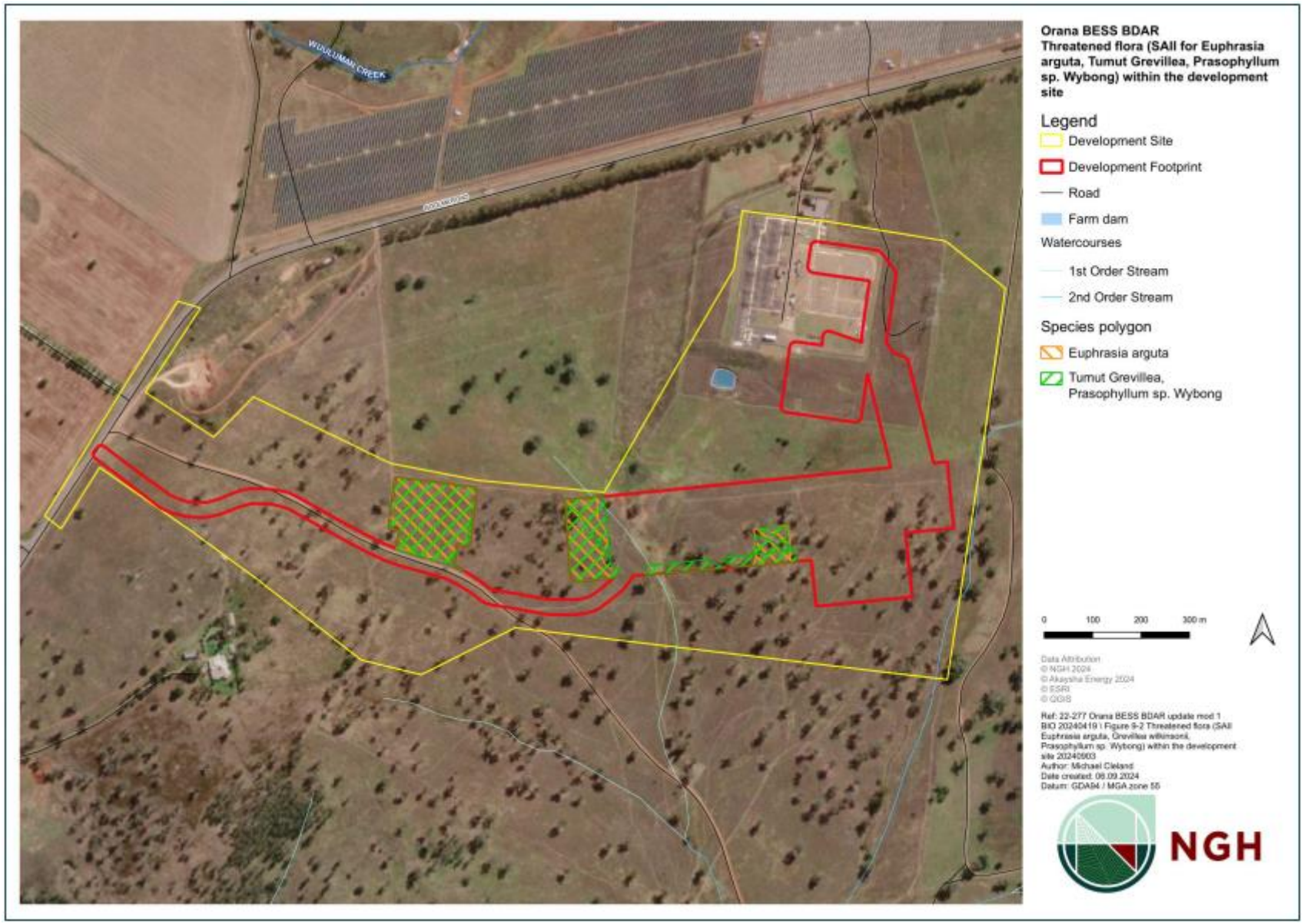


Figure 3.2 Threatened flora (SAII for *Euphrasia arguta*, Tumut Grevillea, *Prasopyllum* sp. Petilum) within the development site (Source: BDAR (NGH 2024).

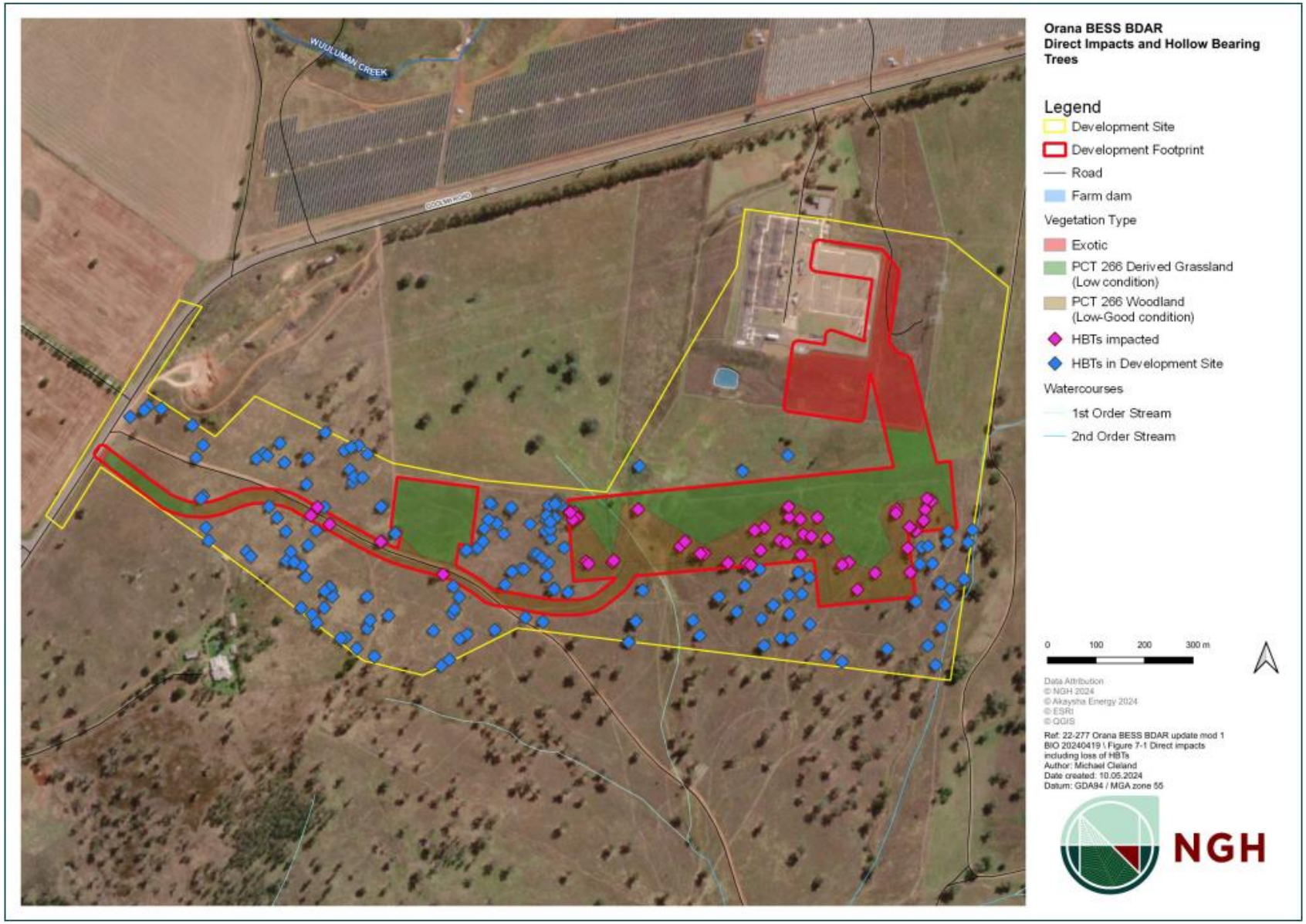


Figure 3.3 Hollow bearing trees *(source: BDAR (NGH 2024))*

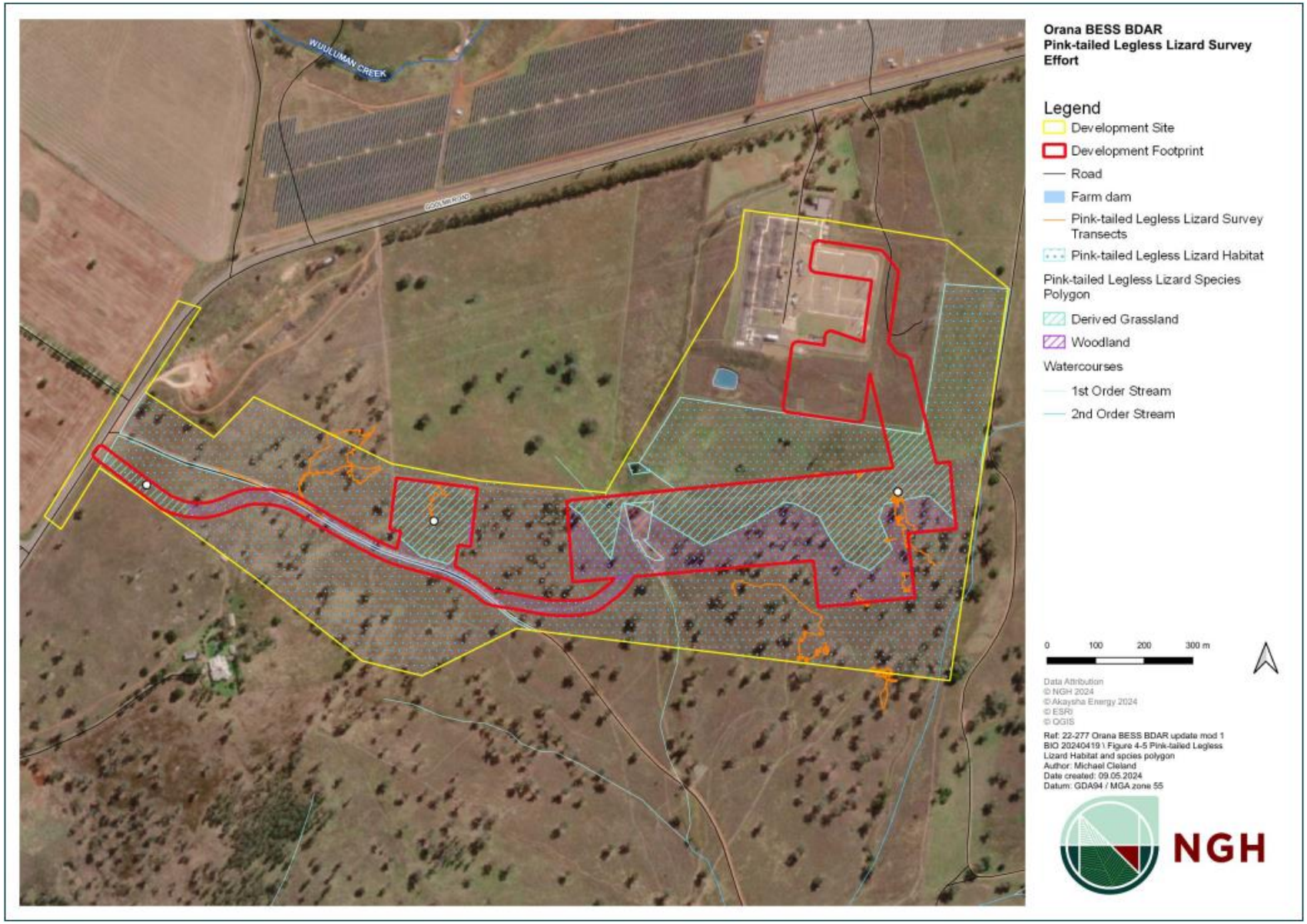


Figure 3.4 Pink-tailed Legless Lizard habitat *(source: BDAR (NGH 2024))*

4 Impact assessment

4.1 Direct impacts

As a result of habitat clearance, the project will result in residual direct impact to 10.62 ha of native vegetation comprising of PCT 266. This PCT is commensurate with the White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland TEC, listed as critically endangered under the EPBC Act and BC Act.

Vegetation and habitat removal will also result in the loss of two rocky habitat areas suitable for the Pink-tailed Legless Lizard and 51 canopy trees containing hollows appropriate for fauna, resulting in potential displacement of wildlife at the time of clearing.

Based on the project's assessment under the BC Act and in accordance with the Biodiversity Assessment Method, breeding habitat for 2 species of threatened animal was identified and thus subject to project related impacts. These species are:

- Superb Parrot (*Polytelis swainsonii*) (listed as Vulnerable under the EPBC Act and BC Act).
- Pink-tailed Legless Lizard (*Aprasia parapulchella*) (listed as Vulnerable under the EPBC Act and BC Act).

4.2 Indirect impacts

The project may result in the following residual indirect impacts on biodiversity:

- weed invasion and edge effects
- introduction and spread of weeds, pests, and pathogens
- dust, noise, and light impacts on fauna.

5 Biodiversity management

The biodiversity management outlined in this section is linked to biodiversity management units as illustrated in Figure 5.1.

5.1 Roles and responsibilities

Akaysha Energy

Akaysha Energy will:

- assume overall accountability for the implementation of the BMP
- ensure the Construction Contractor and its sub-contractors comply with this BMP
- check compliance with the various approvals (where applicable) and mitigation measures detailed in this BMP, the Construction Environmental Management Plan and Flora and Fauna Management Sub-plan.
- organise revisions of the BMP as necessary (Section 6.6).

Construction Contractor

The Construction Contractor will be required to:

- Prepare a Flora and Fauna Management Sub-plan, which will be appended to the Construction Environmental Management Plan
- Construct the project in accordance with the various approvals, including the implementation of mitigation measures detailed in this BMP and the Flora and Fauna Management Sub-plan, including but not limited to:
  - environmental induction training (inclusive of keeping training records of all personnel and contractors who have completed the induction)
  - induction training is to include relevant information for staff to recognise the following species and to notify the site ecologist: Legless Lizard, Masked Owl, Superb Parrot, Grey-headed Flying Fox, Diamond Firetail, and Turquoise Parrot
  - installation of standard temporary fencing delineating the subject land (a 25 m buffer for constructability has been included within the development footprint)
  - implementation of a vegetation clearing procedure
  - implementation of a ground disturbance permit system
  - implementing the relocation and handling procedure
  - preparation of weed and pathogen prevention measures
  - incidental threatened species finds procedure.
- Nominate a suitably qualified Project Manager and Site Manager who will be available fulltime and who will have the responsibility for ensuring that environmental obligations are being met.
- Engage a suitably qualified Project Ecologist.

Project Ecologist

The Project Ecologist will be responsible for:

- subject land pre-clearing inspections, including inspections of all 51-canopy hollow bearing trees
- tree clearing supervision/spotter catcher
- implementing the relocation and handling procedure during tree clearing
- provision of a Tree Clearing Report detailing all relevant information to the Construction Contractor.

5.2 Environmental induction training

All personnel and contractors should undergo environmental induction training before commencing work on site. The induction will provide information on the ecological values of the site and protection measures implemented to protect biodiversity.

Induction training is to include relevant information for staff to recognize the following threatened species and if encountered, to notify the site ecologist: Pink-tailed Legless Lizard, Masked Owl, Powerful Owl, Superb Parrot, Grey-headed Flying Fox, Diamond Firetail, and Turquoise Parrot.

All personnel and contractors should follow the management and mitigation measures as outlined in the Masked Owl Management Plan (NGH, 2024) to ensure impacts to Masked Owl is minimised.

Measures outlined in this BMP should be included in site inductions and at toolbox talks.

Awareness of areas to be protected will be conveyed through preparation of plans showing areas to be cleared and areas to be protected, including exclusion zones, protected habitat features, threatened plants, and TECs in the vicinity of work areas and revegetation areas.

The Construction Contractor is required to keep a training record of all personnel and contractors who have completed the induction.

5.3 Vegetation and fauna habitat management

5.3.1 Protection of vegetation and habitat within and outside disturbance boundary

Prior to the commencement of any work within or adjoining areas of native vegetation, the Construction Contractor would engage a licensed surveyor to mark the subject land (see the development footprint shown on Figure 5.1). The perimeter of this area will be fenced using high visibility or standard temporary construction fencing and clearly identified with signage. The fencing/signage defines the extent of ground disturbance and vegetation clearance that is approved under the Infrastructure Approval. All vegetation outside this fence line (i.e., all vegetation in Management Unit 1 and 2 shown in Figure 5.1) would be clearly delineated as an exclusion zone to avoid unnecessary vegetation and habitat removal.

Remaining native ground vegetation within the development footprint will be fenced as per the above requirements. Any individual tree specimens to be retained will be fenced and include a suitable tree root protection zone (TRPZ) as determined by the site ecologist/arborist.

Fencing and signage would be maintained for the duration of the construction period. Fencing should be designed to allow fauna to exit the site during clearing activities.

The Project Ecologist (or suitably qualified person) would include the inspection of this perimeter fencing as part of a weekly Environmental Site Inspection Checklist, to ensure they have not been compromised in some way.

5.3.2 Vegetation clearing and grubbing

When clearing 10.62 ha of vegetation within the development footprint (see the development footprint shown on Figure 5.1), the following will apply:

- As vegetation clearing will occur during local breeding and torpor seasons, being June to November inclusive, a written assessment by the Project Ecologist justifying clearing activities (i.e., no impact to breeding or torpor habitat) must be recorded and made available to DPE prior to works and the Hollow-bearing tree clearing protocol in Appendix B must be followed.

- local wildlife organisations (i.e., Australian Wildlife Rescue Organisation (WIRES)) and a local veterinary clinic will be contacted at least seven days prior to the commencement of clearing activities. All correspondence with wildlife rescue organisations and veterinary surgeries will be recorded by the Project Ecologist for inclusion in the Tree Clearing Report.
- vegetation clearing will occur in a two-stage process. Non-habitat trees will be removed first, then the 51 canopy habitat trees removed after a 24-hour period to allow an opportunity for nocturnal, hollow-dependent fauna, to move from the clearing area during their night activity period.
- all clearing of native vegetation, inclusive of Stage 1 and Stage 2 (i.e., salvage of fauna habitat, clearing of under-storey, and removal of both habitat and non-habitat trees), will cease when temperatures exceed 35°C.

Following the two-stage clearing process, and once the final surface vegetation is removed, soil stripping will be undertaken by appropriate construction machinery stripping to a thickness defined by depth below the surface and/or a distinct colour change. Soil stripping depth is to be done to the depth required for construction. The Construction Contractor will maximise the salvage of vegetative and soil resources in the subject land for the beneficial reuse during rehabilitation of areas subject to temporary construction disturbance (e.g., construction compounds and laydown areas).

5.3.2.1 Pre-clearing inspection

The Site Manager is to coordinate a pre-clearing inspection to be undertaken by a suitably qualified and licensed Ecologist (refer Section 5.3.3). The pre-clearing inspection would be completed no more than 48 hours prior to the proposed clearing campaign.

The Site Manager is responsible for identifying:

- If the vegetation proposed for removal is clearly demarcated (through temporary bunting or survey pegs) and correlates with the relevant site plans to ensure the extent of clearing is known and inadvertent clearing is avoided.
- contacting a suitably qualified local veterinarian 7 days prior to clearing to ensure any injured fauna can be evacuated for medical treatment. Records of any injured wildlife are to be kept and included as a section within the Tree Clearing Report (Section 5.3.4)

The Project Ecologist is responsible for:

- undertaking a pre-clearing survey of underlying groundcover, shrubs, woody debris, and relocate any captured fauna
- identification and marking of hollow-bearing trees, nests or other habitat features that are to be retained during the stage 1 clearing of non-habitat trees. Habitat features would be marked using spray paint, flagging tape, and location recorded using a hand-held GPS.
- identification and marking of woody debris or other salvageable material that may be beneficial in rehabilitation areas. Salvageable material would be marked using spray paint, flagging tape, and location recorded using a hand-held GPS.
- inspection for and marking of animal dens or burrows, with attention to determining if they are likely in current use (e.g., fresh droppings/scats, maintained entrance/fresh soil, scratchings)
- undertaking a nocturnal active search to capture and relocate amphibians if suitable habitat is associated with dams, drains or other wet areas that are subject to disturbance during clearing activities.
- identifying suitable relocation sites for rescued fauna within the subject land. 220 Hollow-bearing trees were identified within the Development site, of which 183 will remain post-habitat clearing.
- searches for the presence and extent of high threat weed species and vertebrate pest species that require management
- the Ecologist will consider specific times of the year when species may be using habitat features for breeding or roosting and provide advice on mitigative measures if occupation is observed or deemed likely.

5.3.2.2 Hold point

During construction of the project, the Construction Contractor will implement an internal permit system (i.e., ground disturbance permit) withhold points for activities that are deemed to be critical and require approval by a delegated authority. Hold points will apply to:

- the clearing of vegetation and fauna habitat
- incidental threatened species finds (Section 5.4.5).

Prior to vegetation clearing or ground disturbance works, a pre-clearing checklist will be completed by the Site Manager and Project Ecologist. Completion of this checklist will ensure that all required actions relevant to pre-clearing activities have been completed (for example, completion of pre-clearing inspection, environmentally sensitive areas appropriately delineated). Where necessary, the Project Ecologist will provide advice to the Construction Contractor relating to the pre-clearing inspection findings and possible management and mitigation measures.

Where the Project Ecologist identifies sensitive values, management and mitigation measures will be presented to the Construction Contractor who will adopt the measures into the permit system and direct clearing personnel to undertake the actions.

5.3.2.3 Clearing supervision

Once approval has been granted, vegetation removal may occur. Vegetation removal will occur in a two-stage process.

Stage 1 clearing

- non-habitat trees will be removed first to disturb the area in the presence of the qualified and licensed ecologist
- the salvage of woody debris or beneficial material for re-use in rehabilitation of temporary work areas would be maximised during Stage 1 clearing
- Habitat trees will be knocked using earth moving equipment to create enough disturbance to encourage fauna to abandon the tree.
- prior to Stage 2 clearing, habitat trees will be left to stand over night to enable resident nocturnal fauna to self-relocate during their night time activity period. A adaptation of the Hollow Bearing Tree Clearance Protocol developed as part of the BDAR is included in Appendix B (NGH, February 2025).

Stage 2 clearing

- Stage 2 clearing will be completed within 24-48 hours of stage 1. Any HBT that has been left for longer than 48 hours since being shaken/tapped will be re-shaken/tapped at least the day prior to removal.
- Habitat trees will be knocked with an excavator bucket or earth moving equipment used for clearing to create only enough disturbance to encourage any remaining fauna to move from the tree, or at least show themselves prior to felling. This may not be possible for some trees due to safety risks to the plant operator. Excessive knocking of the tree must not take place.
- habitat trees will be felled sequentially and succeeding trees not felled until direction is given by the Ecologist
- felling will involve gently pushing the tree and lowering to avoid sudden falling to minimise fauna injuries
- felled habitat trees will be inspected immediately by the Ecologist for any fauna present
- if animals are found, the Fauna Handling and Rescue Procedure is to be followed (Section 5.3.6)
- captured animals will be relocated to designated relocation sites, as identified during the pre-clearing survey (Section 5.3.2.1)
- felled trees are to remain in place at least overnight to allow any undetected fauna further opportunity to escape.

During clearing operations records will be kept, detailing the findings of Stage 1 and Stage 2 clearing events, including:

- animals that are sighted, captured, released, injured, shocked or killed as a result of clearing operations and fauna rescue
- records of the fauna relocation sites.

This information will be included in a Tree Clearing Report, which will be completed by the Project Ecologist and submitted to the Construction Contractor's Site Manager and Akaysha Energy following the completion of clearing operations. Section 5.3.4 provides additional information pertaining to the Tree Clearing Report.

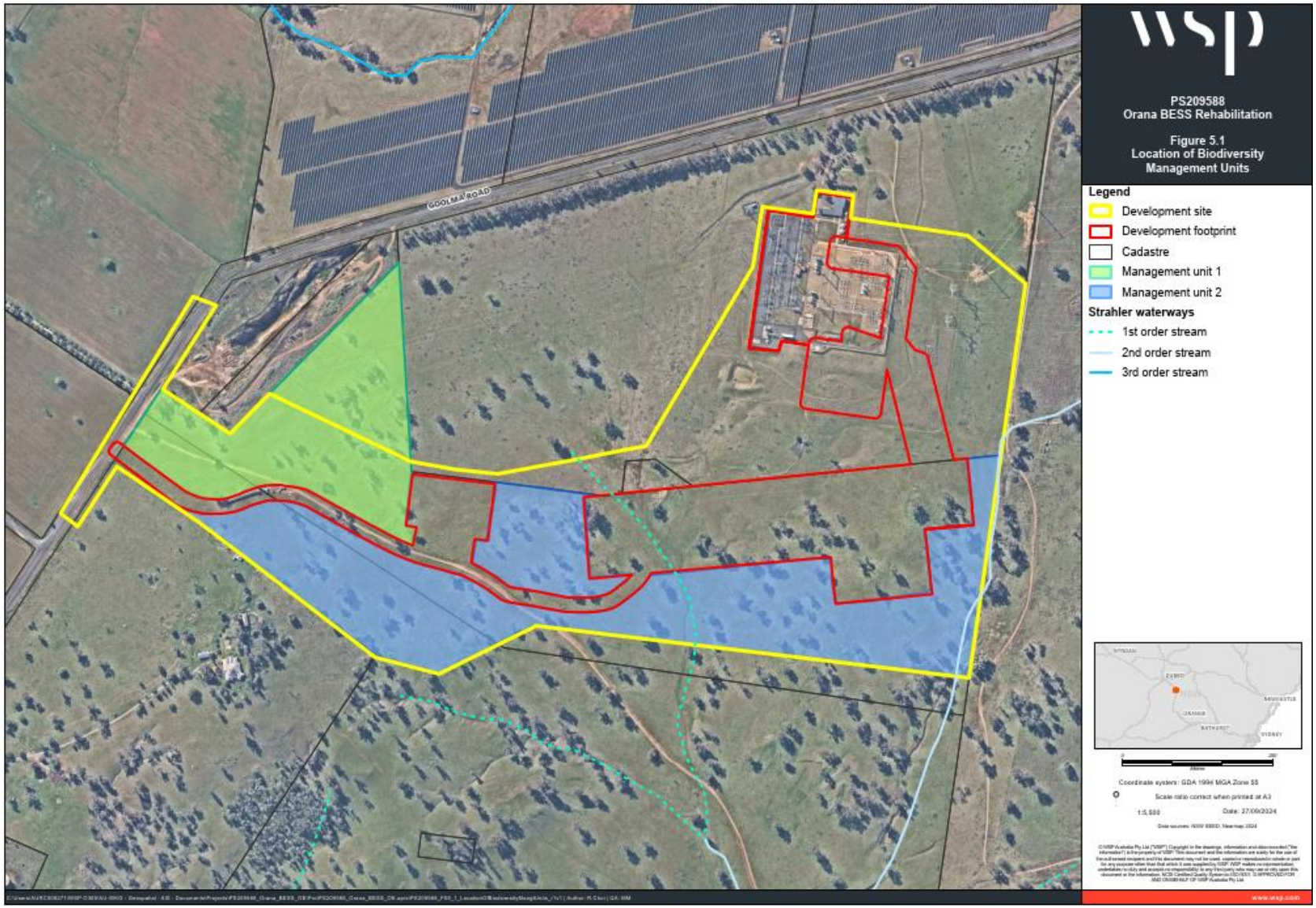


Figure 5.1 Location of biodiversity management units

5.3.3 Qualifications of spotter/catcher (Project Ecologist)

The management of clearing operations and fauna handling and care will be undertaken by qualified ecologists with practical experience in undertaking spotter/catcher activities. Spotter/catchers will operate under relevant permits and licences and:

- hold current animal research approval and appropriate handling permits
- have knowledge of and experience in:
  - identification of vertebrate fauna, including threatened species
  - the humane capture, trapping, and handling of vertebrate fauna
  - identification of fauna habitat and habitat resources
  - humane techniques for emergency euthanasia of vertebrate fauna
  - State and Commonwealth legislation relevant to the conduct and responsibilities of wildlife spotter/catchers
- have appropriate equipment for the rescue and care of wildlife

5.3.4 Tree clearing report

At the completion of clearing, the Project Ecologist will prepare a Tree Clearing Report, which will be submitted to the Construction Contractor's Site Manager following the completion of clearing operations. The report will confirm the final area cleared, the identity of all vegetation removed, and a count of hollow-bearing trees felled (if any). The Tree Clearing Report will also document any fauna or nests impacted by clearing works and provide fauna capture and relocation data. Data to be recorded includes:

- date and time of animal sightings and details of the observer
- species
- number of individuals recorded
- age (adult, juvenile, nestling etcetera)
- condition of the animal (living, dead, injured)
- management action undertaken (e.g., captured, handled, taken to vet)
- results of any management actions (e.g., released, euthanised, placed with carer)
- inventory of hollow-bearing trees and fallen timber salvaged and stockpiled/relocated.
- Reports on any injured wildlife and treatment

5.3.5 Excavations

To minimise the potential for fauna from becoming trapped or injured, any excavation left open overnight will have a ramp or opening installed to allow access for any fauna to escape. Alternatively, the excavation can be completely covered, with the cover being secured.

The Construction Contractor's Foreman is responsible for ensuring any excavation left open overnight will have an access ramp installed or be completely covered. The Construction Contractor's Site Manager will inspect open excavations to ensure no fauna has been trapped. Any fauna discovered within the subject land should be brought to the attention of the Site Manager and the fauna handling and rescue procedure implemented.

5.3.6 Post-construction grazing management

Grazing will be excluded from within the development footprint and in management unit 1 and northern area of management unit 2 as they form part of the fenced development (Figure 5.1). Grazing will continue in management unit 2 (south of the development) post-construction at the discretion of the current landowner. Akaysha Energy will ensure that relocated species and hollows will be fenced, and anything moved from management unit 2 (south) will be fenced to protect from damage by cattle or moved to management unit 1 if required. Grazing is not a proposed management action for this project. Current grazing pressure of the broader paddock where the development site is located is approximately

100 head of cattle and 100 head of calves per 575 acres (which excludes proposed BESS location). Tubestock will be protected from grazing as specified in Section 5.8.4.4 and success of the rehabilitation measures will be monitored over time including providing trigger points and corrective actions included in Table 6.4. If grazing is determined to be a factor in the rehabilitation failing to meet targets, management measures (such as liaising with the landowner to move water points and construct fencing) will be considered and implemented if necessary.

5.4 Fauna handling and rescue

If animals are encountered at any stage of the project, the following fauna handling and rescue procedure will be implemented. If the fauna species is identified as a threatened species that has not previously been recognized as occurring or likely to occur in the project area, the Construction Contractor and/or Site Manager must enact the incidental threatened species finds protocol (Section 5.4.5).

5.4.1 Identification of fauna and implement initial protection

To minimise stress to native fauna, the Site Manager will:

- identify fauna and implement initial protections
- ensure the animal is protected from accidental trauma by other animals, equipment and machinery
- ensure the animal is protected from adverse sensory stimuli, such as loud noises
- allow the animal to leave the area without intervention (where practicable)
- ensure appropriate PPE (e.g., gloves) are available prior to attempting to handle injured or distressed fauna
- cover larger animals with a towel or blanket and place in a cardboard box, hessian bag or similar. Ensure confinement method provides sufficient airflow to allow normal air exchange and dispersal of heat.
- place smaller animals in a cotton bag, tied at the top
- if handling bats, the handler must be vaccinated against Australian Bat Lyssavirus
- frogs will be transported in moistened plastic bags (one frog per bag with the bag used once) with a small amount of leaf litter. Handling and translocation of frogs will be completed in accordance with the hygiene protocols nominated in Section 5.6.3. Mitigation measures for pathogen management are detailed in Section 5.6.
- keep animal in a quiet, warm, ventilated and dark place away from noisy construction activities.
- ensure the animal is checked regularly during its period of confinement.

If the animal cannot be handled (i.e., venomous reptile):

- exclude all personnel from the vicinity with fencing and/or signage
- record the exact location of the animal and advise the appropriate rescue agency.

The Site Manager or Construction Contractor will call the Project Ecologist and follow any advice provided. The Project Ecologist may nominate to contact a rescue agency (e.g., WIRES) to assist. Any decisions regarding the care of the animal will be made by the Project Ecologist, with advice from a rescue agency as required.

If the fauna species is identified as a threatened species that is not identified in the Environmental Impact Assessment and Biodiversity Development Assessment Reports (NGH, April 2023) and (NGH, February 2025), the Site Manager or Construction Contractor will enact the incidental threatened species find procedure (Section 5.4.5).

5.4.2 Release procedure

Relocation of fauna from the subject land will be undertaken by the Site Manager or Project Ecologist and records will be maintained in a fauna handling and rescue register. Where appropriate, a wildlife carer with specific animal handling experience may be used to carry out animal handling and relocation. If the animal is not injured or stressed, it may be released nearby in adjacent vegetation that is not subject to disturbance by construction of the project, in accordance with the following:

- sites identified as suitable release points by the Project Ecologist or rescue agency

- release will be into similar habitat as close to the original areas as possible
- if the species is nocturnal, release will be undertaken at dusk
- release would generally not be undertaken during periods of heavy rainfall.

5.4.3 Superb Parrot requirements

An initial pre-clearing survey was undertaken by NGH Ecologists between June 3-7 2024 targeting HBTs for removal and blocking any hollows deemed suitable for use as a breeding place. Of the 327 hollows identified, 131 were blocked leaving 196 hollows to be inspected as part of the Pre-clearance surveys.

The following requirements relating to nests in hollow bearing trees should only be undertaken if Superb Parrots are identified breeding in hollows to be cleared for the development. Superb Parrots should not be removed and relocated from any other trees unless deemed necessary for the safety of the species by the Project Ecologist. At all times when undertaking clearance of hollow bearing trees follow the hollow bearing tree clearing protocol in Appendix B.

- During the Pre-clearance surveys outlined in Section 5.3.2.1 (Pre-clearing inspection), Hollow Bearing Trees are to inspected and flagged. Trees with suitable hollows will be watched by the ecologist using binoculars, to determine if Superb Parrots are likely to be breeding on site.
- Nest boxes suitable for Superb Parrots will be installed prior to Pre-clearance surveys to allow for relocation of any chicks or eggs if encountered. Suitable locations for the nest boxes will be identified by an Ecologist prior to clearing activities and a map of the location of the nest boxes will be provided to BCS post installation.
- If Superb Parrots are located and suspected to be actively breeding, implement procedure outlined in Sections 5.3.2.2 (Hold point) and 5.4.5 (Incidental threatened species finds). Mitigation measures determined by the ecologist and the site supervisor will consider the following hierarchy of controls:
    1. Consider retaining the tree as preference (i.e. it is located on the edge of the clearing footprint and will not impact construction or operation)
    2. Delay and reschedule clearing the tree until the incubation and fledging time has lapsed (approx. 60 days total), or fledging of juveniles has been confirmed. Project Ecologists are to inform proponent on likely timeframe to fledging to help inform decision making.
    3. Where steps 1 and 2 are not feasible (such as if the trees are located in an area where delaying clearing will cause significant delays to the project), the tree may be cleared using the following protocol:
        a. An elevated work platform (or equivalent) will be used by the ecologist to remove any chick or eggs with nesting material, and place them in a suitable container or calico bag.
        b. If the hollow cannot be reached to remove nestlings, then clearance of the tree will not occur until after fledging.
        c. If relocation of the eggs and chicks will be attempted, the eggs or chicks will be placed into any pre-installed nest boxes, or available nest boxes may be installed outside of clearing footprint. The relocation is successful once the parent reunites with the nest (call playback of chick noises may be used to attempt reuniting).
        d. Where relocation is not possible or the parents do not reunite with the nest, eggs or chicks will be taken to a wildlife carer for rehabilitation.
- Where hollows showing signs of Superb Parrot activity can be confirmed as empty (not containing eggs or chicks) by visual inspection by the ecologist (using a borescope or other tree camera, or if the hollow is visible from the ground or by ladder), the tree may be cleared following the protocols in Section 5.3.2.3.
- Any injured or stressed Superb Parrot adult or chick is located during clearing, it immediately must be taken to the pre-selected wildlife veterinarian or appropriately qualified wildlife carer.

5.4.4 Pink-tailed Legless Lizard requirements

- consultation with the species expert to determine timing for relocation of this species prior to construction
- during the pre-clearance survey undertaken by an appropriately qualified ecologist as outlined in Section 5.3.2.1 (pre-clearing inspection), relocation sites were established within the management units for the 34 occurrences of rocky areas to be removed (Figure 3.4).
- relocation of scattered rocks within the development footprint to relocation sites by an experienced ecologist to provide habitat at the relocation sites.
- avoid inadvertent creation of rock piles during construction where loose or random rocks are required to be moved they should be loosely scattered in the development site or placed in piles outside of the development site.
- It is recommended to avoid any removal of habitat during breeding season (December–March).
- relocation of rock piles using machinery or large plant will be carefully supervised by the ecologist, and will involve the slow removal and relocation of rocks being intermittently checked for Pink-tailed Legless Lizards. Any individuals located will be captured and relocated to the existing rock pile outside of the construction area, or to the relocated rock piles outside of the construction area.
- if any injured individuals are located during clearing, they immediately must be taken to the pre-selected wildlife veterinarian or appropriately qualified wildlife carer.

5.4.5 Masked Owl requirements

An initial pre-clearing survey was undertaken by NGH Ecologists between June 3-7 2024 targeting HBTs for removal and blocking any hollows deemed suitable for use as a breeding place. Of the 327 hollows identified, 131 were blocked leaving 196 hollows to be inspected as part of the Pre-clearance surveys.

The following requirements relating to nests in hollow bearing trees should only be undertaken if Masked Owls are identified breeding in hollows to be cleared for the development. Masked Owls should not be removed and relocated from any other trees unless deemed necessary for the safety of the species by the Project Ecologist. At all times when undertaking clearance of hollow bearing trees follow the hollow bearing tree clearing protocol in Appendix B.

- During the Pre-clearance surveys outlined in Section 5.3.2.1 (Pre-clearing inspection), Hollow Bearing Trees are to inspected and flagged. Trees with suitable hollows will be watched by the ecologist using binoculars, to determine if Masked Owls are likely to be breeding on site.
- Nest boxes suitable for Masked Owl will be installed prior to Pre-clearance surveys to allow for relocation of any chicks or eggs if encountered. Suitable locations for the nest boxes will be identified by an Ecologist prior to clearing activities and a map of the location of the nest boxes will be provided to BCS post installation.
- If Masked Owls are located and suspected to be actively breeding, implement procedure outlined in Sections 5.3.2.2 (Hold point) and 5.4.5 (Incidental threatened species finds). Mitigation measures determined by the ecologist and the site supervisor will consider the following hierarchy of controls:

    1. Consider retaining the tree as preference (i.e. it is located on the edge of the clearing footprint and will not impact construction or operation)
    2. Delay and reschedule clearing the tree until the incubation and fledging time has lapsed (approx. 60 days total), or fledging of juveniles has been confirmed. Project Ecologists are to inform proponent on likely timeframe to fledging to help inform decision making.
    3. Where steps 1 and 2 are not feasible (such as if the trees are located in an area where delaying clearing will cause significant delays to the project), the tree may be cleared using the following protocol:
        a. An elevated work platform (or equivalent) will be used by the ecologist to remove any chick or eggs with nesting material and place them in a suitable container or calico bag.
        b. If the hollow cannot be reached to remove nestlings, then clearance of the tree will not occur until after fledging.

c Relocation of the eggs and chicks will be attempted. The eggs or chicks will be placed into any pre-installed nest boxes, or available nest boxes may be installed outside of clearing footprint. The relocation is successful once the parent reunites with the nest (call playback of chick noises may be used to attempt reuniting).

d Where relocation is not possible or the parents do not reunite with the nest, eggs or chicks will be taken to a wildlife carer for rehabilitation.

- Where hollows showing signs of Masked Owl activity can be confirmed as empty (not containing eggs or chicks) by visual inspection by the ecologist (using a borescope or other tree camera, or if the hollow is visible from the ground or by ladder), the tree may be cleared following the protocols in Section 5.3.2.3.
- Any injured or stressed Masked Owl adult or chick is located during clearing, it immediately must be taken to the pre-selected wildlife veterinarian or appropriately qualified wildlife carer.

5.5 Incidental threatened species finds

The purpose of the incidental threatened species finds procedure is to outline the process to follow in the event of an unexpected species find during construction works. If a new threatened flora or fauna species is unexpectedly encountered, and which is likely to be affected by construction activities, the following steps will be followed:

1 Stop work immediately.

- the worker/contractor is to notify the Site Manager and other workers in the immediate area
- site Manager to notify the Project Manager
- Project Manager will notify Akaysha and the Project Ecologist accordingly.

2 Site Manager and/or Project Manager to demarcate and prevent access to the area to reduce impact on the species and redirect works to an alternate area where practicable.

3 Site Manager and/or the Project Ecologist will record and document the unexpected find (i.e., species, abundance and location).

4 A qualified person will capture the individual(s), only if deemed necessary for the immediate protection and safety of the species by the Project Ecologist.

5 For fauna in trees or shrub habitat, encourage the individual to vacate the development footprint through minor disturbance to the habitat, e.g., shaking of the tree by construction machinery. If the individual(s) does not vacate the area, the individual may be captured and relocated by a suitably qualified person, before the habitat may be “soft felled” or lowered gently under supervision of an arborist so that injury or death to the individual(s) is unlikely.

6 Delay the clearance related works within the immediate vicinity until the next day to allow the species to naturally vacate the area.

7 The Site Manager and Project Manager to assess the situation with the Project Ecologist:

- the Site Manager and the Project Ecologist to determine the significance of the likely impact to the threatened species and appropriate management options, such as relocation measures, developed in consultation with the Akaysha. Where required, appropriate specialists will be consulted to assess the significance of the find.
- if an impact is likely to occur, Akaysha will undertake consultation with the DPE/BCD as appropriate.
- Akaysha Energy will obtain any relevant licences, permits or approvals required if the threatened species is likely to be impacted.

8 Implement all management measures as recommended by the Project Ecologist and in accordance with any relevant licenses, permits or approvals.

9 Following confirmation that the demarcated area is deemed safe, all safety and environmental controls will be removed before work recommences. Once confirmed, the Site Manager and/or Project Manager will release hold on work.

10 The actions listed below will be undertaken following the incident:

- maintain regular inspections.
- relevant information on the species will be included in the induction and a toolbox talk will be given to discuss the outcome.
- where required, Akaysha Energy, in consultation with DPE/BCD, will calculate additional biodiversity offsets (condition B12) for any significant impact to unaccounted threatened flora and/or fauna species in the subject land.

Specifically for Masked Owl identified in nests follow the below procedure (as outlined in the Masked Owl Management Plan - Appendix D)

If inspections reveal Masked Owls are attending hollows within the Development Site, the following steps should be undertaken:

1. Temporarily halt any clearing or disturbance activities in the immediate vicinity of the nest, mark tree using spray paint or flagging tape and record GPS location and create a 20 m radius buffer zone to minimize disturbances.
2. Inspect the hollow (using EWP or experienced tree climber) for the presence of nesting material, eggs or chicks. Where chicks are present, is recommended to postpone clearing until fledging.
3. If eggs are present, ecologist to remove eggs and place in suitable container or calico bag and be taken to a wildlife carer for incubation. Clearing activities can continue.
4. If nesting material or eggs are observed (and eggs have been taken to a wildlife carer), ecologist to record GPS location and monitor the area nightly (using camera traps, spotlighting or call playback procedure) for 3 nights (e.g. from dusk for 30 minutes) to determine Masked Owl presence. If Masked Owls do not return, clearing activities may continue.

If inspections reveal Powerful Owls are attending hollows within the Development Site, the steps as outlined for the Masked Owl above should be undertaken.

5.6 Weed and pathogen management

5.6.1 Pathogens

The project has the potential to increase the spread of pathogens that threaten native biodiversity values, such as the soil-borne pathogen *Phytophthora cinnamomi* (Phytophthora) and *Austropuccinia psidii* (Myrtle rust). Phytophthora infects root systems whereas Myrtle Rust deforms leaves and leads to heavy defoliation. Both pathogens are associated with damage and death to native plants and may be dispersed over large distances.

Phytophthora cinnamomi is a microscopic soil-borne water mould, which causes root rot of susceptible plant species. *Phytophthora cinnamomi* has been recorded in Sydney and dieback associated with the water mould is evident in many areas. It can be spread through flowing water, such as storm runoff, or may be spread within a site via mycelial growth from infected roots to roots of healthy plants. Propagules of Phytophthora may also be dispersed by vehicles (e.g., cars and earth moving equipment), animals, walkers and movement of soil.

Myrtle rust is an exotic fungus (*Uredo rangelii*) that infects the foliage of Myrtaceae species in the form of powdery rust that causes leaf deformity and death. Myrtle rust is dispersed by wind, insect and animal movements, contaminated

clothing, infected plant material and equipment. Due to the significance of biodiversity values associated with vegetation and habitat adjacent to the subject land and the project's potential to increase the risk of dispersal of Phytophthora and/or Myrtle Rust through works involving soil disturbance, Phytophthora and Myrtle Rust prevention measures should be implemented.

In addition, the accidental introduction or spread of Chytrid Fungus (*Batrachochytrium dendrobatidis*) (hereafter referred to as Chytrid) has the potential to adversely affect frog populations worldwide. Chytrid causes Chytridiomycosis, a lethal and highly contagious disease that affects amphibians (frogs and tadpoles) worldwide and capable of causing 100% mortality in some populations. Hence, it has been associated with mass die-off or species extinctions. Chytrid is a water-borne fungus that may be spread as a result of handling frogs or through cross contamination of water bodies. The fungus attacks the parts of a frog's skin that have keratin in them. Since frogs use their skin in respiration, this makes it difficult for the frog to breathe. It also damages the nervous system, affecting the frog's behaviour. In Australia, Chytrid has impacted native frog species causing the extinction of one species and suspected to have caused the extinction of three others.

These pathogens are commensurate with Key Threatening Processes listed under the BC Act and/or the EPBC Act, including:

- infection of native plants by *Phytophthora cinnamomi*
- introduction and establishment of Exotic Rust Fungi of the order *Pucciniales* pathogenic on plants of the family *Myrtaceae*
- infection of frogs by amphibian Chytrid fungus causing the disease Chytridiomycosis.

Accordingly, mitigation measures should be implemented to minimise the risk of the introduction of pathogens.

5.6.2 Weeds

Eleven NSW priority weed species were recorded in the subject land (Table 3.2). All of these species have a general biosecurity duty under the Biosecurity Act, which requires any person who deals with the plant to ensure the biosecurity risk of the weed is prevented, eliminated or minimised, so far as is reasonably practicable.

One WoNS was identified within the project area, African Boxthorn (Table 3.2). This weed is regarded as the worst weeds in Australia because of its invasiveness, potential for spread, and economic and environmental impacts.

5.6.3 Weed and pathogen prevention

5.6.3.1 Training

To reduce the likelihood of introducing or spreading weeds or pathogens, all construction personnel and contractors should be trained in weed and pathogen prevention measures as part of environmental induction training.

5.6.3.2 Hygiene protocols

Table 5.1 presents a range of best practice hygiene protocols to reduce the risk of the introduction or spread of pathogens and weeds within the subject land through the movement of contaminated machinery and materials over long distances, in accordance with the Hygiene guidelines – Protocols to protect priority biodiversity areas in NSW from *Phytophthora cinnamomi*, myrtle rust, amphibian chytrid fungus, and invasive plants.

Table 5.1 Hygiene protocols to be implemented during construction works to prevent the spread or introduction of weeds and pathogens

Hygiene protocols		Responsibility
Inductions	All personnel (including visitors) to be inducted on weed and pathogen management measures for the site through toolbox talks and site inductions.	Construction Site Manager (construction) Akaysha Energy (operation)
Restrict access	Set up exclusion zones with fencing and signage to restrict access into vegetation and habitat adjacent to the subject land.	
Vehicles and machinery	Vehicles initially entering the subject land must not be tracking soil/mud and/or vegetative material from elsewhere. If soil/mud and/or vegetative material are found on these vehicles, they must be cleaned in a hard stand area within the subject land and disinfected with Farmcleanse (in accordance with the manufacturer recommended dosages), methylated spirits diluted in town water (70:30 ratio), or similar. Any organic waste collected during the washdown process would be removed from site. Restrict vehicles to parking within the subject land (i.e., within designated parking areas). Provide a bunded area for the wash down of vehicles and earthmoving equipment.	
Personnel and equipment	Clean personal protective equipment, especially boots, prior to unavoidable entry on foot into native vegetation adjacent to the subject land (as may be required for the relocation of native animals) and rehabilitation area. Personnel should disinfect their footwear with methylated spirits diluted in town water (70:30 ratio). Disinfect hands or change gloves between the handling of individual frogs and between each site. Only handle frogs when necessary and always use gloves. Use the 'one bag-one frog' or 'one container-one frog' approach.	
New material	Source landscaping materials (soil, mulch, seed) from a supplier that is certified to be disease-free.	
Disposing of material	To avoid cross contamination, generally avoid transferring water between two or more separate waterbodies.	
Further information	Hygiene guidelines – Protocols to protect priority biodiversity areas in NSW from *Phytophthora cinnamomi*, myrtle rust, amphibian chytrid fungus, and invasive plants.	

5.6.4 Weed control

The need for weed management should be identified prior to the commencement of the project and will initially be undertaken as part of the pre-clearing survey (Section 5.3.2.1) and be documented in the pre-clearing checklist to be populated by the Site Manager and Project Ecologist.

Where required, the Construction Contractor will engage a suitably qualified Bush Regeneration or Weed Management Contractor to undertake biannual maintenance weeding (i.e., early Spring and Autumn) in the subject land with a focus on Management Unit 1 and 2 shown in Figure 5.1. Maintenance weeding will also be apportioned to the immediate adjacent natural bushland where weed incursion has been identified. The frequency and timing of weed control may be revised in consultation with the Bush Regeneration or Weed Management Contractor, depending on weed incursions.

Follow-up inspections will be undertaken to assess the effectiveness of weed management measures implemented and to identify the requirement for any additional management measures.

Weeds recorded in the project area were predominately herbaceous, as detailed in Section 3.2. The suite of weed species present should be regarded as fluid, as new weeds may be introduced by wind, stormwater runoff, native and pest animals, people, and machinery. As such, generic weed control methods provided are suited to the project, however they will also allow flexibility for the Bush Regeneration or Weed Management Contractor to adapt to changing requirements of weed control to achieve the best outcomes for biodiversity.

The Bush Regeneration or Weed Management Contractor will consider the following weed control methods:

- As preference, removal of weeds should be undertaken prior to seed developing
- general weed control strategies should be implemented, including:
  - spraying with herbicide in accordance with the *Pesticide Act 1999*
  - direct removal
  - suppression of isolated weed infestations
- application of herbicide should occur at optimum timing and conditions for treatment
- herbicides will not be applied by spray in areas adjacent to waterbodies, watercourses, or stormwater systems. In these areas, the herbicide will be manually applied using a cut and paint, and or direct drill method.
- following weed removal, any bare soil areas should be stabilised to reduce erosion and further weed problems
- all weeds removed from the subject land are to be disposed of to an appropriately licensed waste disposal facility.

Verification of proposed control measures and supervision of weed control activities is to be undertaken in consultation with the Bush Regeneration or Weed Management Contractor. Weed management activities must be recorded on the Environmental Site Inspection Checklist.

Monthly visual assessments of weeds should be undertaken throughout construction by the Project Ecologist (or suitably qualified person). The presence of weeds and their extent will be noted on the Environmental Site Inspection Checklist.

5.7 Pest animal management

The presence of pest animals was not recorded at the site. If pest animals are found at the site, if required, Akaysha Energy and the Construction Contractor will implement a pest animal baiting and/or trapping program using best practice trapping and baiting methods and use humane methods to dispose of captured pest animals. Pest management would be undertaken in Management Unit 1 and 2 shown in Figure 5.1.

5.8 Rehabilitation of temporary disturbance areas

Progressive rehabilitation of native vegetation will be undertaken in areas subject to temporary disturbance. Areas such as construction compounds and laydown areas in the subject land will be progressively rehabilitated and revegetated during the later stages of construction and post construction. The Construction Contractor will engage a suitably qualified Bush Regeneration or Rehabilitation Specialist to implement a rehabilitation plan, which will consider Section 5.8.1 to Section 5.8.5 and be limited to the areas of temporary disturbance with in the development footprint shown in Figure 5.1.

These temporary disturbance areas within the development footprint would be revegetated with the goal of establishing species from PCT 266.

A key risk to the project is bushfire. The extent of revegetation (i.e., area and plant species) of this zone (and any others identified during the construction phase) will be undertaken with consideration of the Planning for Bushfire Protection guidelines, specifically the maintenance of a minimum 25 m asset protection zone and the radiant heat flux associated with any introduced fuel load (i.e., 29 kW/m^2 or less), as well as the findings and recommendations in the Fire Safety Study required under Condition B21.

5.8.1 Site preparation

Appropriate site preparation is essential for a successful revegetation program. The biggest threat to revegetation in the subject land is likely to be inadequate weed control prior to seeding and planting. Weed control is one of the most important features of any revegetation program and is often a major factor in the success or failure of a revegetation project.

Rehabilitation areas may require soil (or sub soil) to be ripped, or scalped, and treated with herbicide prior to the spreading of topsoil. The site must also be clearly delineated to identify where revegetation works are to occur, and temporary fencing may be required to deter rabbits from grazing seed as it emerges and seedlings. Fencing may also reduce the risk of site vehicles and site personnel from traversing rehabilitated areas. Revegetation areas will be established and signposted once most of the infrastructure works have been completed.

The limited extent of native plant community types in the subject land, indicate that topsoil will need to be sourced from external suppliers to facilitate the rehabilitation. Any topsoil will be imported in accordance with the hygiene protocols and be certified weed and disease free.

5.8.1.1 Stabilisation and weed suppression

The following soil stabilisation guidelines should be followed:

- in areas where there is a risk of erosion, soil stabilisers are to be used, such as geotextile material or thick jute mesh
- temporary soil stabilisation using vegetation will avoid the introduction of exotic plants. Where exotic species are used, these will be sterile, non-invasive and easily eradicated when permanent native vegetation is established.

5.8.1.2 Soil preparation

To provide optimal conditions for seed germination and seedling establishment, the soils at the site will require preparation. The requirements for optimal seed germination and seedling establishment are soft, uncompacted soils and soil that is bare and free of weeds.

5.8.1.3 Soil management

Rehabilitation areas must be accompanied by an erosion and sediment control plan prepared in accordance with:

- International Erosion and Sediment Control Association of Australia – Erosion and Sediment Control – A Field Guide for Construction Site Managers

5.8.2 Revegetation

Active revegetation, such as direct seeding and the planting of tube stock, is likely to be required for the project owing to the limited extent of topsoil likely to be recovered during construction clearing and grubbing, and the areas ability to naturally recover.

5.8.3 Plant species selection

As per the Infrastructure Approval (Section 2.2), temporary disturbed areas are to be rehabilitated using species that are endemic to the area. One PCT was identified within the project being:

- ‘White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion’ (PCT 266).

14.23 ha of PCT 266 is to be removed as part of the project. Therefore, the native plant species recommended are from PCT 266, as these species would have greater chance of success in replicating the lost habitat.

The condition and limited area of remnant vegetation associated with the subject land dictates that seed will be required from several sources, including where possible, native vegetation communities adjacent to the project. Harvested seed will be collected and stored or propagated for use in disturbed areas.

Seed collection licences are to be held by personnel undertaking seed collection. To collect seed from threatened flora species, a state licence under the BC Act would be required as follows: Section 91 Licence to harm or pick a threatened species, population or ecological community or damage habitat listed under the BC Act. Thus, these species may preferably be avoided.

Indicative species for rehabilitation are detailed in Table 5.2 and will guide planning for seed collection and/or seedling orders. It is important to include a mix of coloniser species, such as *Acacia* spp. and *Dodonaea* spp., that will establish and grow quickly in the revegetation areas. These species help to create the optimal environment for species that are slower to colonise areas to establish. Acacias are a significant genus for providing nitrogen within the soil for the use of other plants due to symbiotic nitrogen fixing bacteria and fungus. This will increase soil carbon, reduce surface temperature variation, reduce erosion, and create surface conditions conducive to the establishment of other longer lived native plant species such as Eucalyptus spp.

5.8.4 Plant installation guidelines

5.8.4.1 Direct seeding – hydroseeding

Instead of spreading seed by hand, a Hydroseeder or similar machine can be used to seed large areas quickly and economically as the seed, fertiliser, mulch, tackifier, and water are all applied at once. The seed, water, and mulch are mixed in the tank of the Hydroseeder to form a slurry, which is then sprayed over the site through a high-pressure water cannon.

5.8.4.2 Tube stock planting

Tube stock, grown in small square plastic nursery tubes, is the preferred method of revegetation for tree and shrub species. Planting of tube stock will be carried out using hand tree planting tools.

5.8.4.3 Timing

Seeding and planting will be scheduled for the optimal time of year for the Dubbo Region, and the rehabilitation program will be adjusted if conditions are not suitable.

5.8.4.4 Plant protection

Grazing will be excluded from within the development footprint and in management unit 1 and northern area of management unit 2 as they form part of the fenced development (Figure 5.1). Grazing will continue in management unit 2 (south of the development) post-construction at the discretion of the current landowner. Currently no rehabilitation is required in this area as there is no temporary disturbance, however if tubestock is planted there tree guards constructed of heavy-duty mesh will be installed over the newly planted seedlings to provide protection from grazing animals during the plant establishment period (for 5 years). Tree guards will also be installed over newly planted seedlings in management unit 1.

Table 5.2 Indicative plant species for rehabilitation

Plant species	PCT 266	Broadcast seed	Seedling
Eucalyptus blakelyi (Blackley's Red Gum)	✓	Yes	Yes
Eucalyptus melliodora (Yellow Box)	✓	Yes	Yes
Eucalyptus albens (White Box)	✓	Yes	Yes
Eucalyptus bridgesiana (Apple Box)	✓	Yes	Yes
Acacia decora (Western Silver Wattle)	✓	Yes	Yes
Acacia implexa (Hickory Wattle)	✓	Yes	Yes

Plant species	PCT 266	Broadcast seed	Seedling
Bursaria spinosa subsp. Spinosa (Native Blackthorn)	✓		Yes
Dodonaea viscosa (Wedge-leaf Hop-bush*)*	✓		Yes
Chloris truncata (Windmill Grass)	✓		Yes
Panicum effusum (Hairy Panic Grass)	✓	Yes	Yes
Themeda australis (Kangaroo Grass)	✓	Yes	
Microlaena stipoides (Weeping Grass)	✓	Yes	Yes
Poa sieberiana (Snowgrass)	✓	Yes	Yes

5.8.4.5 Weed control and mulching

A weed suppression mat should be installed around the base of each seedling to reduce competition from weeds in the immediate area of each planting. Mulching also provides protection to bare soil, retention of soil moisture and suppression of weed re-growth. Organic mulch, such as hoop pine fines or similar (to meet AS4454-2003) and is certified free of weed seed or foreign objects, should be spread to a depth of 100–150 mm and allowed to settle for four weeks before planting seedlings. Alternatively, woody vegetative material obtained from clearing may contain canopy stored seed and can be mulched and re-spread if it is weed and disease free.

5.8.4.6 Watering

Watering would be required to ensure planting survival is of an adequate success rate, which ideally would include the following watering schedule:

- 20 litres of water per plant at weekly intervals for the first four weeks
- 10 litres of water per plant at 14-day intervals from 4–12 weeks
- 10 litres of water per plant at monthly intervals for 3–6 months.

The above watering schedule would be up to the discretion of the Bush Regeneration Contractor, in accordance with current climatic conditions, such as drought, or high rainfall events.

5.8.5 Maintenance

Ongoing maintenance of the rehabilitation may be required, and this would be programmed to coincide with broader weed treatment and/or maintenance programs on site. Akaysha would be responsible for enacting any maintenance requirements, as required, through consultation with a suitably qualified Bush Regeneration Contractor during operational phases of the project.

6 Monitoring and reporting

The success of revegetation measures and long-term management of retained bushland will be monitored to assess its effectiveness and to determine the need for amendments. The data gathered will be compared to reference sites established in adjacent vegetation communities (where suitable public access is available) to determine the success of revegetation.

Monitoring will take place within the rehabilitated temporary disturbance areas and management unit 1 and 2 as shown on Figure 5.1.

6.1 Monitoring methods

The monitoring program is as follows:

- monitoring is to be undertaken by a suitably qualified ecologist independent of the contractors undertaking the work
- establish two randomly positioned, permanent vegetation integrity plots in accordance with the methods outlined in the Biodiversity Assessment Method (BAM) within the rehabilitation area. See Appendix A for BAM vegetation integrity plot methodology.
- establish two randomly positioned vegetation integrity plot in accordance with the methods outlined in the BAM in adjacent intact native PCT 266 vegetation (reference sites).
- BAM vegetation integrity plots should be pegged at each corner.
- the start of the BAM transect will be staked and the location recorded using a GPS.
- transect orientation for the vegetation integrity plots to be the same for each monitoring plots in relevant years of monitoring.
- record all plant species, including exotic species within the 20x20 m quadrat.
- count number of individuals trees by species and stem class ranges being <5 cm, 5–9 cm, 10–19 cm, 30–49 cm, 50–70 cm, and 80+cm with the 20x50 m plot.
- count of tube stock in the vegetation integrity plot to ascertain planting success.
- photographic monitoring points will be set at permanent sites from where a series of photographs over time can be compared to illustrate short or long-term physical change in vegetation attributes, such as but not limited to vegetation structure, plant health, plant mortality, and reproduction phases. Photographic monitoring will occur along the vegetation integrity plot transect in the same orientation during each monitoring event. Photo monitoring points will be used to demonstrate compliance with performance criteria.

6.2 Frequency

The monitoring should be implemented quarterly during the first two years post rehabilitation and then five yearly for a minimum of 15 years (at years 1 (quarterly), 2 (quarterly), 5, 10, and 15). Baseline will be considered the first monitoring event after rehabilitation (year 1, quarter 1). This monitoring frequency is in line with current best practice for ecological monitoring in NSW.

6.3 Reporting

Reporting is required after each monitoring event in the form of a concise monitoring report including key observations and supporting photographic evidence. At years 2, 5, 10, and 15 reporting should demonstrate trends in canopy cover and ground cover over time. The Rehabilitation Monitoring Report will be submitted to Akaysha Energy and BCD.

6.3.1 Success criteria

The first monitoring event will provide a baseline variable from the intact vegetation for comparison against the revegetation works. The success criteria include:

- evidence of locally endemic species used in rehabilitation.
- greater than (or equal to) 80 % of planted tube stock successfully established in rehabilitation areas at the end of year three monitoring.
- priority weeds are controlled
- Presence of grazing not impacting progress
- exotic species diversity does not exceed that recorded from the reference sites.
- Management unit 1 and 2 progressing towards benchmark values for PCT 266 and there is consistent improvement over the baseline values shown in Table 6.1. Benchmark values for PCT 266 are shown in Table 6.2.

Table 6.1 Baseline conditions against which long-term management of retained vegetation will be assessed against

Management unit	Composition score	Structure score	Function score	Vegetation integrity score
1 & 2	33.2	11.9	5.1	12.6

Table 6.2 Benchmark values for PCT 266

PCT	TreeRichness	ShrubRichness	GrassAndGrassLikeRichness	ForbRichness	FernRichness	OtherRichness	TreeCover	ShrubCover	GrassAndGrassLikeCover	ForbCover	FernCover	OtherCover	LargeTreeThresholdSize	NumberOfLargeTrees	TotalLengthFallenLogs	LitterCover
266	3	3	8	9	1	1	18	1	30	6	0	0	50	4	41	0.55

6.4 Environmental monitoring and performance indicators

Monitoring, inspection and auditing will be undertaken to measure effectiveness and facilitate continuous improvement of biodiversity management. General environmental monitoring, inspection, and auditing requirements are summarised in Table 6.3. The Project Ecologist, or suitably qualified person proficient in Masked Owl, Powerful Owl, Pink-tailed Legless Lizard, Superb Parrot, frog and weed identification, will undertake routine inspections of the subject land, including the following items at a minimum:

- date of inspection

- personnel undertaking the inspection
- features to be inspected/monitored (e.g., perimeter fence, temporary frog-exclusion fencing, ground disturbance permits, erosion and sedimentation controls, excavations, salvaged habitat features, hygiene inspection forms, presence of weeds)
- outcomes of the inspection and details of any non-compliance against the management measure(s) or objective(s)
- requirement for any corrective actions
- details of any photographic records detailing evidence of monitoring.
- confirmation subject land/construction footprint is appropriately delineated, and sign posted.

Success will be assessed by the Project Ecologist (or suitably qualified person) and the Site Manager according to the criteria listed in Table 6.3.

Accurate and complete compliance records will be maintained throughout the construction and operation of the project. The following records and reports must be maintained on site:

- environmental training records, including signed and dated:
  - environmental induction training
  - environmental toolbox talks
  - pre-start meetings
- pre-clearing inspection records
- staged clearing records
- fauna handling and rescue register
- environmental inspection reports
- all incident reports.

Table 6.3 Biodiversity inspection and reporting program

Management activity	Monitoring action	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance thresholds (Trigger)	Corrective action (Action)	Responsibility
Personnel							
Environmental induction training	Monthly audit of induction training records and toolbox talks. Site inductions and toolbox talks will include requirements to follow the measures outlined in this BMP, to follow the Masked Owl Management Plan (Appendix C) and HBT clearance protocol (Appendix B).	Training record of all personnel and contractors who have completed the site-specific induction. Toolbox meetings incorporating environmental constraints and responsibilities.	Monthly audits	Short to long-term (ongoing).	Employees not inducted prior to site access.	Induct employees and contractors in accordance with Section 5.2.	Construction Site Manager Proponent
Vegetation and fauna habitat management							
Protection of vegetation outside disturbance boundary in management units 1 and 2 (demarcation of subject land)	Weekly site inspection Clearing hold points implemented through CEMP ground disturbance permit process.	Subject land delineated using high visibility or standard temporary construction fencing. Inclusion of appropriate signage. Documentation of weekly site inspections. Appropriate preventative maintenance to fencing during project construction. No incursions by site personnel, vehicles, stockpiles or clearing activities outside the subject land. Pre-start meetings to acknowledge clearing limits and clearing procedures. Tree clearing operations conducted in accordance with vegetation clearing and grubbing procedure detailed in Section 5.3.2.	Tree Clearing Report will supply tree clearing and survey data for verification. Site Environmental Inspection Checklist Pre-start meeting records	Short to long-term (ongoing).	Exclusion fencing is damaged or ineffective. Clearing has occurred outside of the exclusion fence.	Fix boundary fence to comply with Section 5.3.1. Any breach occurring outside the demarcated subject land that results in a loss of native vegetation must be reported immediately as detailed in Sections 6.5.1 and 6.5.2, and a rehabilitation plan prepared and implemented in consultation with the DPE.	Construction Site Manager Proponent
Pre-clearing inspection including checking roosting/breeding habitat, marking habitat trees, demarcating area to be cleared.	Clearing hold points implemented through CEMP ground disturbance permit process.	Tree clearing operations conducted in accordance with vegetation clearing and grubbing procedure detailed in Section 5.3.2. Implementation of the fauna handling and rescue procedure (where required) (Section 5.3.6). Pre-clearing checklist completed by Construction Site Manager and Project Ecologist.	Tree Clearing Report will supply tree clearing and survey data for verification.	Short-term – pre-clearing inspection required within 48 hours of each clearing event.	Pre-clearing inspection not undertaken. A Tree Clearing report not completed. Additional controls were not implemented prior to clearing or documented in the CEMP.	Undertake tool box talk with construction employees and contractors noting relevant protocols and management plans. If vegetation clearing has commenced, stop work and the Project Ecologist to inspect felled vegetation and implement the fauna handling and rescue procedure as necessary. Instigate review into clearing hold points through ground disturbance permit process. Pre-clearing inspection to be completed prior to recommencing Stage 1 or Stage 2 clearing. A Tree Clearing report will be undertaken as soon as possible. Ongoing status	Proponent Construction Site Manager Project Ecologist

Management activity	Monitoring action	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance thresholds (Trigger)	Corrective action (Action)	Responsibility
						updates of the report will occur between relevant parties.	
Unexpected finds (nest, nesting, eggs, chicks)	Follow section 5.5	No mortality or injury as a result of the project.	Pre-clearance survey	Long-term – for duration of construction	Injury or death of Masked Owl, Superb Parrot, Pink-tailed Legless Lizard or any other threatened fauna species.	Induct employees and contractors. The cause of death or injury will be investigated, and any required changes will be implemented. Update unexpected finds procedure.	All staff
Pre-clearing inspection (identification of weed management areas)	Clearing hold points implemented through CEMP ground disturbance permit process.	Pre-clearing checklist completed by Construction Site Manager and Project Ecologist.	Tree Clearing Report will supply tree clearing and survey data for verification.	Short-term	Weed management areas have not been identified. A Tree Clearing report not completed.	Weed management areas to be delineated as soon as practicable. Undertake tool box talk with construction employees and contractors. A Tree Clearing report will be undertaken as soon as possible. Ongoing status updates of the report will occur between relevant parties.	Construction Site Manager Proponent Project Ecologist
Pre-clearing inspection (man-made structures)	Clearing hold points implemented through CEMP ground disturbance permit process.	Pre-clearing checklist completed by Construction Site Manager and Project Ecologist.	Diurnal search of cavities in structure by Project Ecologist undertaken. Nocturnal emergence survey completed where cavities are not accessible. Pre-clearing inspection of man-made structures will be detailed in the Tree Clearing Report.	Short to medium-term	Surveys not undertaken. A Tree Clearing report not completed.	Undertake toolbox talk with construction employees and contractors noting relevant protocols and management plans. Report any non-conformances as detailed in Section 6.5.1. Undertake a pre-clearing inspection of all man-made structures to ascertain contemporary use of remaining structures and compile interim pre-clearing checklist. A Tree Clearing report will be undertaken as soon as possible. Ongoing status updates of the report will occur between relevant parties.	Construction Site Manager Proponent Project Ecologist
Vegetation clearing (maximise the salvage of habitat resources)	Clearing hold points implemented through CEMP ground disturbance permit process.	Where applicable, the salvage and relocation/storage of habitat resources for use in rehabilitation areas. Where applicable, maps of the salvage pile site(s) to be produced and included within the tree clearing report. Photographic evidence and documentation of habitat features salvaged included in the tree clearing report. Salvage of suitable topsoil inhabited by native flora species.	Tree Clearing Report will supply tree clearing and survey data for verification.	Short to medium-term	Suitable topsoil is stockpiled incorrectly or removed from site. Cleared hollows are not placed at suitable locations back in the landscape. A tree clearing report not completed.	Additional resources with similar specifications will be sourced from another local development or reputable landscaping business. Cleared hollows are relocated into suitable areas within the Development Site. A Tree Clearing report will be undertaken as soon as possible. Ongoing status updates of the report will occur between relevant parties.	Construction Site Manager Proponent Project Ecologist
Nest box installation	Installation of net boxes and/or recovered hollows suitable for Masked Owl and Superb Parrot.	Three extra-large nest boxes installed to replace extra-large hollows lost. Fifty medium parrot nest boxes installed to replace medium hollows lost.	Nest box monitoring program	Construction and operation. Short to long term	Hollows not salvaged. Nest boxes not installed. Ecologist not on site.	Acquire, install and monitor nest boxes. Ensure Ecologist is onsite for works.	Proponent Project Ecologist

Management activity	Monitoring action	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance thresholds (Trigger)	Corrective action (Action)	Responsibility
Vegetation clearing	Ground disturbance permit process implemented through the CEMP.	Tree clearing operations conducted in accordance with vegetation clearing and grubbing procedure detailed in Section 5.3.2. Project Ecologist present during Stage 1 and Stage 2 clearing.	Tree Clearing Report will supply tree clearing and survey data for verification.	Short to medium-term	Tree clearing operations conducted outside of vegetation clearance and grubbing procedure detail in Section 5.3.2. Project Ecologist not present.	Undertake tool box talk with construction employees and contractors noting relevant protocols and management plans. Report any non-conformances as detailed in Section 6.5.1. Project Ecologist to undertake immediate inspection of felled vegetation and implement fauna handling and rescue procedure (Section 5.3.6). Work is not to commence until Project Ecologist is present.	Proponent Project Ecologist
Fauna handling and rescue							
Vegetation clearing	Ground disturbance permit process implemented through the CEMP. As clearing works are being undertaken during the breeding period, review any additional mitigation measures implemented to avoid impacts to fauna, including pre-clearance surveillance of potential den tree (stag watching or cameras).	Tree clearing operations conducted in accordance with vegetation clearing and grubbing procedure detailed in Section 5.3.2. Fauna handling and rescue procedure implemented (Section 5.3.6). Project Ecologist present during Stage 1 and Stage 2 clearing. Fauna handling and rescue register compiled (where applicable).	Tree Clearing Report will supply tree clearing and survey data for verification.	Short to medium-term	No pre-clearance survey undertaken. Additional controls were not implemented prior to clearing or documented in the CEMP. Vegetation removal is undertaken outside of daylight hours.	Undertake tool box talk with construction employees and contractors. Stop work immediately and the Project Ecologist to inspect felled vegetation and implement the fauna handling and rescue procedure as necessary. Document any impacts to flora and fauna. Instigate review into ground disturbance permit process. Pre-clearing inspection to be completed prior to recommencing Stage 1 or Stage 2 clearing. Investigate and report on why the additional mitigation measures were not included and implemented. Update and obtain approval of the CEMP with additional mitigation measures included. Proceed with construction and implement additional control measures. Amend construction schedule to occur in daylight hours.	Construction contractor / Akaysha / Project Ecologist

Management activity	Monitoring action	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance thresholds (Trigger)	Corrective action (Action)	Responsibility
General construction activities	Weekly site inspection	Species of fauna receive appropriate care and are managed as per the fauna handling and rescue procedure, where necessary (Section 5.3.6). Documentation of weekly site inspections. Fauna handling and rescue register compiled (where applicable).	Monthly audits	Long-term – for duration of construction	Construction crew members were not made aware of the correct procedures when interacting with wildlife. Fauna handling and rescue procedure not followed.	Undertake tool box talk with construction employees and contractors. A stop works order will occur and the incident immediately reported to the Site Supervisor who will co-ordinate responsive actions. Any injured fauna is to be handled by a person licensed to handle fauna. If the animal is not injured, the animal will be released within similar habitat close to the encounter location. Nocturnal species will be released at dusk.	Construction Site Manager Project Ecologist (or suitably qualified person)
Weed, pest, and pathogen management							
Weed and pest monitoring and prevention	Monthly site inspection	Weeds identified during pre-clearing inspection and management measures implemented to ensure no spread into new, disturbed or rehabilitated areas. Records of priority weed observations and pest observations documented in Site Environmental Inspection Checklist. Increases in weed densities in immediate adjacent natural bushland are monitored in consultation with relevant land managers.	Monthly audits	Long-term – for duration of construction	Weed monitoring and mitigation measures have not been undertaken. High weed density in the revegetation areas at three months post-construction	If post-clearing weed infestations become evident and are deemed to be project related, Akaysha will seek to consult with and coordinate with the adjacent landowner to control these weeds and control weeds on the site Follow up inspection to occur three months after corrective action.	Project Ecologist (or suitably qualified person)
Weed control/maintenance weeding	Biannual site inspection in early Spring and early Autumn	Site inspection in early Autumn and early Spring by Bush Regeneration Contractor No incursion of weeds into adjacent habitat. Weed control undertaken in accordance with the relevant practices and guidelines specified in Section 5.6.4. Where significant or new weed infestations are identified, a review has been undertaken and appropriate control measures are implemented.	Bush Regeneration Contractor to provide concise letter report detailing results of inspection, weed observations, treatment and disposal, and adaptive management actions required.	Long-term – for duration of construction	Weed monitoring and mitigation measures have not been undertaken. Weed management practices were not adhered to.	Investigate and report on why weed management was not adhered to. Follow up weed treatment for any weeds established as a result of the project within the Project area and surrounding habitat. Disposal of weed infested plant material in accordance with the waste management legislation and approved procedures for the site.	Bush Regeneration Contractor
General construction activities (vehicle and machinery washdown)	Vehicle/machine hygiene inspections undertaken prior to commencement of works (free from soil and plant material).	Completed hygiene inspection forms are to be kept within the relevant vehicle/machine during the works and filed at completion of the works.	Monthly audits	Long-term – for duration of construction	No evidence that machinery and equipment was thoroughly cleaned prior to arriving on site and/or after leaving site. No protocol in place.	Investigate and report on why hygiene protocols were not met. Follow up weed treatment for any weeds established as a result of the project within the Project area and surrounding habitat. Reiterate hygiene controls in pre-starts.	Construction Contractor Site Manager
General construction activities (landscaping materials)	Prior to, or on delivery of landscape material.	Certificate (or similar) detailing disease free material or virgin excavated natural material.	Monthly audits (where applicable)	Long-term – for duration of construction	Evidence of weed species spread into development area and/or surrounds from landscaping materials	Undertake tool box talk with construction employees and contractors. Undertake follow up weed treatment. Review source location of landscaping materials.	Construction Contractor Site Manager

Management activity	Monitoring action	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance thresholds (Trigger)	Corrective action (Action)	Responsibility
Rehabilitation							
Rehabilitation of temporary disturbance areas (within the disturbance footprint)	Quarterly for the two-years post rehabilitation planting. Then five yearly for a minimum of 15 years (at year 1, 2, 5, 10, and 15).	Completed rehabilitation monitoring reports detailing trajectory towards completion criteria.	Concise monitoring reports following each monitoring installment.	Long-term	Areas remain at baseline or trending towards completion targets at each monitoring period. See trigger actions in Table 6.4.	Replant tube stock to meet minimum planting requirements. Ensure fencing remains intact and fit for purpose. Re-treat priority weeds until performance criteria is met. See corrective actions in Table 6.4.	Proponent Construction Contractor Site Manager
Post-construction measures							
Management of existing vegetation and fauna habitat	At year 2 then five yearly for a minimum of 15 years (at year 1, 2, 5, 10, and 15).	Completed as part of rehabilitation monitoring reports..	Concise monitoring reports following each monitoring installment.	Long-term	Areas remain at baseline or trending towards benchmark levels for PCT 266 (Table 6.2).	Follow corrective actions as listed for management unit 1 and 2 in Table 6.4.	Proponent Construction Contractor Site Manager Project Ecologist
Nest box monitoring	Annual nest box monitoring for a minimum of 15 years.	Annual monitoring of retained HBTs with extra-large and medium hollows as well as installed nest boxes to determine if Masked Owls and Superb Parrots are using the Development Site.	Ecologist submits results of nest box annual monitoring to proponent.	Long-term	See trigger actions in Table 6.5.	See corrective actions in Table 6.5.	Proponent Construction Contractor Site Manager Project Ecologist
Pink-tailed Legless Lizard monitoring	At year 5, 10 and 15	5 yearly monitoring to determine if Pink-tailed Legless Lizards are using the site.	Ecologist submits results of Pink-tailed Legless Lizards monitoring to proponent.	Long-term	See trigger actions in Table 6.5.	See corrective actions in Table 6.5.	Proponent Construction Contractor Site Manager Project Ecologist

Table 6.4 Performance indicators and completion criteria for management unit 1 and 2

Management unit	Requirement	Planned vegetation community	Performance indicators	Completion criteria	Triggers	Management / remedial Action
1 (temporary disturbance areas)	Self-sustaining woodland to be maintained and improved in the long-term.	White Box grassy woodland in the upper slopes sub-region of the NSW Southwestern Slopes Bioregion	Trend of increasing indicators against baseline values shown in Table 6.1. Progress towards PCT266 Benchmarks shown in Table 6.2.	Vegetation variables within 80% of benchmark levels for PCT266. Reduction of St Johns Wort, Bathurst Burr and Saffron Thistle abundance to below 10% cover.	Damaged fencing. Ground cover has not increased from baseline (conditions at first monitoring event) after 5 years.	Replace damaged fencing.Increase weed management efforts, targeting high threat species. Re-plant tubestock, including preferencing ground cover species.

Management unit	Requirement	Planned vegetation community	Performance indicators	Completion criteria	Triggers	Management / remedial Action
2 (temporary disturbance areas).	Self-sustaining woodland to be maintained and improved in the long-term – focus on understorey.		Control of African Boxthorn, St Johns Wort, Bathurst Burr and Saffron Thistle at year 5. Maintenance of declared and high threat weeds to an acceptable threat level at each monitoring period.	Vegetation variables within 80% of benchmark levels for PCT266. Reduction of St Johns Wort, Bathurst Burr and Saffron Thistle to below 10% cover.	Native ground cover is not trending upwards at year 10. African Boxthorn, St Johns Wort, Bathurst Burr and Saffron Thistle still present at year 5, 10, and 15. Weed cover has increased from baseline at year 1, 2, and 5. Weed cover is not trending downwards at years 5, 10, and 15.	

Table 6.5 Performance indicators and completion criteria for Pink-tailed Legless Lizard, Superb Parrot and Masked Owl.

Threatened species	Requirement	Performance indicators	Completion criteria	Triggers	Management / remedial Action
Pink-tailed Legless Lizard	Relocation and maintenance of 34 areas of rocky habitat for Pink-tailed Legless Lizards. Weed management	Evidence of use of Development Site area equivalent to pre-construction occupancy.	Evidence of use of Development Site area equivalent to pre-construction occupancy.	Areas of rocky habitat deemed no longer suitable for Pink-tailed Legless lizard (due to removal of rocks, incursion of shrub or weed species, or dilapidation). No evidence of Pink-tailed Legless Lizard during monitoring (at any monitoring event).	Restore habitat areas via suitable methods (i.e., replace removed rocks, remove shrubs and weeds around key habitat features). Increase survey effort. If, no presence, review this BMP and assess likelihood of the project causing reduced occupancy by Pink-tailed Legless Lizards and review management actions accordingly.
Superb Parrot	Installation and maintenance of 50 medium parrot nest boxes.	Fifty medium parrot nest boxes in working order (check fit for purpose at each monitoring event). Evidence of use of area equivalent to pre-construction occupancy (i.e., using but not nesting).	Fifty medium parrot nest boxes in working order for a minimum of 15 years. Evidence of use of area equivalent to pre-construction occupancy.	Nest box is not in working order. No evidence of use of area by Superb Parrot in the preceding 5 years, 10 years, 15 years (relevant to each survey period).	Mend or replace nest box. Review this BMP and assess likelihood of the project causing reduced occupancy by Superb Parrots and review and implement management actions accordingly.
Masked Owl	Installation and maintenance of 3 Extra-large owl nest boxes to replace extra-large hollows lost.	Three extra-large owl nest boxes in working order at each monitoring event. Evidence of use of area equivalent to pre-construction occupancy (i.e., using but not nesting).	Three extra-large owl nest boxes in working order for a minimum of 15 years. Evidence of use of area equivalent to pre-construction occupancy.	Nest box is not in working order. No evidence of use of area by Mask Owl in the preceding 5 years, 10 years, 15 years (relevant to each survey period).	Mend or replace nest box. Review this BMP and assess likelihood of the project causing reduced occupancy by Mask Owl and review and implement management actions accordingly.

6.5 Reporting

All environmental incidents, complaints, non-conformance or exceedance of performance criteria as identified by monitoring or reporting will be managed as per the requirements detailed in the Environmental Management Strategy (WSP, 2023).

6.5.1 Non-compliance reporting

Immediately after a non-compliance has been identified, the following actions will be undertaken:

- stop work, if applicable
- notify the Construction Contractor's Site Manager (and SQE Manager during construction)
- identify corrective action(s) to be undertaken
- record details of non-compliance and actions taken
- review the cause of the non-compliance and implement any identified improvements in environmental management.
- the Site Manager will notify Akaysha Energy within 24 hours of becoming aware of an incident.
- Akaysha Energy will notify the DPE in accordance with Condition C11 to C13 of the Infrastructure Approval. The DPE will be notified in writing via the Major Projects website within seven days after Akaysha Energy becomes aware of any non-compliance.
- the non-compliance notification will identify the project and the project approval number for it, set out the condition of approval that the project is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

6.5.2 Environmental incident reporting

An incident is a set of circumstances that causes or threatens to cause material harm to the environment. Immediately after identification of an incident, the following actions are to be followed:

- remove people from harm and isolate the area around the incident to restrict access
- stop works in the vicinity of the incident and ensure personnel safety
- implement containment measures to prevent the impact of the incident spreading and restrict access
- notify the Construction Contractor's Site Manager
- implement the emergency procedures as relevant to the incident
- estimate the significance of the incident.

The Construction Contractor's Site Manager will notify Akaysha Energy upon becoming aware of an incident. In accordance with condition C10 of the project's Infrastructure Approval, the Planning Secretary must be notified in writing via the Major Projects website immediately after the proponent becomes aware of an incident.

Akaysha Energy will provide a written incident notification to be submitted to the DPE via the Major Projects website within seven days of becoming aware of an incident. The written notification will:

- identify the project and application number
- provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident)
- identify how the incident was detected
- identify when the Proponent became aware of the incident
- identify any actual or potential non-compliance with conditions of approval
- describe what immediate steps were taken in relation to the incident

- identify further action(s) that will be taken in relation to the incident
- identify a project contact for further communication regarding the incident.

Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, Akaysha must provide DPE and any relevant public authorities (as determined by the Planning Secretary) with a detailed report on the incident addressing all requirements below, and such further reports as may be requested. The Incident Report must include:

- a summary of the incident
- outcomes of an incident investigation, including identification of the cause of the incident
- details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence
- details of any communication with other stakeholders regarding the incident.

6.5.3 *Tree clearing report*

The Project Ecologist will prepare and submit a Tree Clearing Report, which will be submitted to the Construction Contractor's Site Manager and Akaysha Energy following the completion of clearing operations. The report will verify that tree clearing operations were undertaken in accordance with the vegetation clearing procedures and protocols detailed in Sections 5.3.2 to 5.3.4. The report will confirm the final area cleared, the identity of all vegetation removed, and a count of hollow-bearing trees felled (if any). The Tree Clearing Report will also document any fauna or nests impacted by clearing works and provide fauna capture and relocation data.

6.5.4 *Rehabilitation monitoring reports*

A concise monitoring report will be prepared after each monitoring event and include key observations, supporting photographic evidence and management actions (as necessary). Rehabilitation Monitoring Reports will be submitted to Akaysha Energy. The rehabilitation monitoring reports will contain the information collected in accordance with Section 6.3.

6.6 Document review

A Review of this BMP may be triggered as described in Schedule 2, Condition C2 of the Infrastructure Approval. Akaysha Energy must update this BMP to the satisfaction of the Planning Secretary prior to carrying out any upgrading or decommissioning activities on site. Akaysha Energy will be responsible for coordinating a review and, if necessary, a revision of the BMP to the satisfaction of the Planning Secretary within one month in response to:

- submission of an incident report under Condition C14 of Schedule 2.
- submission of an audit report under Condition C14 of Schedule 2, where the audit indicates performance targets/completion criteria may not be achieved.
- modification to the conditions of the Infrastructure Approval.

The BMP may be reviewed and updated, where necessary, to incorporate additional measures or amendments to improve the environmental performance of the development, Akaysha Energy will review the BMP biannually during construction (should none of the above triggers occur). Where a revision of the BMP is required, consultation and approval will be sought from the Planning Secretary.

6.7 Environmental auditing

Environmental Auditing will be performed in accordance with the Infrastructure Approval Condition C14-C19. Akaysha will engage an independent auditor, approved by the Planning Secretary, to conduct and carry out independent audits of the development in accordance with the Independent Audit Post Approval Requirements (2020) to the following frequency:

- within three months of commencing construction
- within three months of commencement of operations.

Independent auditors will be agreed to in writing by the Planning Secretary prior to the commencement of an independent audit. The Planning Secretary may require Independent Audits to be undertaken at different times to that specified, upon giving four weeks' notice to Akaysha Energy of the date upon which the audit must be commenced.

Following delivery of an independent audit, Akaysha Energy will:

- review and respond to each Independent Audit Report prepared under Infrastructure Approval Condition B14 where notice is given by the Planning Secretary.
- submit the Independent Audit Report and Akaysha Energy's response to audit findings to the Planning Secretary within two months of undertaking the independent audit site inspection, unless otherwise agreed by the Planning Secretary.
- make each Independent Audit Report, and Akaysha Energy's response to audit findings, publicly available within 60 days of the submission to the Planning Secretary (unless otherwise agreed by the Planning Secretary).

6.8 Complaints handling

The following actions will be undertaken upon receipt of a complaint:

- the details of the complaint will be recorded in a complaints register
- the relevant project management personnel will be notified
- the complaint will be acknowledged by email or phone call within three working days from receipt of the complaint
- all practical measures to modify the activity causing the complaint will be carried out
- for complaints regarding significant matters, a detailed response will be provided to the complainant within 14 working days from receipt of the complaint.

The Construction Site Manager will be responsible for maintaining the complaints register. The details to be recorded in the complaints register are:

- the date and time of the complaint
- the channel through which the complaint was made (e.g., via phone or email)
- contact details of the complainant if provided
- the nature of the complaint
- any action taken to address the complaint, including timeframes for carrying out the action.

7 Limitations

This Report is provided by WSP Australia Pty Limited (*WSP*) for Akaysha Energy (*Client*) in response to specific instructions from the Client and in accordance with WSP's proposal and agreement with the Client (*Agreement*).

7.1 Permitted purpose

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (*Permitted Purpose*).

7.2 Qualifications and assumptions

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and/or recommendations in the Report (*Conclusions*) are based in whole or in part on information provided by the Client and other parties identified in the report (*Information)*, those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.

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8 Bibliography

NGH. (2023). *Submissions Report - Orana Battery Energy Storage System.* NGH.

NGH. (2024). *Masked Owl (Tyto novaehollandiae) Management Plan.* NGH prepared for Akaysha Energy Pty Ltd.

NGH. (April 2023). *Orana BESS Environmental Impact Statement* .

NGH. (February 2025). *Orana BESS Biodiversity Development Assessment Report.*

NSW Department of Planning and Environment. (December 2023a). *Development Consent.*

NSW Department of Planning and Environment. (December 2023b). *Notice of Decision - Orana BESS.*

NSW Department of Planning and Environment. (December 2023c). *Orana Battery Energy Storage System - State Significant Development Assesment Report.*

Appendix A

BAM vegetation integrity plot methodology

The methodology below is to be used for each of the monitoring plots installed for the rehabilitation monitoring program in accordance with the Biodiversity Assessment Method (Department of Planning Industry and Environment, 2020a).



Figure A.1 Vegetation integrity plot layout

The following site attributes are to be recorded at each vegetation integrity plot location:

- **location:** (easting – northing grid type GDA94, Zone 56)
- **vegetation structure and dominant species and vegetation condition:** Vegetation structure was recorded through estimates of percentage foliage cover, average height and height range for each vegetation layer
- **native and exotic species richness** (within a 400-metre squared quadrat): This consists of recording all species by systematically walking through each 20 metre x 20 metre plot. The cover and abundance (percentage of area of quadrat covered) of each species is estimated. The growth form, stratum/layer and whether each species was native/exotic/high threat weed is also recorded.
- **number of trees with hollows** (1000 metre squared quadrat): This is the frequency of hollows within living and dead trees within each 50 metre x 20 metre plot. A hollow is only recorded if (a) the entrance could be seen: (b) the estimated entrance width was at least five centimetres across: (c) the hollow appeared to have depth: (d) the hollow was at least one metre above the ground and the (e) the centre of the tree was located within the sampled quadrat
- **number of large trees and stem size diversity** (1000 metre squared quadrat): tree stem size diversity is calculated by measuring the diameter at breast height (DBH) (i.e., 1.3 metre from the ground) of all living trees (greater than five centimetre DBH) within each 50 metre x 20 metre plot. For multi-stemmed living trees, only the largest stem was included in the count. Number of large trees was determined by comparing living tree stem DBH against the PCTs benchmarks.
- **total length of fallen logs** (1000 metre squared quadrat): This is the cumulative total of logs within each 50 metre x 20 metre plot with a diameter of at least 10 centimetres and a length of at least 0.5 metre
- **litter cover:** This comprised estimating the average percentage groundcover of litter (i.e., leaves, seeds, twigs, branchlets and branches with a diameter less than 10 centimetre which is detached from a living plant) from within five 1 metre x 1 metre sub-plots spaced evenly either side of the 50-metre central transect
- **evaluation of regeneration:** This is estimated as the presence/absence of overstorey species present at the site that was regenerating (i.e., saplings with a diameter at breast height less than or equal to five centimetres.

Appendix B

Hollow Bearing Tree clearance protocol
(NGH, February 2025)

This Hollow Bearing Tree Clearance Protocol has been adapted from Appendix F of the BDAR (NGH, 2023a).

This guideline provides instruction on how to remove Hollow Bearing Trees (HBTs) in a way that minimises the impacts on fauna inhabiting trees and includes

- Optimum timing for tree removal to minimise impacts on hollow-dependent fauna.
- Detailed information about felling hollow bearing trees (staged felling protocol).

Pre-clearing survey

1. Prior to works commencing (no more than 14 days), a fauna spotter/ecologist must undertake a site inspection to clearly mark and identify all hollow bearing trees (HBT). All trees should be marked to define what will be removed/retained.
2. Fencing to be installed to define the construction footprint including laydown and storage areas based on an approved development footprint. The field ecologist must inspect the fencing as part of the pre-clear surveys to ensure no indirect impacts to surrounding vegetation.
3. Each HBT to be removed must have the following recorded – number of hollows, hollow size, photographs, and fauna activity.
4. If Masked Owl is determined to be present, the Masked Owl Management Plan (Appendix D) must be implemented. If Powerful Owl is determined to be present, follow procedure for the Masked Owl.
5. To minimise impacts on birds and mammals, is recommended that clearance works occur in summer to autumn to minimise impacts on breeding season for birds and mammals.
6. Prior to clearance, all known hollows must be individually inspected for occupancy and current use. This would require a pole mounted inspection camera or support from an arborist on an Elevated Work Platform. If hollows are found to be occupied, then a plan for how to minimise impacts to the fauna would be prepared (by the fauna spotter/ecologist) specific to the species and its lifecycle and implemented prior to tree removal commencement.
7. A fauna spotter/ecologist will undertake a visual inspection of all hollows and habitat features within 24 hours of clearing to identify resident fauna species that might require relocation.
8. Contact veterinarian/wildlife carers in the area prior to clearing starting. At least one must confirm to be willing to accept wildlife if orphaned or injured fauna are encountered.
9. The fauna spotter/ecologist must assess the surrounding area for alternative hollows suitable for fauna relocation. If these are not present then nest boxes should made available, and if fauna detected, installed so that mobile hollow dependent fauna have alternative locations to relocate. Nest boxes should be installed within 100 m of the tree removal site as preference or at an appropriate distance where suitable trees without existing hollows are available, noting the difficulty in locating enough suitable mounting sites within 100 m of the removal site as there is sparse vegetation cover in the area and a high volume of existing hollows remaining in the trees within the Development Site. The installed nest boxes must be suitably sized and designed to accommodate the species of concern.

Clearing of habitat features

1. The fauna spotter/ecologist must have appropriate catching, handling, and housing equipment present on site in the event of the need to detain fauna. This includes enclosures suitable for common and suspected threatened species of varying needs and sizes. Housing and transport of wildlife must be in accordance with the Code of Practice for Injured, Sick and Orphaned Protected Fauna: https://www.environment.nsw.gov.au/research-and-publications/publications-search/code-of-practice-for-injured-sick-and-orphaned-protected-fauna. Remove non-habitat adjacent trees and understorey (if applicable) 24–48 hours prior to the felling of the habitat trees. Ensure that entire area within drop radius of habitat tree cleared of debris.

2 Prior to clearing hollow-bearing trees, use an excavator (preferable) or loader to hit the trunk as high up the tree as possible several times. Wait at least 30 seconds. Repeat this process several times. The use of machinery noise can also encourage any resident fauna to vacate the tree. These disturbance actions are best performed at the end of the day to encourage nocturnal species to relocate overnight. The tree is to be left overnight (at a minimum) before being removed. Any HBT that has been left for longer than 48 hours since being shaken/tapped, is to be re-shaken/tapped at least the day prior to removal.

3 When removing hollow-bearing trees, a fauna spotter/ecologist should be present at each tree to be removed to look for signs of animal movement in the tree to be cleared. The fauna spotter should be able to communicate directly with plant operators, ideally utilising a UHF radio. If an excavator or large machinery (as opposed to a chain saw) is used to clear hollow bearing trees, an inspection of each hollow must be undertaken by the fauna spotter/ecologist prior to commencement of clearing even if tapping has occurred the night before.

4 The excavator or equivalent machinery operator will slowly lower HBT trees. HBTs must not be pushed and left to fall under their own weight as this can cause direct injury or death to resident fauna.

5 If taking the tree down in stages, remove non-hollow-bearing limbs first. Then remove hollow-bearing limbs.

6 Once the hollow-bearing limbs or hollow-bearing tree are on the ground, the fauna spotter/ecologist must check each hollow for signs of wildlife before the next limb/tree is removed. Remove any fauna into a handling bag or suitable secure housing. The fauna spotter will release any adult uninjured fauna into the designated release area (a distance of ~50 m outside the clearing footprint at the appropriate time of day for the species.

7 Where practical, relocate fauna in their hollow by relocating entire hollow sections to areas of retained vegetation.

8 If dependent young or injured fauna are discovered following or during tree felling, then fauna must be delivered to a licensed wildlife carer or veterinarian (previously notified of the works).

9 Records of any animals removed or injured must be retained.

10 Once felling, if uninjured fauna is detected within the felled tree and the hollow is in good condition, the fallen tree will be marked and left in situ over night to allow the fauna to self-relocate. The following day fallen trees would be left in place or moved to a nearby area to retain fauna habitat once the fauna has relocated.

Clearing timing

1 During summer/hot days (greater than 30°C), HBT are left in situ until the end of the day, so any captured animals are not subjected to heat stress before release. Wildlife is not to be held in a vehicle on hot days, unless the engine and air conditioning is on.

Handling wildlife

1 Direct contact with any wildlife should be avoided wherever possible. Wildlife should be encouraged to leave hollows through controlled disturbance as detailed above.

2 Any uninjured wildlife that does not include dependent young (unless in the company of its healthy parent) must be encouraged to leave the development site.

3 If wildlife is injured, WIRES or similarly qualified and licensed Wildlife care organisation should be contacted to collect and treat any injured or orphaned individuals. This organisation would be notified of the tree removal works, prior to works commencing.

4 No handling of microbats unless trained and vaccinated for Australian Bat Lyssavirus with current titre levels.

Clearing during June to January

1. Should clearing of hollow-bearing trees be required during the breeding or hibernation periods of threatened species, consultation is to be undertaken with local wildlife carers and/or specialist carers for those faunal groups. Confirmation is to be sought from these groups that they would accept rescued fauna.
2. Should inspections identify threatened parrots, Masked Owls or Powerful Owls attending hollows, a detailed assessment is to be undertaken of their activity within the hollow. If investigating only, clearing may proceed with the above measures employed. Where parrots or owls are actively building nests (i.e., bringing material to hollows), it is recommended that clearing be postponed until fledging. Where parrots or owls are attending eggs, it is recommended that clearing be postponed until fledging. Where parrots or owls are attending young, it is recommended that clearing be postponed until fledging.
3. If postponing cannot be undertaken, removal of threatened parrots or owls will be followed according to sections 5.4.3 and 5.4.5.
4. Hibernating microbats are likely to occur throughout the winter months, and bats in torpor may occur year-round. Where it is considered highly likely that microbats would be in hibernation, it is recommended that supervised clearing occur, and that recovered bats are relocated to a dedicated bat carer to ensure they are sufficiently fed throughout the remainder of winter, prior to release back to the site in spring. The removal of bats from hibernation puts excessive stress on their fat reserves, which may be depleted prior to them being able to forage effectively in spring, thus intervention is recommended.
5. Any eggs or fledglings that cannot be relocated must be cared for by a wildlife carer before they can be released.
6. If injury or death of any threatened species or bat occurs during the removal of nesting birds or hibernating bats then any additional relocation works will stop immediately and an assessment be undertaken as to the cause of death. If the cause of death cannot be mitigated, it is recommended to postpone clearance until fledging.

Appendix C

Statement confirming payment into the Biodiversity Conservation Fund for an offset obligation

Statement confirming payment into the Biodiversity Conservation Fund for an offset obligation

Pursuant to section 6.33 of the *Biodiversity Conservation Act 2016*, the NSW Biodiversity Conservation Trust confirms that the following payments have been made into the Biodiversity Conservation Fund under section 6.30(1) of the Act to satisfy an obligation to retire biodiversity credits.

Payment made by		Akaysha Energy Pty Ltd			
Date received		27 February 2024			
NSW statutory obligation reference[1]		SSD-45242780			
Commonwealth EPBC Act controlled action reference (if applicable)[2]		N/A			
BCT Reference		BCF678			
Biodiversity credit retirement obligations satisfied by payment to the Biodiversity Conservation Fund:					
Biodiversity credit type (Credit ID and name)	**Offset trading group**	**EPBC Act Controlled Action offset obligation (Y / N)**	**Number of credits**	**Cost per credit (Exc. GST)**	**Total payment per credit type (Exc. GST)**
10061 - *Aprasia parapulchella* (Pink-tailed Legless Lizard)	*Aprasia parapulchella* (Pink-tailed Legless Lizard)	N	37	$1,887.78	$69,847.86
10645 - *Polytelis swainsonii* (Superb Parrot)	*Polytelis swainsonii* (Superb Parrot)	N	33	$3,696.56	$121,986.48
Total (Exc. GST)					**$191,834.34**
GST					**$19,183.43**
Total (Inc. GST)					**$211,017.77**

Emily McCosker 06/03/2024

Director Strategy & Finance

[1] This refers to either; a development application number for a development consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**), a State significant infrastructure approval under the previous Part 5.1 (now Part 5, Division 5.2) of the EP&A Act, a decision of a determining authority to carry out or approve the carrying out of an activity under Part 5 of the EP&A Act, or a biobank statement number or biodiversity certification number.

[2] This refers to a controlled action under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* for which a biodiversity offset obligation has been met through payment into the BCF.

NSW Biodiversity Conservation Trust
Postal address: Locked Bag 5022, Parramatta NSW 2124 | ABN 37 151 321 702 | bct.nsw.gov.au

Statement confirming payment into the Biodiversity Conservation Fund for an offset obligation

Pursuant to section 6.33 of the *Biodiversity Conservation Act 2016*, the NSW Biodiversity Conservation Trust confirms that the following payments have been made into the Biodiversity Conservation Fund under section 6.30(1) of the Act to satisfy an obligation to retire biodiversity credits.

Payment made by	Wellington Battery Project Co Pty Ltd
Date received	1/11/2024
NSW statutory obligation reference[1]	SSD-45242780-Mod-1
Commonwealth EPBC Act controlled action reference (if applicable)[2]	N/A
BCT Reference	BCF794

Biodiversity credit retirement obligations satisfied by payment to the Biodiversity Conservation Fund:

Biodiversity credit type (Credit ID and name)	Offset trading group	EPBC Act Controlled Action offset obligation	Number of credits	Cost per credit (Exc. GST)	Total payment per credit type (Exc. GST)
10061 - *Aprasia parapulchella* (Pink-tailed Legless Lizard)	*Aprasia parapulchella* (Pink-tailed Legless Lizard)	N	12	$1,825.08	$21,900.96
10645 - *Polytelis swainsonii* (Superb Parrot)	*Polytelis swainsonii* (Superb Parrot)	N	13	$3,577.59	$46,508.67
10820 - *Tyto novaehollandiae* (Masked Owl)	*Tyto novaehollandiae* (Masked Owl)	N	33	$1,256.72	$41,471.76
20368 - *Keyacris scurra* (Key's Matchstick Grasshopper)	*Keyacris scurra* (Key's Matchstick Grasshopper)	N	7	$3,577.59	$25,043.13
20165 - *Euphrasia arguta* (Euphrasia arguta)	*Euphrasia arguta* (Euphrasia arguta)	N	10	$9,544.05	$95,440.50
10381 - *Grevillea wilkinsonii* (Tumut Grevillea)	*Grevillea wilkinsonii* (Tumut Grevillea)	N	13	$10,744.20	$139,674.60
10782 - *Swainsona recta* (Small Purple-pea)	*Swainsona recta* (Small Purple-pea)	N	9	$4,777.74	$42,999.66
10783 - *Swainsona sericea* (Silky Swainson-pea)	*Swainsona sericea* (Silky Swainson-pea)	N	9	$1,825.08	$16,425.72
20061 - *Acacia ausfeldii* (Ausfeld's Wattle)	*Acacia ausfeldii* (Ausfeld's Wattle)	N	9	$1,825.08	$16,425.72
Total (Exc. GST)					**$445,890.72**
GST					**$44,589.07**
Total (Inc. GST)					**$490,479.79**

Emily McCosker

Director Strategy & Finance 7/11/2024

[1] This refers to either; a development application number for a development consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**), a State significant infrastructure approval under the previous Part 5.1 (now Part 5, Division 5.2) of the EP&A Act, a decision of a determining authority to carry out or approve the carrying out of an activity under Part 5 of the EP&A Act, or a biobank statement number or biodiversity certification number.

[2] This refers to a controlled action under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* for which a biodiversity offset obligation has been met through payment into the BCF.

Statement confirming payment into the Biodiversity Conservation Fund for an offset obligation

Pursuant to section 6.33 of the *Biodiversity Conservation Act 2016*, the NSW Biodiversity Conservation Trust confirms that the following payments have been made into the Biodiversity Conservation Fund under section 6.30(1) of the Act to satisfy an obligation to retire biodiversity credits.

Payment made by	Wellington Battery Project Co Pty Ltd
Date received	9/10/2025
NSW statutory obligation reference[1]	SSD-45242780-Mod-2
Commonwealth EPBC Act controlled action reference (if applicable)[2]	No
BCT Reference	BCF979

Biodiversity credit retirement obligations satisfied by payment to the Biodiversity Conservation Fund:

Biodiversity credit type (Credit ID and name)	**Offset trading group**	**EPBC Act Controlled Action offset obligation (Y / N)**	**Number of credits**	**Cost per credit (Exc. GST)**	**Total payment per credit type (Exc. GST)**
10666 - Prasophyllum petilum (Tarengo Leek Orchid)	Prasophyllum petilum (Tarengo Leek Orchid)	No	13	$6,991.08	$90,884.04
Total (Exc. GST)					$90,884.04
GST					$9,088.40
Total (Inc. GST)					**$99,972.44**

Andrew Growcock 10/10/2025

Acting Director Strategy & Finance

[1] This refers to either; a development application number for a development consent under Part 4 of the *Environmental Planning and Assessment Act 1979* (**EP&A Act**), a State significant infrastructure approval under the previous Part 5.1 (now Part 5, Division 5.2) of the EP&A Act, a decision of a determining authority to carry out or approve the carrying out of an activity under Part 5 of the EP&A Act, or a biobank statement number or biodiversity certification number.

[2] This refers to a controlled action under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* for which a biodiversity offset obligation has been met through payment into the BCF.

NSW Biodiversity Conservation Trust

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Appendix D

Masked Owl (Tyto novaehollandiae) Management Plan (NGH 2024)



Prepared for Akaysha Energy Pty Ltd

Masked Owl (Tyto novaehollandiae) Management Plan

October 2024

Project Number: 240741

Images by Paul Balfe

Document verification

Project Title:	Masked Owl (Tyto novaehollandiae) Management Plan
Project Number:	240741
Project File Name:	240741 Masked Owl Tyto novaehollandiae Management Plan.F2

Revision	Date	Prepared by	Approved by
Final.v2	31/10/2024	Emily Hatfield	Eamon O'Meara
Final.v1	26/09/2024	Emily Hatfield	Claire Bonfield
Draft 1.0	17/09/2024	Emily Hatfield	Tim Garvey

NGH Pty Ltd is committed to environmentally sustainable practices, including fostering a digital culture and minimising printing. Where printing is unavoidable, NGH prints on 100% recycled paper.

We acknowledge the traditional owners of this land and pay our respect to Elders past, present and emerging. We recognise that the First Nations peoples of Australia have traditionally managed the resources of this land in a sustainable way, and that they are the original stewards of the Australian environment.

Cover Image: "Masked Owl - Flickr - PaulBalfe"

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Acronyms and abbreviations

BC Act	*Biodiversity Conservation Act 2016* (NSW)
BCS	Biodiversity Conservation and Science Group (NSW)
BDAR	biodiversity development assessment report
BESS	Battery Energy Storage System
BMP	Biodiversity Management Plan
Cth	Commonwealth
DCCEEW	Department of Climate Change, Energy, the Environment and Water (Cth) (formerly DAWE)
DCCEEW	Department of Climate Change, Energy, the Environment and Water (NSW) (formerly DPE)
E	endangered
EIS	environmental impact statement
ha	hectares
LGA	local government area
NSW	New South Wales
PCT	plant community type
SSD	state significant development
TEC	threatened ecological community
V	vulnerable

1. Introduction

Akaysha Energy Pty Ltd (the proponent) engaged NGH Pty Ltd to develop a Masked Owl (*Tyto novaehollandiae*) Management Plan (the Plan) as part of an update to the Orana Battery Energy Storage System (BESS) Modification 1 (the Development) Biodiversity Development Assessment Report (BDAR Final V3.0) (NGH Pty Ltd, 2024a) to satisfy the requirements of the New South Wales (NSW) Biodiversity Conservation and Science Group (BCS).

The Masked Owl is listed as a vulnerable species under the NSW *Biodiversity Conservation Act 2016* (BC Act). Following changes to the credit class of large forest owls (14 March 2024), the modification resulted in Masked Owl needing to be offset. This Plan has been prepared following recommendations by BCS as part of modification application SSD-45242780 and should be read in conjunction with the Orana BESS Biodiversity Management Plan (BMP) (WSP, 2024).

1.1. Project description

The proposed Development is located in the Dubbo Local Government Area (LGA) at Goolma Road, Montefiores in NSW and is classified as State Significant Development (SSD). The Development involves the construction, operation and decommissioning of a BESS that will supply electricity to the national electricity grid. The proposed Development includes the following components:

- BESS associated operations and maintenance building, site office, switch room and control room, water tanks, security lighting, CCTV and fencing
- Substation and switch yard
- Underground transmission line connections
- Site access and intersection upgrades
- Construction parking and laydowns areas.

Construction and infrastructure delivery requires earthworks including, cut and fill, grading and compacting for levelling of ground for buildings and structures; excavating cable trenches; as well as decommissioning of existing dams; and removal of existing fences. The Development Footprint covers 18.4ha and is composed predominantly of native vegetation. The Development Site contains the Development Footprint plus a 100m buffer to allow for indirect impacts. Key features of the Development Site relevant to the Masked Owl breeding or foraging habitat include woodland, grassland; hollow bearing trees, one dam, two ephemeral waterways, agricultural grazing land and rocky outcrops.

1.2. Management objectives

The objectives of this management plan are to set out the framework for the management, mitigation and monitoring for the Masked Owl in the Development Site, specifically:

- To minimise the Development's direct impacts on Masked Owls including injury or death through vegetation clearing, vehicle collision, entrapment or exposure to predators etc
- To minimise the temporary and permanent reduction or degradation of existing Masked Owl habitat for breeding or foraging.

This Masked Owl Management Plan applies to all phases of the Development; pre-clear, construction, operation and decommissioning.

2. Species profile

The table below (Table 2-1) describes the status, identification, distribution, diet and the habitat and breeding requirements of the Masked Owl (Figure 2-1).

Table 2-1 Masked Owl species profile

Feature	Details
NSW Conservation Status	Vulnerable (*Biodiversity Conservation Act 2016*)
Commonwealth status	Not listed
Identification	Medium sized owl 40-50cm long, Masked Owls are characterised by a distinct heart-shaped facial disc and very powerful fully-feathered legs (OEH, 2024). Face discs are coloured chestnut to white, edged with a darker ring. The plumage is highly patterned by speckling, and generally darker on the back and paler below. Sexes are similar in plumage, but the females are markedly larger and generally darker than the males (Australian Museum, 2024).
Distribution	Found in all Australian states no more than 300km from the coastline. Two northern subspecies *T. n. kimberlii* and *T. n. melvillensis* are listed federally as vulnerable and endangered respectively and the Tasmanian subspecies *T. n. castenops* is listed as endangered.
Habitat	The Masked Owl inhabits diverse range of forests, woodlands, timbered waterways including agricultural land from sea level to 1100m (OEH, 2024). They require tall trees, dead or living, with suitable hollows for nesting and roosting adjacent to areas suitable for foraging. The hollow requirements for Masked Owl include large hollows (>20 cm in diameter) in living or dead trees 3 metres above the ground for breeding (Department of Environment and Conservation, 2005). Masked Owls are territorial, with monogamous pairs remaining in or near their territory all year round. Home ranges are large, 1000 hectares or more, depending on prey availability (Cisterne et al., 2020)
Diet	Masked Owls feed on small mammals such as rodents, rabbits and bandicoots. Other prey animals include possums, reptiles, birds and insects which are taken either from the ground or from tree branches (Australian Museum, 2024).

Feature	Details
Breeding	Masked Owls breed any time of year, when conditions are favourable. The nest is a bare chamber located deep in a tree hollow lined with soil, sand or soft wood mulch. 2-3 eggs are incubated solely by the female for 84 days. (Australian Museum 2024)



Figure 2-1 Masked Owl (Tyto novaehollandiae) (credit JJ Harrison 2024)

2.1. Species presence in Development Site

Fauna surveys within the Development Site targeting Masked Owl were undertaken in August 2022, using call playback and spotlighting (NGH Pty Ltd, 2024a). Survey results confirmed the presence of Masked Owl with both visual and audio confirmation reported on the first of four nights survey (Figure 2-2).

2.2. Species habitat within Development Site

Floristic surveys undertaken by NGH ecologists determined that all the mapped vegetation within the Development Site comprises Plant Community Type (PCT) 266 - White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion. This PCT is listed as Critically Endangered under the BC Act. Vegetation integrity plots further delineated PCTs within the Development Footprint into vegetation zones based on condition:

- Vegetation Zone 1 Woodland of low to good condition (4.85ha)

- Vegetation Zone 2 Grassland of low condition (4.03ha).

This vegetation is considered suitable habitat for Masked Owl, in light of this a species polygon based on 800 m buffer of observed individuals, and inclusive of vegetation zones containing suitable HBTs was also developed. A total of 218 hollow bearing trees were recorded across the Development Site.

In 2022, all HBTs were marked within the Development Site and Development Footprint and no pellets or evidence for the Masked Owl were recorded (NGH Pty Ltd, 2024, p. 48). No nesting sites are known to occur within the Development Site.

In June 2024, pre-clear surveys (NGH Pty Ltd, 2024b) confirmed 51 HBTs within the Development Footprint. Seventeen (17) of these HBTs contain hollows potentially suitable for Masked Owl, specifically 20 large hollows (15-25cm entrance diameter) and 3 extra-large hollows (>25cm diameter) (Figure 2-3).

GOOLMA ROAD

BELA VISTA LANE

LEGEND

- Development site
- Development footprint
- Road
- Farm dam

Watercourses

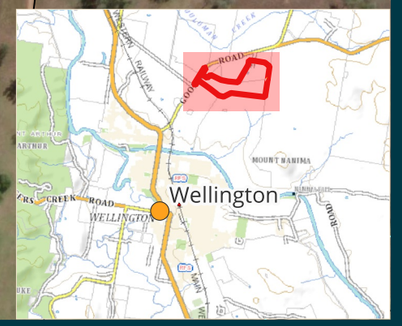
- 1st Order Stream
- 2nd Order Stream

Masked owl survey points

- Heard
- Sighted
- Call playback points - August 2022

Masked owl species polygon vegetation zones

- Derived Grassland
- Woodland



0 100 200 300 m

Datum: GDA94 / MGA zone 55

NGH

Orana BESS

Figure 2-2 Masked Owl sightings and call playback locations

Ref: 22-277 Orana BESS BDAR update mod 1 BIO 20240419 \ Figure 2-1 Masked Owl sightings and call playback locations Author: michael.c Date created: 02.09.2024 © NGH 2024 © ESRI 2022

GOOLMA ROAD

LEGEND
- Development site
- Development Footprint
- Road
- Farm dam

Watercourses
- 1st Order Stream
- 2nd Order Stream

Hollow Bearing Trees



0 100 200 300 m

Datum: GDA94 / MGA zone 55

NGH

Orana BESS

Figure 2-3 Hollow-bearing trees suitable for Masked Owls

Ref: 22-277 Orana BESS BDAR update mod 1 BIO 20240419 | Figure 2-2 Hollow-bearing trees suitable for Masked Owl Author: clair.d Date created: 30.10.2024 © NGH 2024 © ESRI 2022

3. Project impacts to Masked Owl

The construction and operational phases of the Development have the potential to impact Masked Owl and their habitat at the site through direct impacts, indirect impacts or prescribed impacts (i.e. those included in the Biodiversity Assessment Method).

The following potential impacts listed were identified in the Orana BESS BDAR (NGH Pty Ltd, 2024a).

Direct impacts may include:

- Habitat clearing for Development Footprint
- Displacement of resident fauna
- Injury or death

Indirect impacts may include:

- Inadvertent impacts on adjacent habitat (light emission, pollution of waterways from sediment run-off)
- Reduced viability of adjacent habitat due to edge effects or the ongoing existence of infrastructure (creating barrier to flight paths)
- Reduced viability of adjacent habitat due to increased noise and vibration (including earthworks and vehicle movement)
- Increased risk of starvation, exposure and loss of shade or shelter
- Loss or changes to breeding habitat including loss of HBTs
- Changed fire regimes (accidental fire ignition)
- Increased human presence.

Prescribed impacts may include:

- Impacts on habitat of threatened entities associated with human made structures or non-native vegetation.
- Impacts on water quality, water bodies and hydrological processes that sustain threatened entities.

Table 3-1 Project impacts to Masked Owl

Action/activity	Nature of impact	Duration and timing	Consequence / Extent of impact
Direct			
Clearing for development footprint	Loss of habitat (foraging, breeding)	Construction (permanent impact)	The total native vegetation impact area is 14.23 ha. (NGH 2024) • 7.21 ha of PCT 266 Woodland Low – Good condition (Woodland) • 7.01 ha of PCT 266 Poor condition (Derived Grassland) • 2.19 ha exotic vegetation
	Loss of breeding habitat (HBTs)	Construction (permanent impact)	The woodland habitat (vegetation zone 1) will impact 51 hollow bearing trees in the Development Footprint (NGH Pty Ltd, 2024a)(BDAR section 6.1.4)
	Displacement of resident fauna from vegetation clearing	Construction (permanent impact)	Reduction in foraging habitat and prey resources (e.g. native and non-native rodents, reptiles)
	Injury or death	Construction	May occur where individuals are actively occupying HBTs during clearing or via vehicle strike or entrapment in trenches
Indirect			
Earthworks, vegetation clearing, vehicle	Inadvertent impacts on adjacent habitat or vegetation	Construction and operation	Light emissions may affect visibility during nocturnal hunting, Noise emissions my affect prey detectability, breeding

Action/activity	Nature of impact	Duration and timing	Consequence / Extent of impact
movement, lighting			behaviour or intraspecies communication. Pollution of waterways from sediment run-off. Dust from vegetation clearing may reduce habitat quality or respiratory systems of fauna.
	Reduced viability of adjacent habitat due to edge effects	Operational phase	Light emissions may affect visibility during nocturnal hunting, Noise emissions my affect prey detectability, breeding behaviour or intraspecies communication.
	Reduced viability of adjacent habitat due to increased noise	Construction phase: short-term	Noise emissions my affect prey detectability, breeding behaviour or intraspecies communication.
	Habitat disturbance via light, noise and vibration	Construction and operation	Increased risk of starvation, exposure and loss of shade or shelter.
	Changed fire regimes	Operation	Moderate risk of increased fire frequency given use of vehicles and machinery which may cause sparks or leak fuel on dry vegetation.
Prescribed			
	Impacts on habitat of threatened entities associated with human made structures or non-native	Operation	Non-native vegetation flora is foraging habitat for Masked Owl. 2.91ha exists within the Development Footprint and is considered minimal impact for Masked Owl.

Action/activity	Nature of impact	Duration and timing	Consequence / Extent of impact
	vegetation		
	Impacts on water quality, water bodies and hydrological processes that sustain threatened entities.	Construction and decommissioning	Accidental spills of hydrocarbons from construction machinery could disturb soils and potentially lead to sediment or other pollutants being present in runoff, mobilising and entering local waterways or waterbodies, adversely impacting on water quality.

4. Management

4.1. Mitigation measures

Mitigation measures proposed follow the hierarchy of mitigation to avoid, minimise and replace. A number of measures have already been implemented.

The proposed Development Footprint layout and access route has been located and designed to avoid as many trees as possible and minimise rock removal and ground disturbance, and the BESS has been located as far north as possible to minimise impacts on structural woodland and keep the transmission line impact area as low as possible (NGH Pty Ltd, 2024a).

The Hollow Bearing Tree Clearance Protocol (Appendix B of BMP) principally provides for the mitigation of impacts to Masked Owls and their habitat throughout construction and operation of the Development and should be followed and implemented by all staff. The Protocol includes pre-clearance surveys, daily surveys, staged clearing, and a protocol for managing fauna during clearing and also how to avoid and minimise harm to wildlife.

In June 2024 (NGH Pty Ltd, 2024b), an elevated work platform was used during pre-clear surveys to allow an ecologist to carefully examine each hollow recorded during the surveys, and to block off any confirmed unoccupied hollows, that were deemed as suitable for breeding. Blocking off the entrance of hollows (as a mitigation to prevent animals breeding within them prior to the tree being felled) was undertaken by Fauna Spotters with heavy duty wire mesh. This mesh was stapled over each hollow that were of adequate circumference and depth deemed suitable as a nesting, breeding or roosting place. 131 of the 327 hollows were blocked, leaving 196 hollows to be inspected as part of pre-clear surveys.

Records of Masked Owl on site infers the species may be foraging in the pre-existing, highly disturbed habitat within the Development Site. Masked Owls are assumed to forage over at least several square kilometres and range several kilometres or more from the nest (Marchant and Higgins, 1990) and the Development Site comprises a minimal fraction of that.

Due to historic and ongoing grazing activity the likelihood of a seedbank of PCT 266 being viable for natural or assisted regeneration/restoration of potential Masked Owl habitat is low. Given the limited extent of the remnant vegetation and its low to good condition and within the Development site, this Plan defers to Section 5.8 of the BMP, ‘Rehabilitation of temporary disturbance areas’ as a suitable mitigation that would likely result in habitat that exceeds the current conditions for Masked Owl.

The project impacts identified in Section 3 Table 3-1 can be minimised and mitigated through the measures described in Table 4-1.

Table 4-1 Mitigation measures and corrective actions

Action/ activity	Measure	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance threshold	Corrective Action	Responsibility
Inductions	The site inductions and Toolbox talks will include requirements to follow Masked Owl Management Plan and HBT clearance protocol.	Training record of all personnel and contractors who have completed the site-specific induction. Toolbox meetings incorporating environmental responsibilities.	Monthly audits	Prior to and during construction Short to long term (ongoing)	Staff not inducted prior to site access	Induct employees and contractors	Proponent
Vegetation clearing design and approach	Avoid direct removal of HBT. Habitat trees to be retained have been marked and mapped.	Subject trees delineated using high visibility or standard exclusion fencing. Habitat trees retained.	Pre-clearance report	Pre-clear and prior to construction Short term	Exclusion fencing removed or ineffective. Clearing occurring inside exclusion zones.	HBT Clearance Protocol applied.	Proponent All staff Ecologist

Action/ activity	Measure	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance threshold	Corrective Action	Responsibility
Vegetation clearing	Pre-clearance survey by ecologist or fauna spotter of HBTs to determine if Masked Owl are breeding on site.	Tree clearing operations conducted in accordance with HBT Clearance Protocol Hollows that have be salvaged are identified and marked.	Pre-clearance and Tree clearing report	Pre-clear and prior to construction Short term	HBTs not approved for removal, felled or cleared. No pre-clear survey undertaken	Induct employees and contractors. HBT Clearance Protocol applied.	Proponent Ecologist
Nest box installation	Installation of nest boxes and/or recovered hollows suitable for masked owl	Three extra-large nest boxes installed to replace extra-large hollows lost	Nest box monitoring program	Construction and operation Short to long term	Hollows not salvaged, nest boxes not installed. Ecologist not on site	Acquire, install and monitor nest boxes	Proponent Ecologist
Injury or death	Manage pits and trenches to prevent entrapment. Injured fauna will be inspected by fauna spotter catcher to	No mortality or injury as a result of project	Monthly audits Trenching activities will be monitored daily.	Pre-clear Construction Operation Long term	Fauna handling not followed resulting in injury or death of masked owl	Record and report details of incident Investigate cause and undertake	Proponent Ecologist

Action/ activity	Measure	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance threshold	Corrective Action	Responsibility
	assess extent of injury. Seriously injured fauna to be transported to veterinary clinic		Vehicle speeds will be monitored and enforced.			education toolbox talk with all staff	
Unexpected finds (nest, nesting, eggs, chicks)	Follow steps 1 to 4 in Section 4.2 Unexpected Finds	No mortality or injury as a result of project.	Pre-clearance survey	Long-term – for duration of construction Construction	Injury or death of masked owl	Induct employees and contractors. The cause of injury or death will be investigated, and any required changes will be implemented Update unexpected finds procedure	All staff

Action/ activity	Measure	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance threshold	Corrective Action	Responsibility
Habitat disturbance via noise and vibration from vehicles or mobile plant	Use noise barriers. All vehicles must comply with maintenance schedules and standard operational requirements to minimise noise impacts.	Major machinery movement will be limited to daytime hours (as far as practical) to avoid disturbance to nocturnal species.	Pre-start meetings Monthly audits	Long term Construction and operation	Construction or operational activities resulting in injury or death of masked owl	Where noise levels go beyond acceptable limits documented in Project approval, a record must be taken of the incident and an investigation undertaken.	Proponent
Habitat disturbance via light from vehicles or mobile plant	Site lighting will be kept to the minimum required for safety. Placement and orientation of lighting will be away from sensitive fauna habitats.	Direction of lighting beams will be downwards or shields/baffles used to minimise light spill into habitat area. All vehicles and	Pre-start meetings Monthly audits	Long term Construction and operation	Construction or operational activities resulting in injury or death of masked ow	Where light levels go beyond acceptable limits documented in Project approval, a	Proponent

Action/ activity	Measure	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance threshold	Corrective Action	Responsibility
		machinery will be switched off when not in use.				record must be taken of the incident and an investigation will occur.	
Vehicle and mobile plant movement	Speed limits will be imposed on all vehicles travelling on internal access tracks to minimise the risk of fauna strike	All vehicles associated with construction activities will travel at slow speeds to minimise the chance of any fauna strikes occurring.	Monthly audits	Long term Construction and operation	Construction or operational activities resulting in injury or death of masked ow	Additional or clearer speed limit signage will be placed at the entrance to the site and other key access tracks.	Proponent
Impacts on water quality, water bodies and hydrological	Follow Erosion and sediment control measures for reducing impacts on water quality, water bodies and hydrological	Erosion and sediment control plans implemented	Spills or leaks are to be responded to immediately.	Long term Construction and operation	Construction or operational activities resulting in injury or death	Where water quality levels go beyond acceptable limits documented	Proponent

Action/ activity	Measure	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance threshold	Corrective Action	Responsibility
processes	processes such as silt curtains and the use of temporary bunds.				of masked ow	in Project approval, a record must be taken of the incident and an investigation will occur.	
Fire management	Smoking will be prohibited on site. Vehicles may not idle or be parked in areas of long grass.	Any known active nest-sites identified during construction or monitoring should be pro-actively protected from wildfire and excluded from any prescribed burn areas	If controlled burns or other fire management is required, the ecological requirements of relevant to Masked Owl will be considered.	Long term Construction and operation	Accidental fire or bushfire	Apply Planning for Bushfire Protection Guidelines as well as Fire Safety Study required under Condition B21	Proponent All staff
Monitoring	Nest box monitoring	Annual monitoring of retained HBTs with	Ecologist submits	Long term	Nest boxes not being	Engage ecologist to	Proponent

Action/ activity	Measure	Performance indicator	Timeframe		Trigger Action Response Plan		
			Performance measured	Completion	Performance threshold	Corrective Action	Responsibility
		extra-large hollows and extra-large nest boxes to determine if Masked Owls are utilising the Development site	results of nest box annual monitoring to proponent	Operation	monitored	monitor nest boxes	Ecologist
Rehabilitation of Masked Owl habitat	Follow BMP section 5.8 Rehabilitation of temporary disturbance areas			Long term decommissioning	Areas remain at baseline or improve towards targets	Maintenance of rehabilitated areas will continue until the rehabilitation success criteria has been met.	Proponent

4.2. Unexpected finds

Although no Masked Owl nests have been identified on site to date, Masked Owls have been recorded in the area and will breed any time of year if conditions are favourable. If inspections reveal Masked Owls are attending hollows within the Development Site, the following steps should be undertaken:

1. Temporarily halt any clearing or disturbance activities in the immediate vicinity of the nest, mark tree using spray paint or flagging tape and record GPS location and create a 20 m radius buffer zone to minimize disturbances.
2. Inspect the hollow (using EWP or experienced tree climber) for the presence of nesting material, eggs or chicks. Where chicks are present, is recommended to postpone clearing until fledging.
3. If eggs are present, ecologist to remove eggs and place in suitable container or calico bag and be taken to a wildlife carer for incubation. Clearing activities can continue.
4. If nesting material or eggs are observed (and eggs have been taken to a wildlife carer), ecologist to record GPS location and monitor the area nightly (using camera traps, spotlighting or call playback procedure) for 3 nights (e.g. from dusk for 30 minutes) to determine Masked Owl presence. If Masked Owls do not return, clearing activities may continue.

4.3. Roles and responsibilities

Persons responsible for implementing and/or adhering to the mitigation measures identified in Table 4-1are described in Table 4-2.

Table 4-2 Roles and responsibilities

Role	Responsibility
Proponent	Overall responsibility for proposed Development compliance. For training staff and conducting site briefings to communicate potential Masked Owl habitat (HBTs) to be protected and the mitigation measures to be implemented. For monitoring compliance with the Masked Owl Management Plan and may choose to engage and delegate to an Ecologist to undertake the monitoring and reporting (Section 4.4) requirements.
Contractors/ All staff	Responsible for ensuring that they understand and acknowledge the risks associated with their work activities, and the management and mitigation measures that are to be followed to avoid, minimise, and mitigate impacts to Masked Owl and their habitat as a part of their duty of care.
Fauna spotter/ecologist	A suitably trained/qualified fauna spotter-catcher/ecologist is responsible for implementing the HBT Clearance Protocol, pre-clearance surveys, inspection of hollows, presence during all clearing, handling and relocating of fauna and provision of pre-clear and clearing reports.

The management of clearing operations and fauna handling and care will be undertaken by qualified ecologists with practical experience in undertaking spotter/catcher activities. Spotter/catchers will operate under relevant permits and licences and:

- hold current animal research approval and appropriate handling permits
- have knowledge of and experience in:
    - identification of vertebrate fauna, including threatened species
    - the humane capture, trapping and handling of vertebrate fauna
    - identification of fauna habitat and habitat resources
    - humane techniques for emergency euthanasia of vertebrate fauna
    - State and Commonwealth legislation relevant to the conduct and responsibilities of wildlife spotter/catchers
- have appropriate equipment for the rescue and care of wildlife (WSP, 2024).

4.4. Monitoring and reporting

General compliance monitoring undertaken by proponent is considered sufficient to observe and report on mitigation and management measures required to be implemented by construction contractors and machine operators.

Specifically for Masked Owl habitat and tree (HBT) clearing, ecologists will prepare both pre-clear report and Tree Clearing Report which are sufficient to cover Masked Owl monitoring and reporting requirements during construction. During operation, results of annual monitoring of extra-large tree hollows retained with the Development site and extra-large nest boxes installed will be provided to proponent (Table 4-3). Monitoring or reporting on Masked Owl presence during decommissioning will not be required as the Rehabilitation procedure within the BMP aims to exceed the current habitat conditions utilised by Masked Owl within the Development site.

At the completion of clearing, the Project Ecologist will prepare a Tree Clearing Report, which will be submitted to the Construction Contractor's Site Manager following the completion of clearing operations. The report will confirm the final area cleared, the identity of all vegetation removed, and a count of hollow-bearing trees felled (if any). The Tree Clearing Report will also document any fauna (including Masked Owl) or nests impacted by clearing works and provide fauna capture and relocation data.

Data to be recorded includes:

- date and time of animal sightings and details of the observer
- species (including Masked Owl)
- number of individuals recorded
- age (adult, juvenile, nestling, eggs)
- condition of the animal (living, dead, injured)
- management action undertaken (e.g., captured, handled, taken to vet)
- results of any management actions (e.g., released, euthanised, placed with carer)
- inventory of hollow-bearing trees and fallen timber salvaged and stockpiled/relocated (WSP, 2024).

Table 4-3 Monitoring and reporting requirements

Monitoring	Details	Timing	Responsibility
Pre-clear	Hollows inspected and blocked if vacant prior to clearing	Pre clear (Report submitted to Akaysha June 2024 (NGH Pty Ltd, 2024b)	Ecologist / Fauna spotter
Habitat/tree clearing	HBTs removed/salvaged included in Tree Clearing Report	Following the completion of clearing operations	Ecologist to submit to the Construction Contractor's Site Manager and Akaysha Energy.
Injuries or deaths of Masked Owl	Must be immediately reported by any staff to a supervisor. Investigate and complete a brief incident report.	As necessary throughout construction	Ecologist / Fauna spotter Proponent
Nest box monitoring		Annually throughout operation	Ecologist to submit to Akaysha Energy.

5. References

Australian Museum, 2024. Masked Owl [WWW Document]. URL https://australian.museum/learn/animals/birds/masked-owl/

Cisterne, A., Crates, R., Bell, P., Heinsohn, R., Stojanovic, D., 2020. Occupancy patterns of an apex avian predator across a forest landscape. Austral Ecology 45, 825–833.

Department of Environment and Conservation, 2005. Recovery plan for the large forest owls: Powerful Owl Ninox strenua, Sooty Owl Tyto tenebricosa, Masked Owl Tyto novaehollandiae. Department of Environment and Conservation (New South Wales), South Sydney.

Marchant, S., Higgins, P., 1990. Handbook of Australian, New Zealand and Antarctic Birds. Birdlife Australia.

NGH Pty Ltd, 2024a. Biodiversity Development Assessment Report Orana BESS (No. Final V3.0). New South Wales.

NGH Pty Ltd, 2024b. Pre Clearance Report (prepared for Akaysha Energy No. V2), 240128 Orana BESS Habitat Tree and Pre Clearance Report.

OEH, 2024. Masked Owl - profile [WWW Document]. URL https://threatenedspecies.bionet.nsw.gov.au/profile?id=10820# (accessed 9.2.24).

WSP, 2024. Biodiversity Management Plan Orana BESS (prepared for Akaysha Energy No. Rev B).

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